11th Annual Meeting of the Society of Urologic Oncology

Extraordinary Opportunities for Discovery

December 8 – 10, 2010

December 8 - 9 at the Marriott Bethesda North Hotel & Conference Center

December 10 at the Natcher Conference Center, National Institutes of Health

Bethesda, Maryland

Program Book & Abstracts
1

BOARD OF DIRECTORS

OFFICERS
President
Eric A. Klein, MD
Past President
Ralph W. deVere White, MD
President-Elect
Edward M. Messing, MD
Secretary
J. Brantley Thrasher, MD
Treasurer
Leonard G. Gomella, MD

MEMBERS AT LARGE
Adam S. Kibel, MD
Cheryl T. Lee, MD
Dan Theodorescu, MD, PhD

STANDING COMMITTEE CHAIRS
AJCC Representative
Sam S. Chang, MD
AUA Representative
W. Bedford Waters, MD
Awards Committee Chair
Ralph W. deVere White, MD
Bylaws Committee Chair
Surena F. Matin, MD
Clinical Trials Committee Chair
Colin P.N. Dinney, MD
Fellowship Committee Chair
Jeffrey M. Holzbeierlein, MD
Large Urology Group Practice Representative
Neal D. Shore, MD
Membership Chair
Seth P. Lerner, MD
NCI Liaison
W. Marston Linehan, MD
Nominating Committee Chair
Ralph W. deVere White, MD

EXECUTIVE OFFICE
Society of Urologic Oncology
Two Woodfield Lake
1100 E Woodfield Rd., Ste. 520
 Schaumburg, IL 60173
P (847) 264-5901
F (847) 517-7229
www.suonet.org
info@suonet.org

Executive Director
Wendy J. Weiser
Associate Director
Sue O’Sullivan

COMMITTEES
Steering Committee
Eric Klein, MD
Laurence Klotz, MD
W. Marston Linehan, MD

Scientific Program Co-Chairs
Adam S.Kibel, MD
Seth P. Lerner, MD

Spring Program Co-Chairs
Eric A. Klein, MD
Brent K. Hollenbeck, MD

Bladder Cancer
Bernard H. Bochner, MD (Chair)
Cheryl T. Lee, MD
Matthew Milowsky, MD
Michael A. O’Donnell, MD
Ashish M. Kamat, MD
Jason Efstathiou, MD
Edward M. Messing, MD

Kidney Cancer
Brian Rini, MD (Chair)
Paul Russo, MD
Ramaprasad Srinivasan, MD, PhD
Robert Uzzo, MD
Allan Pantuck, MD
Toni Choueiri, MD, MS
Johannes W.G. Vieweg, MD
W. Marston Linehan, MD

Testis Cancer
Joel Sheinfeld, MD (Chair)
Michael A.S. Jewett, MD

SUO-CTC
Colin Dinney, MD
Martin Gleave, MD

YUO (Young Urologic Oncologists)
Yair Lotan, MD

Abstract Review Committee
Gennady Bratslavsky, MD
Cheryl T. Lee, MD

POSTER WALK
Jeff Holzbeierlein, MD
Cheryl T. Lee, MD
Seth Lerner, MD
W. Marston Linehan, MD
James Montie, MD
Mark Soloway, MD
Walter Stadler, MD

2010 FACULTY LISTING
Dean Bajorin, MD
Bernard H. Bochner, MD
Gennady Bratslavsky, MD
Stephen Campbell, MD, PhD
Toni Choueiri, MD
Siamak Daneshmand, MD
Robert Dreicer, MD
Jason Efstathiou, MD, DPhil
Scott Eggener, MD
Andrew Evans, MD, PhD
Chris Evans, MD
Neil Fleshner, MD
Daniel George, MD
H. Bart grossman, MD
Harry Herr, MD
Michael A.S. Jewett, MD
Ashish Kamat, MD
Philip Kantoff, MD
Lou Kavoussi, MD
Adam Kibel, MD
Brian Lane, MD
Dan Lin, MD
Yair Lotan, MD
David McConkey, PhD
James McKiernan, MD
Matt Milowsky, MD
Joel Nelson, MD
Alan Pantuck, MD
Brian Rini, MD
Jonathan Rosenberg, MD
Mark Rubin, MD
Paul Russo, MD
Martin Senda, MD
Howard Sandler, MD
Peter Scardino, MD
Joel Sheinfeld, MD
Eduardo Solsona, MD
Ramaprasad Srinivasan, MD, PhD
Gary Steinberg, MD
Andrew Stephenson, MD
Cora N. Sternberg, MD
Robert Uzzo, MD
Richard K. Valicenti, MD
David P. Wood, Jr., MD

Society of Urologic Oncology, Inc.
Thank You to Our 2010 Industry Sponsors, Grant Supporters & Exhibitors

**Industry Sponsors**
Amgen
Dendreon Corporation
GE Healthcare

**Grant Supporters**
Centecor Ortho Biotech

**Educational Grant Providers**
Endo Pharmaceuticals
GE Healthcare
IBA/WILEX
Mitomics, Inc.
Prometheus Labs

**Exhibitors**
Dendreon Corporation
Endo Pharmaceuticals
Ferring Pharmaceuticals
Galil Medical
GE Healthcare
IBA/WILEX
Mitomics, Inc.
Prometheus Labs
Watson Pharma, Inc.
Welcome to the 11th Annual Scientific Meeting in urologic oncology, December 8 – 10, 2010 at the Bethesda North Marriott Hotel & Conference Center and the Natcher Conference Center on the campus of the National Institutes of Health. The Society of Urologic Oncology and the National Cancer Institute’s Urologic Oncology Program jointly sponsor this interactive meeting where all attendees participate in the discussions. State-of-the-art topics on prostate, kidney and bladder cancer, as well as, strategies in urologic oncology will be discussed.

Locations
Wednesday and Thursday, December 8 – 9, 2010 – All functions will be held at Bethesda North Marriott Hotel & Conference Center
Friday, December 10, 2010 – Industry sponsored breakfasts will be held at Bethesda North Marriott and scientific sessions will be held at Natcher Conference Center.

Registration/Information Desk Hours
Wednesday, December 8th: 9:00 a.m. – 6:00 p.m. (Marriott)
Thursday, December 9th: 8:00 a.m. – 5:30 p.m. (Marriott)
Friday, December 10th: 7:00 a.m. – 6:00 p.m. (Marriott)

Exhibit Hall Hours
Thursday, December 9th: 6:30 a.m. – 2:00 p.m.
SUO Welcome Reception: 6:30 p.m. – 7:30 p.m.

2010 Young Urologic Oncologists (Y.U.O.) Program
Moderator: Yair Lotan, MD; University of Texas Southwestern
Friday, December 10, 2010
8:00 a.m. – 8:30 a.m.
Location: Auditorium

Young Urologic Oncologist Dinner
Wednesday, December 8, 2010
6:00 p.m. – 10:00 p.m.
Location: Grand Ballroom, Salon H

SUO-CTC Board Meeting
Wednesday, December 8, 2010
3:00 p.m. – 5:30 p.m.
Location: Bethesda North Marriott

SUO Board of Directors Meeting
Wednesday, December 8, 2010
6:00 p.m. – 9:00 p.m.
Location: Bethesda North Marriott

EDUCATIONAL NEEDS & OBJECTIVES

Needs
There is a need to increase communication among urologic oncology researchers and forge a strong relationship between the national Cancer Institute and the Society of Urologic Oncology, as well as the Society’s members and others interested in Bladder, Prostate, Kidney and Testis Cancers. This relationship will provide a community of urologic oncologists with the most up-to-date research that will provide optimal patient care.

Bladder cancer is the second most common genitourinary cancer in males and the fourth most common in females. There will be an estimated 71,000 new cases and 15,000 deaths from bladder cancer in 2010.1 Approximately 70% of the time, patients present with nonmuscle invasive disease. Of those, 70% are Ta lesions, 20% T1, and 10% carcinoma in situ (CIS).2 Muscle invasive cancer accounts for the remainder of patients and 80% of these patients present de novo with invasive cancer as their first manifestation of the disease. Level I evidence supports the integration of systemic chemotherapy with radical cystectomy and most studies support the use of neoadjuvant cisplatin based multi-agent regimens. Despite these data less than 20% patients receive peri-operative chemotherapy.

Radical cystectomy is considered the standard of care for treatment of muscle invasive urothelial cancer in patients who are medically fit and accepting of surgery. There are several non-cystectomy surgical options for patients motivated to pursue bladder sparing or are not medically fit for cystectomy. These include partial cystectomy, radical transurethral resection and radiation therapy with or without integration of cystectomy chemotherapy. Understanding the inclusion criteria and outcomes for these various non-cystectomy options is critical for optimizing cancer control and long-term preservation of quality of life.

Randomized data has demonstrated that cytoreductive nephrectomy followed by immunotherapy provides a survival advantage over immunotherapy alone. With the introduction of targeted therapy such as mTOR inhibitors and Tyrosine Kinase Inhibitors, the treatment algorithm is under evolution. Urologists and medical oncologists manage these patients together and as such, an understanding of the role of cytoreductive nephrectomy in metastatic disease is needed to best treat patients.

Renal preservation using partial nephrectomy has gained acceptance over the past decade and now is the treatment of choice for small peripheral lesions (<4cm) and its role is expanding for lesions between 4 and 7 cm. The question has been raised as to the management of large renal masses (>7cm). Elective partial nephrectomy will preserve renal function but at the potential cost of increased risk of tumor recurrence. An understanding of the costs and benefits of elective partial nephrectomy for larger renal masses is critical to the management of these patients. A second trend in renal urologic oncology is the increased utilization of robotic and laparoscopic partial nephrectomy. This clearly provides tumor control with decreased pain. A cost is the difficulty utilizing renal cooling when using a minimally invasive approach. Since renal cooling preserves renal function, there are concerns that renal function maybe altered. Clinicians need to understand the biology and clinical implications of warm ischemia, to allow proper selection of patients and techniques for treatment of renal masses.

Prostate cancer is the most common non-cutaneous cancer in men in the US, and the second leading cause of male cancer mortality. Intense research has focused on the low risk patient (who is likely being over treated) and the...
Following participation in this program, attendees should be able to:

- Describe optimal treatment strategies for prostate cancer patients
- Illustrate an algorithm for managing small residual masses after chemotherapy
- Describe the mechanisms of injury caused by renal ischemia
- Identify new biomarkers assessing risk in patients with locally advanced prostate carcinoma
- Describe optimal treatment strategies for prostate cancer patients with intermediate risk disease
- Illustrate an algorithm for managing small residual masses after chemotherapy for metastatic germ cell testicular tumors

Evaluation of Quality of Activity

The educational quality of the meeting will be assessed with evaluation questionnaires to be filled out by the participants.

Accreditation Statement

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the University of Oklahoma College of Medicine and the Society of Urologic Oncology. The University of Oklahoma College of Medicine is accredited by the ACCME to provide continuing medical education for physicians.

The University of Oklahoma College of Medicine designates this live activity for a maximum of 10.50 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Conflict Resolution Statement

The University of Oklahoma College of Medicine, Office of Continuing Medical Education has reviewed this activity’s speaker and planner disclosures and resolved all identified conflicts of interest, if applicable.

General Disclaimer of the Society of Urologic Oncology, Inc.

The statements and opinions contained in this program are solely those of the individual authors and contributors and not of the Society of Urologic Oncology, Inc. The appearance of the advertisements is not a warranty, endorsement or approval of the products or services advertised or of their effectiveness, quality or safety. The content of this publication may contain discussion of off-label uses of some of the agents mentioned. Please consult the prescribing information for full disclosure of approved uses. The Society of Urologic Oncology, Inc., disclaims responsibility for any injury to persons or property resulting from any ideas or products referred to in the abstracts or advertisements.

Special Assistance

We encourage participation by all individuals. If you have a disability, advance notification of any special needs will help us better serve you. Call (847) 264-5901 if you require special assistance to fully participate in the meeting.

The management of patients with adverse pathology is also difficult. While randomized trials have demonstrated improved outcomes with adjuvant external beam radiation therapy, this modality has not been widely accepted. This is in large part because the trials were run prior to the introduction of PSA testing. Many believe that close monitoring with early salvage therapy is as good as primary adjuvant radiation therapy. An understanding of the advantages and disadvantages of each approach is important to properly advise patients following treatment. In addition, novel markers are on the horizon, which may allow improved identification of patients truly in need of additional therapy. Utilization of these markers in the future will allow better risk stratification of this patient population.

Lastly, until recently, effective systemic agents following androgen deprivation for prostate cancer was limited to docetaxel. However, in the past year, two new agents received FDA approval and additional agents with great promise are being evaluated. Clearly more effective treatment is an improvement in patient care; however the sequencing of agents has not been defined. An overview of the novel agents and when they should optimally be used will help clinicians manage patients with advanced prostate cancer.

Germ cell tumors of the testicle are the most common solid tumor malignancies in young healthy men. non-semiinoma presents with metastatic disease in 70 % of patients and the cure rate with cisplatin based chemotherapy is dependent on the extent and sites of disease and serum tumor marker elevation. Management of residual masses after chemotherapy is controversial and is dependent on location – retroperitoneal and extraperitoneal – and size. When to operate, the extent of surgery, and when to observe can be one of the most challenging decisions in urologic oncology.
11th Annual Meeting of the Society of Urologic Oncology
Extraordinary Opportunities for Discovery
December 8 – 10, 2010
Bethesda North Marriott Hotel & Conference Center
Natcher Conference Center, National Institutes of Health
Bethesda, Maryland

Locations are as follows, unless otherwise noted:
*WEDNESDAY & THURSDAY: General session located at the Bethesda North Marriott, Salon E of Grand Ballroom
*FRIDAY: General sessions located at the Natcher Center in the Auditorium

WEDNESDAY, DECEMBER 8, 2010
(Wednesday functions located at the Bethesda North Marriott)

2:00 p.m. – 6:00 p.m.  Registration/Information Desk Open
Location: Lower Registration

3:00 p.m. – 5:30 p.m.  SUO-CTC Board of Directors Meeting
Location: Oakley

6:00 p.m. – 9:00 p.m.  SUO Board of Directors Meeting
Location: Glen Echo

6:00 p.m. – 9:30 p.m.  Young Urologic Oncologists Dinner
Location: Grand Ballroom, Salon H
Chair: Yair Lotan, MD

7:00 p.m. – 7:30 p.m.  Wearing Many Hats: Strategies for Success in Academic Urology
Keynote Speaker: Brent K. Hollenbeck, MD

7:30 p.m. #1 PRE-OPERATIVE PREDICTION OF MALIGNANT AND HIGH GRADE PATHOLOGY BASED ON ANATOMICAL FEATURES OF ENHANCING RENAL MASSES
Fox Chase Cancer Center, Philadelphia, PA
(Presented By: Alexander Kutikov)

7:40 p.m. #2 PREDICTING THE PROBABILITY OF 90-DAY SURVIVAL IN ELDERLY BLADDER CANCER PATIENTS TREATED WITH RADICAL CYSTECTOMY
Todd M. Morgan, Kirk A. Keegan, Nedim Ruhotina, Sam S. Chang, Daniel A. Barocas, David F. Penson, Peter E. Clark, Joseph A. Smith, Jr. and Michael S. Cookson
Vanderbilt University, Nashville, TN
(Presented By: Todd M. Morgan)

7:50 p.m. #3 ECONOMIC BURDEN OF REOPERATIVE RENAL SURGERY: DO THE MEANS JUSTIFY THE ENDS?
Nnena Agochukwu¹, W. Marston Linehan² and Gennady Bratslavsky²
¹NCI; ²National Cancer Institute, Urologic Oncology Branch
(Presented By: Nnena Agochukwu)
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00 p.m. – 9:00 p.m.</td>
<td>Industry Sponsored Symposium&lt;br&gt;Welcome Reception – Drinks and Canapés to be Served On Arrival&lt;br&gt;“Bladder Cancer Management: A Novel Diagnostic Intervention”&lt;br&gt;Chair: Mark S. Soloway, MD; University of Miami School of Med.&lt;br&gt;Faculty: Tim O’Brien, MD; Guy’s and St Thomas’ Hospital, London&lt;br&gt;H. Barton Grossman, MD; MD Anderson Cancer Center, University of Texas</td>
<td>Grand Ballroom, Salon E</td>
</tr>
<tr>
<td>7:00 a.m. – 4:00 p.m.</td>
<td>Exhibit Hall Open&lt;br&gt;Registration/Information Desk Open</td>
<td>Grand Ballroom Foyer, Lower Registration</td>
</tr>
<tr>
<td>6:45 a.m. – 7:45 a.m.</td>
<td>Industry Sponsored Breakfast Symposium&lt;br&gt;“Provenge (sipuleucel-T) in Advanced Prostate Cancer”&lt;br&gt;Speaker? Affiliation?</td>
<td>Grand Ballroom, Salons A&amp;B</td>
</tr>
<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td>Continental Breakfast with Exhibitors</td>
<td>Grand Ballroom Foyer</td>
</tr>
<tr>
<td>8:00 a.m. – 8:05 a.m.</td>
<td>Welcome and Introduction&lt;br&gt;Eric A. Klein, MD&lt;br&gt;Cleveland Clinic&lt;br&gt;President, SUO&lt;br&gt;W. Marston Linehan, MD&lt;br&gt;National Cancer Institute&lt;br&gt;NCI Liaison&lt;br&gt;Adam S. Kibel, MD&lt;br&gt;Washington University Medical School&lt;br&gt;Program Co-Chair&lt;br&gt;Seth P. Lerner, MD&lt;br&gt;Baylor College of Medicine&lt;br&gt;Program Co-Chair</td>
<td></td>
</tr>
</tbody>
</table>
8:05 a.m. – 9:15 a.m.  **Bladder Cancer Session I**  
Session Chair: Bernard H. Bochner, MD

8:05 a.m. – 8:55 a.m.  **Practical Use of Perioperative Chemotherapy for Invasive Bladder Cancer**  
Moderator: Ashish Kamat, MD  
Panel:  Dean Bajorin, MD  
H. Bart Grossman, MD  
Gary Steinberg, MD  
Andrea Apolo, MD

8:55 a.m. – 9:15 a.m.  **State-of-the-Art: Novel Approaches to Chemotherapy Sensitivity**  
David McConkey, PhD

9:15 a.m. – 10:25 a.m.  **Prostate Cancer Session I**  
Session Chair: Chris Evans, MD

Management of the Intermediate Risk Patient  
Moderator: Martin Sanda, MD

9:20 a.m. – 9:25 a.m.  **Who is the Intermediate Risk Patient?**  
Martin Sanda, MD

9:25 a.m. – 9:40 a.m.  **Radiation for the Intermediate Risk Patient and New Radiation Based Modalities**  
Richard K. Valicenti, MD

9:40 a.m. – 9:55 a.m.  **Surgical Approaches and Outcomes for the Intermediate Risk Patient**  
David P. Wood, Jr., MD

9:55 a.m. – 10:05 a.m.  **Abstract Presentation**  
*RTOG 96-01: A PHASE III TRIAL OF ANTI-ANDROGEN THERAPY (BICALUTAMIDE) WITH SALVAGE RADIATION THERAPY (RT) IN PT2-3, PNO PROSTATE CANCER (PC) PATIENTS WITH ELEVATED PSA LEVELS AFTER SURGERY*  
Niall Heney¹, Daniel Hunt², William Shipley³, Himu Lukka³, Pierre Major³, David Grignon⁴, Maltibehn Patel⁵, Jean-Paul Bahary⁶, Colleen Lawton⁶ and Howard Sandler⁷  
¹Massachusetts General Hospital, Boston, MA; ²RTOG Statistical Center, Philadelphia, PA; ³McMaster University Juravinski Cancer Center, Hamilton, ON; ⁴Indiana University Medical School, Indianapolis, IN; ⁵Centre Hospitalier de l’Universite’ de Montreal (CHUM), Montreal, QC; ⁶Medical College of Wisconsin, Milwaukee, WI; ⁷Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Los Angeles, CA  
(Presented By: Niall Heney)

10:05 a.m. – 10:25 a.m.  **Panel Discussion/Q&A**
10:25 a.m. – 10:55 a.m.  
Young Urologic Oncologists (Y.U.O.) Program

Location: Auditorium

Abstracts selected by the Y.U.O.

10:25 a.m. #4  
DEVELOPMENT AND CHARACTERIZATION OF TUMOR MODELS FROM PATIENTS WITH RENAL CELL CARCINOMA
Jose Karam¹, Xiu-Ying Zhang¹, Pheroze Tamboli¹, Vitaly Margulis², Hua Wang¹, E. Jason Abel³, Stephen Culp¹ and Christopher Wood¹
¹UT MD Anderson Cancer Center; UT MD Anderson Cancer Center, Houston, TX; ²UT Southwestern Medical Center, Dallas, TX; ³University of Wisconsin, Madison, WI
(Presented By: Jose Karam)

10:35 a.m. #5  
RADICAL CYSTECTOMY AND URINARY DIVERSION IS ASSOCIATED WITH A GREATER RISK OF FRACTURES IN PATIENTS WITH BLADDER CANCER
Amit Gupta¹, Nicole Ishill¹, Shahrokh Shariat¹, Behfar Ehdai¹, Harry Herr¹, Farhang Rabbani² and Elena Elkin¹
¹Memorial Sloan-Kettering Cancer Center, New York, NY; ²Albert Einstein College of Medicine, New York, NY
(Presented By: Amit Gupta)

10:45 a.m. #6  
ORAL CONTRACEPTIVE USE IS ASSOCIATED WITH PROSTATE CANCER: AN ECOLOGIC STUDY
David Margel and Neil Fleshner
Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada
(Presented By: David Margel)

10:55 a.m. – 11:25 a.m.  
Break

Location: Grand Ballroom Foyer

11:25 a.m. – 12:20 p.m.  
Testis Cancer Session I

Session Chair: Joel Sheinfeld, MD

11:25 a.m. – 11:40 a.m.  
Role of Extra-RP Surgery
James McKiernan, MD

11:40 a.m. – 12:20 p.m.  
Debate: Management of Sub-Centimeter Residual Mass in NSGCT
Moderator: Michael Jewett, MD

11:40 a.m. – 11:45 a.m.  
Introduction
Michael Jewett, MD

11:45 a.m. – 11:55 a.m.  
Case for Observation
Siamak Daneshmand, MD

11:55 a.m. – 12:05 p.m.  
Case for PC-RPLND
Andrew Stephenson, MD

12:05 p.m. – 12:20 p.m.  
Q&A

Concurrent Lunch Options

12:20 p.m. – 1:35 p.m.  
Industry Sponsored Lunch Symposium

Location: Grand Ballroom, Salons A&B

“Recent Discoveries in Prostate Cancer: The Role of the RANK Ligand Pathway”
Gerald L. Andriole, Jr., MD; Washington University School of Medicine

Funding Provided By: Amgen
12:20 p.m. – 1:35 p.m.  Boxed Lunches Available in Exhibit Area  
   Location: Grand Ballroom Foyer

1:35 p.m. – 2:15 p.m.  Kidney Cancer Session I  
   Session Chair: Brian Rini, MD

1:35 p.m. – 2:05 p.m.  Integration of Systemic Therapy with Debulking Nephrectomy in Metastatic RCC  
   Moderators: Toni Choueiri, MD  
              Robert Uzzo, MD

1:35 p.m. – 1:45 p.m.  The Urologist Viewpoint  
   Alan Pantuck, MD

1:45 p.m. – 1:55 p.m.  The Medical Oncologist Viewpoint  
   Daniel George, MD

1:55 p.m. – 2:05 p.m.  Abstract Presentation  
   #8  EARLY PRIMARY TUMOR RESPONSE IN PATIENTS WITH METASTATIC RCC UNDERGOING TREATMENT WITH SUNITINIB IS AN INDEPENDENT PREDICTOR OF OVERALL SURVIVAL  
   E. Jason Abel¹, Stephen Culp², Nizar Tannir³, Surena Matin², Pheroze Tamboli⁴ and Christopher Wood⁵  
   ¹University of Wisconsin School of Medicine and Public Health, Madison, Wisconsin; ²University of Texas MD Anderson Cancer Center, Department of Urology; ³University of Texas MD Anderson Cancer Center, Department of Genitourinary Medical Oncology; ⁴University of Texas MD Anderson Cancer Center, Department of Pathology  
   (Presented By: E. Jason Abel)

2:05 p.m. – 2:15 p.m.  Q&A

2:15 p.m. – 4:00 p.m.  SUO-CTC Scientific Session

2:15 p.m. – 2:40 p.m.  General Update  
   Colin P.N. Dinney, MD

2:40 p.m. – 3:20 p.m.  Prostate Organ Site Presentations

3:20 p.m. – 3:40 p.m.  Bladder Organ Site Presentations

3:40 p.m. – 4:00 p.m.  Renal Organ Site Presentations

4:00 p.m. – 6:00 p.m.  Poster Session I  
   Poster Walks

   Poster #1  THE IMPACT OF ABNORMAL DIGITAL RECTAL EXAMINATION ON PROSTATE CANCER DETECTION IN OBSE Men  
   David Chu, Daniel Moreira, Leah Gerber, Madeline McKeever, Stephen Freedland and Lionel Banez  
   Division of Urologic Surgery, Department of Surgery, Duke University, Durham, NC  
   (Presented By: David Chu)

   Poster #2  MEASUREMENT OF INTRAOPERATIVE PENILE OXYGENATION CAN PROVIDE VALUABLE FEEDBACK TO SURGEONS DURING NERVE SPARING ROBOTIC PROSTATECTOMY  
   Abhishek Srivastava, Prasanna Sooriakumaran, Phil Dorsey, Sonal Grover, Yousssef El-Douaihy, Robert Leung and Ashutosh Tewari  
   Weill Cornell Medical College, New York, NY  
   (Presented By: Abhishek Srivastava)
| Poster #3 | DOES VARIATION IN EITHER AGE AT START OF THERAPY OR DURATION OF THERAPY MAKE CHEMOPREVENTION WITH FINASTERIDE COST-EFFECTIVE? | Suzanne Biehn Stewart¹, Charles Scales, Jr.¹, Judd Moul¹ and Shelby Reed²
¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Center for Clinical and Genetic Economics, Duke Clinical Research Institute, Duke University School of Medicine, Durham, NC  
(Presented By: Suzanne Biehn Stewart) |
| Poster #4 | LONG-TERM OUTCOME OF RANDOMIZED TRAIL BETWEEN CRYOABLATION AND EXTERNAL BEAM THERAPY FOR LOCALLY ADVANCED PROSTATE CANCER (T2C-T3B) | Ali Al-zahrani¹, Ana Maria Autran¹, Andrew Williams¹, Juan Pablo Barroso¹, Chen Lü¹, Glenn Bauman² and Joseph Chin¹
¹Division of Urology, Department of Surgery, London Health Sciences Centre, University of Western Ontario, London, ON, Canada; ²Division of Radiation, Department of Oncology, London Health Sciences Centre, University of Western Ontario, London, ON, Canada  
(Presented By: Ali Al-zahrani) |
| Poster #5 | DIFFERENTIAL EXPRESSION OF MICRORNA IN RADICAL PROSTATECTOMY SPECIMENS: COMPARING FOCI OF PROSTATE CANCER TO AREAS OF BENIGN GLANDULAR ARCHITECTURE | Soroush Rais-Bahrami¹, Reid Mergler¹, Nikhil Waingankar¹, Helen Levey¹, Houman Khalili², Peter Gregersen², Theresa Chan³ and Manish Vira¹
¹The Arthur Smith Institute for Urology, North Shore - Long Island Jewish Health System, New Hyde Park, NY; ²The Feinstein Institute for Medical Research, North Shore - Long Island Jewish Health System; ³Department of Pathology and Laboratory Medicine, North Shore - Long Island Jewish Health System  
(Presented By: Soroush Rais-Bahrami) |
| Poster #6 | VALIDATION IN CAPSURE OF SEXUAL OUTCOME AFTER PRIMARY PROSTATE CANCER TREATMENT PREDICTED BY PROSTQA | Meredith Regan¹, Natalia Sadetsky², Mehrdad Alemozaffar¹, Peter Carroll², Martin Sanda¹ and Matt Cooperberg²
¹Beth Israel Deaconess Medical Center, Boston, MA; ²University of California, San Francisco, CA  
(Presented By: Mehrdad Alemozaffar) |
| Poster #7 | EXTERNAL BEAM RADIOTHERAPY FOR PROSTATE CANCER INCREASES THE RISK OF HIP FRACTURE | Sean Elliott¹, Stephanie Jarosek³, Shaheen Alanee, Badrinath Konety¹, Kathryn Dusenbery³ and Beth Virnig⁴
¹University of Minnesota/Department of Urologic Surgery, Minneapolis/MN; ²University of Minnesota/School of Public Health, Minneapolis/MN; ³Department of Therapeutic Radiology, Minneapolis/MN; ⁴University of Minnesota/School of Public Health, Minneapolis/MN  
(Presented By: Shaheen Alanee) |
| Poster #8 | THE INFLUENCE OF STATIN MEDICATION AND GENETIC VARIATION ON PROSTATE CANCER OUTCOMES | Robert Hamilton¹, Joseph Vijai², David Gallagher¹, Caroline Savage¹, Jasmine Bhatia¹, Andrew Vickers¹, Mia Gaudet², Samson Fine¹, Howard Scher¹, Ana Dutra-Clarke¹, Jennifer Przybylo¹, Robert Klein¹, Peter Scardino¹, Hans Lilja¹, James Eastham¹, Tomas Kirchhoff¹ and Kenneth Offit¹
¹Memorial Sloan-Kettering Cancer Center, New York, NY; ²Albert Einstein College of Medicine, New York, NY  
(Presented By: Robert Hamilton) |
**Program Schedule**

<table>
<thead>
<tr>
<th>Poster #9</th>
<th>SINGLE CELL TRANSCRIPTOMIC PROFILING OF PROSTATE CANCER CELLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Christopher Welty¹, Lisa Coleman², Roman Gulati³, Roger Coleman³, Bryce Lakely³, Shu Chen², Marty Kinnunen⁴, Lisha Brown⁵, Eva Corey⁵, Peter Nelson⁵, Robert Vessella⁶ Daniel Lin and Colm Morrissey⁷</td>
</tr>
<tr>
<td></td>
<td>¹University of Washington, Department of Urology, Seattle, WA; ²Fred Hutchinson Cancer Research Center, Seattle, WA; ³University of Washington Department of Urology, Seattle, WA</td>
</tr>
<tr>
<td>(Presented By: Christopher Welty)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #10</th>
<th>TIME TO PROGRESSION: COMPARISON OF PROSTATE CANCER PATIENTS TREATED WITH DEGARELIX AND LEUPROLIDE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Neal Shore¹, Judd Moul², E David Crawford³, Egbert van der Meulen⁴, Tine Kold Olesen⁴ and Bo-Eric Persson⁵</td>
</tr>
<tr>
<td></td>
<td>¹Carolina Urologic Research Center, Myrtle Beach, SC; ²Duke University Medical Center, Durham, NC; ³University of Colorado Health Sciences Center, Denver, CO; ⁴Ferring Pharmaceuticals, Copenhagen, Denmark; ⁵Ferring Pharmaceuticals, Saint-Prex, Switzerland</td>
</tr>
<tr>
<td>(Presented By: Neal Shore)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #11</th>
<th>DOES THE MULTIDISCIPLINARY APPROACH IMPROVE ONCOLOGIC OUTCOMES IN MEN UNDERGOING SURGICAL TREATMENT FOR PROSTATE CANCER?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Suzanne Biehn Stewart¹, Donghua Xie¹, Stephen Freedland¹, Cary Robertson¹, Thomas Polascik¹, Phillip Walther¹, Bridget Koontz³, Zelijko Vujaskovic³, Robert Lee³, Phillip Febbo³, Daniel George³, Andrew Armstrong³, Judd Moul¹ and Lionel Banez¹</td>
</tr>
<tr>
<td></td>
<td>¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Department of Radiation Oncology, Duke University Medical Center, Durham, NC; ³Division of Medical Oncology, Department of Medicine, Duke University Medical Center, Durham, NC</td>
</tr>
<tr>
<td>(Presented By: Suzanne Biehn Stewart)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #12</th>
<th>LONG TERM RESULTS OF SALVAGE CRYOTHERAPY FOR PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Andrew Williams, Carlos Martinez, Venu Chalasani, Stephen E. Pautler and Joseph L. Chin</td>
</tr>
<tr>
<td></td>
<td>University of Western Ontario, London, Ontario</td>
</tr>
<tr>
<td>(Presented By: Andrew Williams)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #13</th>
<th>PROSTATE CANCER GENE EXPRESSION SIGNATURE OF PATIENTS WITH HIGH BODY MASS INDEX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Shashwat Sharad¹, Patrick Parker², Anjali Srivastava², Suma Ravulapalli², Yongmei Chen³, Hua Li², Gyorgy Petrovics³ and Albert Dobi²</td>
</tr>
<tr>
<td></td>
<td>¹Center for Prostate Disease Research, Department of Surgery, USUHS; ²CPDR/Rockville, MD</td>
</tr>
<tr>
<td>(Presented By: Shashwat Sharad)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #14</th>
<th>IDENTIFICATION OF GENES ASSOCIATED WITH CLINICAL RECURRENCE IN MEN WITH LOCALIZED PROSTATE CANCER TREATED WITH RADICAL PROSTATECTOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Eric Klein¹, Tara Maddala², Sara Falzarano³, Diana Cherbavaz², William Novotny², Carl Millward² and Cristina Magi-Galluzzi³</td>
</tr>
<tr>
<td></td>
<td>¹Cleveland Clinic, Urologic Oncology; ²Genomic Health, Inc. Redwood City, CA; ³Cleveland Clinic, Anatomic Pathology, Cleveland, OH</td>
</tr>
<tr>
<td>(Presented By: Eric Klein)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #15</th>
<th>PROSTVAC: A PROMISING NEW THERAPEUTIC VACCINE FOR PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>James Gulley¹, Ravi Madan¹, Chris Heery¹, Marijo Bilusic¹, William Dahut² and Jeffrey Schom¹</td>
</tr>
<tr>
<td></td>
<td>¹LTIB, CCR, NCI, Bethesda, MD; ²MOB, CCR, NCI, Bethesda, MD</td>
</tr>
<tr>
<td>(Presented By: James Gulley)</td>
<td></td>
</tr>
<tr>
<td>Poster #</td>
<td>Title</td>
</tr>
<tr>
<td>---------</td>
<td>------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>16</td>
<td>LONG TERM BIOCHEMICAL RECURRENCE WITH CELL SAVER USAGE DURING TOTAL PROSTATECTOMY: IS THE RISK INCREASED?</td>
</tr>
<tr>
<td>17</td>
<td>REAL-TIME MULTIPHOTON MICROSCOPY OF HUMAN PERIPROSTATIC TISSUE ARCHITECTURE FOR IMPROVING IDENTIFICATION OF VITAL TISSUE STRUCTURES DURING NERVE-SPARING RADICAL PROSTATECTOMY</td>
</tr>
<tr>
<td>18</td>
<td>ELASTIC REGISTRATION OF 3D PROSTATE BIOPSY TRAJECTORY BY REAL-TIME 3D MRI/TRUS FUSION: PILOT STUDY</td>
</tr>
<tr>
<td>19</td>
<td>ERG ONCOPROTEIN IN PRE-INVASIVE AND INVASIVE PROSTATE CANCER: AN EVIDENCE FOR CLONAL PROGRESSION</td>
</tr>
<tr>
<td>20</td>
<td>PHASE II TRIAL OF BEVACIZUMAB (A), LENALIDOMIDE (R), DOCETAXEL (T), AND PREDNISONE (P) IN PATIENTS (PTS) WITH METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)</td>
</tr>
</tbody>
</table>
Poster #21  
CANCER DETECTION RATES ON MR / ULTRASOUND (US) FUSED IMAGE GUIDED PROSTATE BIOPSIES DIRECTLY CORRELATES WITH MULTI-PARAMETRIC MRI  
Ardeshir Rastinehad¹, Compton Benjamin³, Paul Chung³, Jochen Kruecker³, Sheng Xu³, Pingkun Yan³, Samuel Kadoury³, Julia Locklin³, Baris Turkbey³, Gennady Bratslavsky³, Marston Linehan², Peter Choyke², Bradford Wood¹ and Peter Pinto²  
¹NIH/NCI, Bethesda MD; ²NIH/NCI, Urologic Oncology Branch; ³Philips Research North America, Briarcliff Manor, NY; ⁴NIH/CC, Center for Interventional Oncology, Bethesda, MD; ⁵Molecular Imaging Program, National Cancer Institute, National Institutes of Health, Bethesda, MD  
(Presented By: Ardeshir Rastinehad)

Poster #22  
SIPLEUCEL-T IMMUNOTHERAPY FOR ADVANCED PROSTATE CANCER; INTEGRATED RESULTS FROM RANDOMIZED, DOUBLE-BLIND, CONTROLLED TRIALS  
Allan Pantuck¹, Simon Hall², Celestia Higano³, Eric Small⁴, Philip Kantoff³, Yi Xu⁵, Robert Sims⁵, Mark Frohlich⁶ and Paul Schellhammer⁷  
¹University of California Los Angeles, Los Angeles, CA; ²Mount Sinai School of Medicine, New York, NY; ³University of Washington, Seattle, WA; ⁴University of California San Francisco, San Francisco, CA; ⁵Harvard Medical School, Boston, MA; ⁶Dendreon Corporation, Seattle, WA; ⁷Eastern Virginia Medical School, Norfolk, VA  
(Presented By: Allan Pantuck)

Poster #23  
DELAYED TREATMENT OF MEN WITH INTERMEDIATE RISK PROSTATE CANCER IS ASSOCIATED WITH INCREASED RISK OF BIOCHEMICAL RECURRENCE IN A LARGE COMMUNITY COHORT  
Jonathan Silberstein¹, Natalia Sadetsky², Peter Carroll² and Christopher Kane³  
¹Memorial Sloan-Kettering Cancer Center, NYC, NY; ²University of California at San Francisco, San Francisco, CA; ³University of California at San Diego, San Diego, CA  
(Presented By: Jonathan Silberstein)

Poster #24  
IN VIVO IMAGING OF INTRAPROSTATIC-SPECIFIC GENE TRANSCRIPTION BY POSITRON EMISSION TOMOGRAPHY  
Frederic Pouliot¹, Breanne Karanikolas², Mai Johnson³, Makoto Sato³, Saul Priceman³, David Stout³, Joanne Sohn³, Nagichettiar Satyamurthy³, Jean DeKernion⁵ and Lily Wu³  
¹Department of Urology, Laval University; ²UCLA Department of Molecular and Medical Pharmacology; ³UCLA Department of Molecular and Medical Pharmacology; ⁴Division of Laboratory Animal Medicine at UCLA; ⁵UCLA Department of Urology  
(Presented By: Frederic Pouliot)

Poster #25  
TREATMENT PATTERNS AND OUTCOME IN PATIENTS THAT REFUSE SURGERY FOR PROSTATE CANCER  
Naveen Pokala, Ali Dabaja, Jesse Sammon, Emil Kheterpal, James Peabody and Mani Menon  
Henry Ford Hospital, Detroit, MI  
(Presented By: Naveen Pokala)

Poster #26  
ERG EXPRESSION REFLECTS FUNCTIONAL STATUS OF THE ANDROGEN RECEPTOR IN PROSTATE CANCER  
Gyorgy Petrovics¹, George L. Lee², Timothy Nydam³, Bungo Furusato³, Yongmei Chen², Isabell A. Sesterhenn³, David G. McLeod², Albert Dobi² and Shiv Srivastava²  
¹Center for Prostate Disease Research, Department of Surgery, USUHS; ²CPDR/Rockville, MD; ³AFIP/Washington, DC  
(Presented By: Gyorgy Petrovics)

Poster #27  
BLADDER CANCER AFTER RADIOTHERAPY FOR PROSTATE CANCER  
Michael Abern¹, Annie Dude² and Christopher Coogan¹  
¹Rush University Medical Center, Chicago, IL; ²University of Chicago, Chicago, IL  
(Presented By: Michael Abern)
<table>
<thead>
<tr>
<th>Poster #28</th>
<th>OMISION OF PELVIC LYMPHADENECTOMY IN LOW-RISK PROSTATE CANCER PATIENTS IS NOT ASSOCIATED WITH HIGHER RATES OF BIOCHEMICAL RECURRENCE AT FIVE YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poster #29</td>
<td>THE IMPACT OF OBESITY AS A COMPETING RISK FACTOR IN PROSTATE CANCER</td>
</tr>
<tr>
<td>Poster #30</td>
<td>OBESITY, PROSTATE VOLUME AND THE RISK OF PROSTATE CANCER AFTER INITIAL NEGATIVE PROSTATE NEEDLE BIOPSY</td>
</tr>
<tr>
<td>Poster #31</td>
<td>LONG-TERM SURVIVAL AFTER SURGERY VERSUS EXTERNAL BEAM RADIOTHERAPY WITH AND WITHOUT ANDROGEN DEPRIVATION FOR HIGH-RISK PROSTATE CANCER</td>
</tr>
<tr>
<td>Poster #32</td>
<td>COMPARATIVE EFFECTIVENESS OF PERINEAL VERSUS RETROPUBIC AND MINIMALLY INVASIVE RADICAL PROSTATECTOMY</td>
</tr>
<tr>
<td>Poster #33</td>
<td>EVOLUTION OF THE CLINICAL PRESENTATION OF MEN UNDERGOING RADICAL PROSTATECTOMY FOR HIGH-RISK PROSTATE CANCER</td>
</tr>
<tr>
<td>Poster #34</td>
<td>METABOLOMICS AND HISTOLOGY ON THE EXACT SAME TISSUE SAMPLE</td>
</tr>
<tr>
<td>Poster #35</td>
<td>THE EFFECT OF RACE AND METABOLIC SYNDROME ON DETECTION AND INITIATION OF PROSTATE CANCER TREATMENT</td>
</tr>
<tr>
<td>Poster #36</td>
<td>A META-ANALYSIS OF 110,016 PATIENTS COMPARING POSITIVE SURGICAL MARGIN AND COMPLICATION RATES FOR RETROPUBIC, LAPAROSCOPIC AND ROBOTIC RADICAL PROSTATECTOMY</td>
</tr>
<tr>
<td>------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Prasanna Sooriakumaran, Daniel Bloch¹, Usha Seshadri-Kreaden², April Hebert³, Peter Wiklund⁴ and Ashutosh Tewari⁴</td>
<td></td>
</tr>
<tr>
<td>¹Stanford University School of Medicine, Stanford; ²Intuitive Surgical, Sunnyvale; ³Karolinska Institute, Stockholm, Sweden; ⁴Weill Cornell Medical College, NY</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Prasanna Sooriakumaran)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #37</th>
<th>RADICAL PROSTATECTOMY HAS SUPERIOR SURVIVAL OUTCOMES COMPARED TO RADIOTHERAPY OR WATCHFUL WAITING IN 16,508 MEN WITH LOCALIZED PROSTATE CANCER REGARDLESS OF ETHNICITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prasanna Sooriakumaran, Majnu John¹, Robert Leung¹, Terry Field² and Ashutosh Tewari¹</td>
<td></td>
</tr>
<tr>
<td>¹Weill Cornell Medical College, NY; ²University of Massachusetts, Worcester</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Prasanna Sooriakumaran)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #38</th>
<th>ANATOMIC RETRO-APICAL TECHNIQUE: A NOVEL APPROACH FOR REDUCING APICAL POSITIVE SURGICAL MARGIN RATES DURING ROBOTIC ASSISTED RADICAL PROSTATECTOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abhishek Srivastava, Prasanna Sooriakumaran, Sonal Grover, Youssef El-Douaihy, Sivaram Rajan, Robert Leung, Maria Shevchuk and Ashutosh Tewari</td>
<td></td>
</tr>
<tr>
<td>Weill Cornell Medical College, New York, NY</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Abhishek Srivastava)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #39</th>
<th>RISK OF DEVELOPMENT OF PROTEINURIA WITH ANDROGEN DEPRIVATION THERAPY FOR PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reza Mehrazin, Jamin Brahmbhatt¹, Michael Aleman¹, Ithaar Derweesh², Anthony Patterson¹, Christopher Ledbetter¹ and Robert Wake¹</td>
<td></td>
</tr>
<tr>
<td>¹University of Tennessee Health Sciences Center, Memphis; ²UCSD, San Diego</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Reza Mehrazin)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #40</th>
<th>THE ASSOCIATION BETWEEN DIFFUSION OF THE SURGICAL ROBOT AND RADICAL PROSTATECTOMY RATES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Danil Makarov¹, James Yu², Rani Desai², David Penson³ and Cary Gross²</td>
<td></td>
</tr>
<tr>
<td>¹New York University School of Medicine; ²Yale University School of Medicine; ³Vanderbilt University Medical Center</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Danil Makarov)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #41</th>
<th>MITOCHONDRIAL LARGE-SCALE DELETION AS AN AID FOR NEGATIVE PROSTATE BIOPSY UNCERTAINTY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryan Parr</td>
<td></td>
</tr>
<tr>
<td>Mitomics Inc, Thunder Bay, ON, Canada</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Ryan Parr)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #42</th>
<th>UTILIZATION TRENDS OF A MULTIDISCIPLINARY PROSTATE CANCER CLINIC: INITIAL 5-YEAR EXPERIENCE FROM THE DUKE PROSTATE CENTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suzanne Biehn Stewart¹, Lionel Banez¹, Donghua Xie¹, Stephen Freedland¹, Cary Robertson¹, Thomas Polascik¹, Phillip Walther¹, Bridget Koontz¹, Zelijko Vujaskovic², Robert Lee³, Andrew Armstrong³, Phillip Febbo³, Daniel George³ and Judd Moul³</td>
<td></td>
</tr>
<tr>
<td>¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Department of Radiation Oncology, Duke University Medical Center, Durham, NC; ³Division of Medical Oncology, Department of Medicine, Duke University Medical Center, Durham, NC</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Suzanne Biehn Stewart)</td>
<td></td>
</tr>
<tr>
<td>Poster #43</td>
<td>SOCIAL SUPPORT AND ITS IMPACT ON TREATMENT CHOICE IN PATIENTS WITH PROSTATE CANCER: AN OFTEN OMITTED VARIABLE</td>
</tr>
<tr>
<td>------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>Karim Chamie, Lorna Kwan and Mark S. Litwin</td>
</tr>
<tr>
<td></td>
<td>UCLA, Los Angeles, CA</td>
</tr>
<tr>
<td></td>
<td>(Presented By: Karim Chamie)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #44</th>
<th>NERVE SPARING CAN PRESERVE ORGASMIC FUNCTION IN THE MAJORITY OF MEN FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sonal Grover, Abhishek Srivastava, Prasanna Sooriakumaran, Sandhya Rao, Robert Leung and Ashutosh Tewari</td>
</tr>
<tr>
<td></td>
<td>Weill Cornell Medical College, New York, NY</td>
</tr>
<tr>
<td></td>
<td>(Presented By: Sonal Grover)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #45</th>
<th>UTILIZING METFORMIN TO ENHANCE THE EFFICACY OF ANDROGEN DEPRIVATION THERAPY IN THE TREATMENT OF PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Alexandra Colquhoun¹, Natalie Venier¹, Avi Vandersluis¹, Rickvinder Besla¹, Neil Fleshner², Michael Pollak³, Laurence Klotz¹ and Vasundara Venkateswaran¹</td>
</tr>
<tr>
<td></td>
<td>¹Sunnybrook Health Sciences Centre, Toronto, ON, Canada; ²Princess Margaret Hospital, Toronto, ON, Canada; ³McGill University, Montreal, QC, Canada</td>
</tr>
<tr>
<td></td>
<td>(Presented By: Alexandra Colquhoun)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #46</th>
<th>COMPARISON OF RISK CALCULATORS FROM THE PROSTATE CANCER PREVENTION TRIAL AND THE EUROPEAN RANDOMIZED STUDY OF SCREENING FOR PROSTATE CANCER IN A CONTEMPORARY CANADIAN COHORT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Greg Trottier¹, Nathan Lawrentschuk¹, Peter J. Bostrom¹, Kimberly A. Fernandes¹, Monique J. Roobol², Antonio Finelli¹, Karen Chadwick¹, Andrew Evans³, Theodorus H. van der Kwast³, Ants Toi³, Alexandre R. Zlotta¹ and Neil E. Fleshner¹</td>
</tr>
<tr>
<td></td>
<td>¹Princess Margaret Hospital, University of Toronto, Toronto, ON, Canada; ²Erasmus MC, Erasmus University, Rotterdam, Netherlands; ³University of Toronto, Toronto, ON, Canada; ⁴Mt. Sinai Hospital, University of Toronto, Toronto, ON, Canada</td>
</tr>
<tr>
<td></td>
<td>(Presented By: Greg Trottier)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #47</th>
<th>TUMOR VOLUME AS A PREDICTOR OF ADVERSE PATHOLOGIC FEATURES AND BIOCHEMICAL RECURRENCE IN RADICAL PROSTATECTOMY SPECIMENS; A TALE OF TWO METHODS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ian Thompson III¹, Shady Salem¹, Sam Chang¹, Peter Clark¹, Rodney Davis¹, S. Duke Herrell¹, Yakup Kordan¹, Roxelyn Baumgartner¹, Sharon Phillipms², Joseph Smith, Jr.¹, Michael Cookson¹ and Daniel Barocas¹</td>
</tr>
<tr>
<td></td>
<td>¹Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN; ²Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #48</th>
<th>INCREASED YIELD OF CANCER DETECTION WITH MR/US FUSION GUIDED BIOPSY PLATFORM IN PATIENTS WITH A PREVIOUS NEGATIVE BIOPSY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Paul Chung¹, Ardeshir Rastinehad², Compton Benjamin², Jochen Kruecker³, Sheng Xu³, Pingkun Yan³, Samuel Kadoury³, Julia Locklin³, Baris Turkbey³, Gennady Bratslavsky³, Marston Linehan³, Peter Choyke³, Bradford Wood⁴ and Peter Pinto²</td>
</tr>
<tr>
<td></td>
<td>¹NIH/NCI, Bethesda MD; ²NIH/NCI, Urologic Oncology Branch; ³A Philips Healthcare Company, Toronto, Canada; ⁴NIH/CC, Center for Interventional Oncology, Bethesda, MD; ⁵Molecular Imaging Program, National Cancer Institute, National Institutes of Health, Bethesda, MD</td>
</tr>
<tr>
<td></td>
<td>(Presented By: Paul Chung)</td>
</tr>
</tbody>
</table>
Poster #49  PROSTATE CANCER SPECIFIC AND OVERALL SURVIVAL IN MEN TREATED WITH EARLY ANDROGEN DEPRIVATION THERAPY FOR PSA-ONLY RECURRENCE AFTER RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE
Christopher Keto¹, Lionel Bañez², William Aronson³, Martha Terris⁴, Joseph Presti⁴, Christopher Amling⁵, Christopher Kane⁶ and Stephen Freedland⁶
¹Duke University School of Medicine, Durham, NC; ²University of California at Los Angeles Medical Center, Los Angeles, CA; ³Medical College of Georgia, Augusta, GA; ⁴Stanford University Medical Center, Palo Alto, CA; ⁵Oregon Health and Science University, Portland OR; ⁶University of California at San Diego, San Diego, CA
(Presented By: Christopher Keto)

Poster #50  A PHASE I STUDY OF TRC105 (ANTI-CD105 [ENDOGLIN] ANTIBODY) IN METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)
David Adelberg, Andrea Apolo, Madan Ravi, Gulley James, Arlen Philip, Parnes Howard, Pierpoint Ann, Kohler David, Trepel Jane, Steinberg Seth, Price Douglas, Figg William and Dahut William
National Cancer Institute, Bethesda, MD
(Presented By: David Adelberg)

Poster #51  COMPARISON OF LOW TEMPERATURE-SENSITIVE LIPOSOMES ENCAPSULATED DOCETAXEL AND DOXORUBICIN IN A MURINE MODEL OF PROSTATE CANCER
Saurin Chokshi¹, Ashish Ranjan², Compton Benjamin¹, Paul Chung¹, Ardeshir Rastinehad¹, Matthew Dreher², Bradford Wood² and Peter Pinto¹
¹Urologic Oncology Branch, National Cancer Institute, National Institutes of Health Clinical Center, Bethesda, MD; ²Center for Interventional Oncology, Department of Radiology and Imaging Sciences, National Institutes of Health Clinical Center, Bethesda, MD
(Presented By: Compton Benjamin)

Poster #52  LYMPH NODE DISSECTION TECHNIQUE IS MORE IMPORTANT THAN LYMPH NODE COUNT IN IDENTIFYING NODAL METASTASES IN RADICAL CYSTECTOMY PATIENTS
Ryan Dorin¹, Siamak Daneshmand², Manuel Eisenberg², Jie Cai², Gus Miranda² and Eila Skinner²
¹USC Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, CA; ²Kenneth Norris Jr. Comprehensive Cancer Center, USC Institute of Urology, Keck School of Medicine, Los Angeles, CA
(Presented By: Ryan Dorin)

Poster #53  WITHDRAWN

Poster #54  QUALITY OF CARE IN PATIENTS WITH BLADDER CANCER: IS LESS MORE?
Karim Chamie¹, Christopher S. Saigal¹, Julie Lai², Jan M. Hanley², Badrinath R. Konety³, Mark S. Litwin¹ and the Urologic Diseases in America
¹UCLA, Los Angeles, CA; ²RAND, Santa Monica, CA; ³University of Minnesota, Minneapolis, MN
(Presented By: Karim Chamie)

Poster #55  EFFICACY OF IMMEDIATE POST-TUR MITOMYCIN C (MMC) INSTILLATION IN HIGH RISK NON-MUSCLE INVASIVE BLADDER CANCER TREATED WITH BACILLUS CALMETTE-GUERIN (BCG)
Jong-wook Park, Kanghyon Song and Moon-ki Jo
Korea Cancer Center Hospital, Korea Institute of Radiological and Medical Sciences, Seoul, Korea
(Presented By: Jong-wook Park)
Poster #56
PROGNOSTIC IMPACT OF URINARY BLADDER CARCINOMA INSITU ON CLINICAL OUTCOME OF SUBSEQUENT UPPER TRACT UROTHELIAL CARCINOMA
Ramy Youssef¹, Shahrokh Shariat², Yair Lotan¹, Nicholas Cost¹, Christopher Wood³, Arthur Sagalowsky⁴, Richard Zigeuner⁴, Cord Langner⁴, Francesco Montorsi⁵, Christian Bolenz⁶ and Vitaly Margulis¹
¹UT Southwestern Medical Center, Dallas, TX; ²Cornell University, New York, NY; ³UT MD Anderson Cancer Center, Houston, TX; ⁴Medical University of Graz, Graz, Austria; ⁵Vita-Salute University, Milan, Italy; ⁶Universitätsklinikum Mannheim, Mannheim, Germany
(Presented By: Ramy Youssef)

Poster #57
MOLECULAR CONTRAST AGENTS FOR OPTICAL IMAGING OF BLADDER CANCER
Ying Pan¹, Jen-Jane Liu², Jens-Peter Volkmer³, Katherine Wu¹, Kathleen Mach¹, Irving Weissman³ and Joseph Liao¹
¹Department of Urology, Stanford University, Stanford, CA; ²Stanford University, Stanford, CA; ³Department of Pathology, Stem Cell Institute, Stanford University, Stanford, CA;
(Presented By: Jen-Jane Liu)

Poster #58
URINARY MET LEVEL AS A NOVEL BIOMARKER FOR UROTHELIAL CARCINOMA OF THE BLADDER
Maximiliano Sorbellini¹, Brian K. McNeil¹, Gagani Athauda¹, Benjamin Cohen¹, Alessio Giubellino¹, Haley Simpson¹, Jonathan Coleman⁵, Robert H. Getzenberg⁵, George J. Netto⁵, W. Marston Linehan¹, Peter A. Pinto¹ and Donald P. Bottaro¹
¹UOB/NCI/NIH, Bethesda, MD; ²MSKCC, New York, NY; ³The Johns Hopkins University, Baltimore, MD
(Presented By: Maximiliano Sorbellini*)

Poster #59
EXTENDED PELVIC LYMPH NODE DISSECTION AND ADJUVANT CHEMOTHERAPY OFFER SURVIVAL ADVANTAGE IN MUSCLE-INVASIVE UROTHELIAL BLADDER CANCER
Peter J. Bostrom¹, Bas W.G. van Rhijn¹, Tuomas Mirtti², Martti Nurmi³, Matti Laato³, Neil E. Flesner⁴, Antonio Finelli¹, Michael A.S. Jewett¹ and Alexandre R. Zlotta¹
¹Princess Margaret Hospital, UHN, Toronto, ON, Canada; ²Helsinki University Hospital, Helsinki, Finland; ³Turku University Hospital, Turku, Finland
(Presented By: Peter J. Bostrom)

Poster #60
UNDERUTILIZATION OF RESTAGING BLADDER TUMOR RESECTION FOR BLADDER CANCER
Ted Skolarus, Bruce Jacobs, Zaojun Ye, David Miller, James Montie, David Wood, Cheryl Lee, Khaled Hafez, Jeffrey Montgomery, Alon Weizer and Brent Hollenbeck
Department of Urology, University of Michigan
(Presented By: Ted Skolarus)

Poster #61
GENETIC VARIANTS IN THE VITAMIN D PATHWAY GENES PREDICT RECURRENCE RISK FOR NON-MUSCLE INVASIVE BLADDER CANCER
Yuanqing Ye, Neema Navai, Xifeng Wu and Colin Dinney
MD Anderson Cancer Center, Houston, TX
(Presented By: Neema Navai)

Poster #62
PRIVATE VS. PUBLIC INSURANCE: IS THERE A DIFFERENCE IN SURVIVAL IN PATIENTS WITH BLADDER UROTHELIAL CARCINOMA?
Mohummad M. Siddiqui, Niall Heney, W. Scott McDougal and Adam S. Feldman
Massachusetts General Hospital, Boston MA
(Presented By: Mohummad M. Siddiqui)

Poster #63
TOBACCO USE PATTERNS IN BLADDER CANCER SURVIVORS
Jeffrey Bassett¹, John Gore¹, Karim Chamie¹ and Christopher Saigal¹
¹University of California, Los Angeles, CA; ²University of Washington, Seattle, WA
(Presented By: Jeffrey Bassett)
Poster #64  THE IMPACT OF RADICAL CYSTECTOMY ON RENAL FUNCTION: AN ANALYSIS OF VARIANCE BASED ON AGE, GENDER, RACE AND DIVERSION TECHNIQUE
Sean Sawh, James Ferguson, Joshua Langston, J. Patrick Selph, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Sean Sawh)

Poster #65  NEO-ADJUVANT GEMCITABINE-CISPLATIN CHEMOTHERAPY FOR LOCALLY ADVANCED UROTHELIAL CANCER OF THE BLADDER
Edward M Messing, Emil Scosyrev, Edwin van Wijngaarden, Derick R Peterson, Deepak Sahasrabudhe, Dragan Golijanin and Susan G Fisher
University of Rochester Medical Center, Rochester, NY
(Presented By: Edward M Messing)

Poster #66  EXPRESSION OF CELL CYCLE-RELATED MOLECULAR MARKERS IN PATIENTS TREATED WITH RADICAL CYSTECTOMY FOR SQUAMOUS CELL CARCINOMA OF THE BLADDER
Ramy Youssef¹, Shahrokh Shariat², Payal Kapur¹, Tarek Ghoneim³, Ellen King¹, Amber Cockburn¹, Ahmed Mosbah³, Hassan Abol-Enein³, Mohamed Ghoneim³ and Yair Lotan¹
¹UT Southwestern Medical Center, Dallas, TX; ²Cornell University, New York, NY; ³Urology and Nephrology Center, Mansoura University, Egypt
(Presented By: Ramy Youssef)

Poster #67  DELIVERY OF RADICAL CYSTECTOMY AFTER NEOADJUVANT CHEMOTHERAPY FOR MUSCLE INVASIVE BLADDER CANCER: A MULTIDISCIPLINARY APPROACH
AJJAI ALVA, Christopher Tallman, Chang He, Maha Hussain, James Montie, David Smith, Alon Weizer, David Wood and Cheryl Lee
University of Michigan, Ann Arbor, MI
(Presented By: AJJAI ALVA)

Poster #68  EFFECTS OF A SMALL ORALLY AVAILABLE MET INHIBITOR IN A PRE-CLINICAL MODEL OF BLADDER CANCER
Maximiliano Sorbellini¹, Alessio Giubellino¹, Tung-Chin Hsieh², Carole Sourbier¹, Gaurav Srivastava¹, Peter A. Pinto¹, W. Marston Linehan¹ and Donald P. Bottaro¹
¹UOB/NCI/NIH, Bethesda, MD; ²George Washington University, Washington, DC
(Presented By: Maximiliano Sorbellini)

Poster #68 WITHDRAWN

Poster #70  BLADDER TUMOR LOCATION AT TURBT PREDICTS LIKELIHOOD OF LYMPH NODE METASTASES AT CYSTECTOMY
Clark Wilson¹, Vipal Durkal¹, Stephen Culp³, H. Barton Grossman³, Ashish Kamat³, Colin Dinney² and Jay Shah²
¹UT-Houston Medical School, Houston, TX; ²MD Anderson Cancer Center, Houston, T
(Presented By: Clark Wilson)

Poster #71  DIMINISHED EFFICACY OF BCG AMONG ELDERLY PATIENTS WITH HIGH RISK NON-MUSCLE INVASIVE BLADDER CANCER
David Margel¹, Sultan Alkhateeb¹, Antonio Finelli¹ and Neil Fleshner²
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada
(Presented By: David Margel)
Poster #72  THE ORALLY AVAILABLE MET INHIBITOR PF-2341066 REDUCES TUMOR BURDEN AND METASTASIS IN AN ORTHOTOPIC XENOGRAFT MODEL OF BLADDER CANCER
Maximiliano Sorbellini¹, Alessio Giubellino², Carole Sourbier³, Gaurav Srivastava³, Peter A. Pinto³, W. Marston Linehan and Donald P. Bottaro
UOB/NCI/NIH, Bethesda, MD
(Presented By: Maximiliano Sorbellini)

Poster #73  OUTCOME IN PATIENTS EXCLUSIVELY WITH CARCINOMA IN SITU (CIS) FOLLOWING RADICAL CYSTECTOMY
Pascal Zehnder, Siamak Daneshmand, Marya Leahy, Eila Skinner, Jie Cai, Gus Miranda, Anirban Mitra, Georg Bartsch and Inderbir Gill
University of Southern California, Los Angeles, CA
(Presented By: Pascal Zehnder)

Poster #74  PROGNOSTIC SIGNIFICANCE OF THE MICRORNA 200 FAMILY IN BLADDER CANCER PROGRESSION
Michael Williams¹, Alexandru Floares², Woonyoung Choi¹, Lauren Marquis¹, Arlene Siefker-Radtke¹, David McConkey¹, Colin Dinney¹ and Liana Adam¹
¹MD Anderson Cancer Center, Houston, TX; ²Institute of Oncology, Cluj-Napoca, Romania
(Presented By: Michael Williams)

Poster #75  TIME DELAY BETWEEN POSITIVE FLUORESCENCE IN SITU HYBRIDIZATION (FISH) AND DISEASE RECURRENCE DURING BLADDER CANCER SURVEILLANCE
G. Joel DeCastro, Joseph Pariser, Sergey Shikanov, Cassandra Royce and Gary D. Steinberg
University of Chicago, Chicago, IL
(Presented By: G. Joel DeCastro)

Poster #76  IMPACT OF TIME ON THE ABILITY OF UROVYSION FISH ANALYSIS TO PREDICT RECURRENCE OF UROTHELIAL CELL CARCINOMA
Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Poster #77  THE IMPACT OF TARGETED MOLECULAR THERAPIES ON THE LEVEL OF RENAL CELL CARCINOMA (RCC) VENOUS TUMOR THROMBUS
Nicholas G. Cost¹, Scott E. Delacroix², Paul Smith¹, Ramy F. Youssef¹, Brian F. Chapin³, Jose A. Karam³, Stephen Culp², E. Jason Abel², James Brugarolas³, Ganesh V. Raj¹, Arthur I. Sagalowsky¹, Christopher G. Wood² and Vitaly Margulis¹
¹Department of Urology, University of Texas Southwestern Medical Center, Dallas, TX; ²Department of Urology, University of Texas MD Anderson Cancer Center, Houston, TX; ³Division of Hematology Oncology, University of Texas Southwestern Medical Center, Dallas, TX
(Presented By: Nicholas G. Cost)

Poster #78  SURVIVAL FOLLOWING PARTIAL AND RADICAL NEPHREXCTOMY FOR THE TREATMENT OF STAGE IB RENAL CELL CARCINOMA: A PROPENSITY SCORING APPROACH
Max Kates¹, Gina Badalato¹, Juan Wisnivesky², Arindam RoyChoudhury¹ and James McKiernan¹
¹Columbia University Medical Center, New York, NY; ²Mount Sinai School of Medicine, New York, NY
(Presented By: Max Kates)
Poster #79  BILATERAL SYNCHRONOUS SPORADIC RENAL TUMORS: CLINICAL IMPLICATIONS OF BENIGN PATHOLOGY
Amit Patel¹, Byron Lee², Steven Campbell³, Ming Zhou³ and Amr Fergany¹
¹Section of Urology, University of Chicago, Chicago, IL; ²Glickman Urological & Kidney Institute, Cleveland Clinic, Cleveland, OH; ³Department of Anatomic Pathology, Cleveland Clinic, Cleveland, OH
(Presented By: Amit Patel)

Poster #80  PREDICTORS AND OUTCOMES FOR LATE RECURRENCE OF RENAL CELL CARCINOMA
Simon Kim¹, Bradley Leibovich², Christopher Weight³, Houston Thompson³, Christine Lohse³ and Stephen Boorjian³
¹Department of Urology, Mayo Clinic, Rochester, MN; ²Mayo Clinic, Department of Urology, Rochester, MN; ³Mayo Clinic, Department of Health Sciences Research, Rochester, MN
(Presented By: Simon Kim)

Poster #81  PREDICTORS OF LOCALLY-ADVANCED AND METASTATIC DISEASE IN RENAL CELL CARCINOMA =3CM IN SIZE: A POPULATION BASED ANALYSIS
Max Kates, Ruslan Korets, Neda Sadeghi and James McKiernan
Columbia University Medical Center, New York, NY
(Presented By: Max Kates)

Poster #82  USE OF CONTRAST WASHOUT TO PREDICT RENAL TUMOR HISTOLOGY ON COMPUTERIZED TOMOGRAPHY
Ryan Kopp¹, Lejla Aganovic², Kerrin Palazzi-Churas¹ and Ithaar Derweesh¹
¹UCSD Division of Urology, San Diego, CA; ²UCSD Department of Radiology, San Diego, CA
(Presented By: Ryan Kopp)

Poster #83  LAPAROSCOPIC PARTIAL NEPHRECTOMY VERSUS RENAL CRYOABLATION: A MULTICENTER COMPARISON OF INTERMEDIATE ONCOLOGIC OUTCOMES
Sean Stroup¹, Carson Wong², Reza Mehrzad³, John Malcolm⁴, Kurt Strom⁵, Kerrin Palazzi-Churas¹, James L’Esperance⁵ and Ithaar Derweesh¹
¹University of California, San Diego, CA; ²University of Oklahoma Health Science Center; ³University of Tennessee Health Science Center, Memphis, TN; ⁴Eastern Virginia University School of Medicine, Norfolk, VA; ⁵Naval Medical Center, San Diego, CA
(Presented By: Sean Stroup)

Poster #84  A NEPHROMETRY BASED COMPARATIVE ANALYSIS OF ROBOTIC AND OPEN PARTIAL NEPHRECTOMY FOR MODERATE AND HIGHLY COMPLEX RENAL TUMORS
Jay Simhan, Robert Uzzo, Alexander Kutikov, Marc Smaldone, David Chen, Richard Greenberg, Kevin Tsai and Rosalia Viterbo
Division of Urologic Oncology, Department of Surgery, Fox Chase Cancer Center, Philadelphia, PA
(Presented By: Jay Simhan)

Poster #85  POPULATION-BASED ANALYSIS OF THE RISING INCIDENCE OF RENAL CANCER: EVALUATION OF AGE-SPECIFIC TRENDS (1975-2006)
Kenneth Nepple and Seth Strope
Washington University, St. Louis, MO
(Presented By: Kenneth Nepple)

Poster #86  MANAGEMENT OF ADVANCED RENAL CELL CARCINOMA: COMPREHENSIVE ANALYSIS USING THE SEER DATABASE
Matthew Hayn, Nicholas Hellenthal, Rebecca O’Malley and Thomas Schwaab
Roswell Park Cancer Institute, Buffalo, NY
(Presented By: Matthew Hayn)
HIGH VOLUME RENAL SURGEONS ARE MORE LIKELY TO OFFER ELECTIVE PARTIAL NEPHRECTOMY IN HIGH COMPLEXITY TUMORS AS CLASSIFIED BY THE NEPHROMETRY SCORING SYSTEM
Christopher Weight, Simon Kim, Paul Crispen, Rodney Breau, R. Houston Thompson, Stephen Boorjian and Bradley Leibovich
Mayo Clinic, Rochester, MN
(Presented By: Christopher Weight)

SIGNIFICANCE OF A POSITIVE TUMOR THROMBUS MARGIN IN PT3BN0M0 RENAL TUMORS
Nicholas Power¹, Seth Cohen², Paul Russo¹ and Jonathan Coleman¹
¹MSKCC, NY, NY; ²Lenox Hill Hospital, NY, NY
(Presented By: Nicholas Power)

THE R.E.N.A.L. NEPHROMETRY SCORING SYSTEM PREDICTS SURGEON OPERATIVE PREFERENCE FOR RENAL MASSES
Paul Gellhaus, Henry Rosevear, Andrew Lightfoot, Timothy Kresowik, Fadi Joudi and Chad Tracy
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

INCREASED NODE COUNT AT LYMPHADENECTOMY IMPROVES SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA AND NODAL METASTASES
Jared Whitson, Catherine Harris, Adam Reese and Maxwell Meng
UCSF, San Francisco, CA
(Presented By: Jared Whitson)

COMPARING THE VALIDITY AND REPRODUCIBILITY OF THREE RENAL TUMOR SCORING SYSTEMS: C-INDEX VS P.A.D.U.A. VS R.E.N.A.L.
Zhamshid Okhunov, Soroush Rais-Bahrami, Arvin K. George, Nikhil Waingankar, Mostafa Sadek, Lee Richstone, Manish A. Vira and Louis R. Kavoussi
The Smith Institute for Urology, North Shore Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Zhamshid Okhunov)

PRE-OPERATIVE NUTRITIONAL STATUS IS AN IMPORTANT PREDICTOR OF SURVIVAL FOLLOWING SURGERY FOR RENAL CELL CARCINOMA
Todd M. Morgan, Dominic Tang, Daniel A. Barocas, Christopher B. Anderson, Kelly L. Stratton, Sam S. Chang, Michael S. Cookson, Joseph A. Smith, Jr. and Peter E. Clark
Vanderbilt University, Nashville, TN
(Presented By: Todd M. Morgan)

PROGNOSTIC INDICATORS FOR UPPER TRACT UROTHELIAL CARCINOMA FOLLOWING RADICAL NEPHROURETERECTOMY: WHAT IS THE SIGNIFICANCE OF LYMPHOVASCULAR INVASION?
Mark Godfrey, Gina Badalato, Gregory Hruby, Mani Razmjoo and James McKiernan
Columbia University Medical Center, Department of Urology, New York, NY
(Presented By: Mark Godfrey)

EFFICACY OF IMAGING IN SURVEILLANCE FOR T1 RCC AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY
Ornob Roy, Eric Ghiraldi, Helen Levey and Louis Kavoussi
Smith Institute for Urology, New Hyde Park, NY
(Presented By: Ornob Roy)
Program Schedule

Poster #95  PREVALENCE OF AND RISK FACTORS FOR DEVELOPMENT OF DIABETES MELLITUS FOLLOWING RADICAL OR PARTIAL NEPHRECTOMY  
Ryan Kopp¹, Reza Mehrazin³, Wassim Bazzi¹, Anthony Patterson³, Jim Wan³, Aditya Bagrodia¹, Sean Stroup¹ and Ithaar Derweesh¹  
¹UCSD Division of Urology, San Diego, CA; ²Department of Urology, University of Tennessee Health Science Center, Memphis, TN; ³Department of Urology and Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, TN  
(Presented By: Ryan Kopp)

Poster #96  DETECTION OF CIRCULATING TUMOR CELLS (CTC) IN RCC BY IDENTIFICATION OF CANDIDATE CELL-SURFACE PROTEIN MARKERS: ANALYSIS OF THE PUBLISHED LITERATURE  
Eric C. Kauffman¹, Brian Shuch¹, Min-Jung Lee², Sylvia V. Alarcon³, Ramaprasad Srinivasan¹, W. Marston Linehan¹, Jane B. Trepel² and Gennady Brastlavsky¹  
¹Urologic Oncology Branch of the National Cancer Institute, National Institutes of Health, Bethesda, MD; ²Medical Oncology Branch of the National Cancer Institute, National Institutes of Health, Bethesda, MD  
(Presented By: Eric C. Kauffman)

Poster #97  SALVAGE RADIOFREQUENCY ABLATION ACHIEVES EFFECTIVE LOCAL CONTROL OF RECURRENT RENAL CELL CARCINOMA  
Sarah Psutka¹, Ali Daha¹, Debra Gervais² and Adam Feldman¹  
¹Massachusetts General Hospital, Dept of Urology, Boston, MA; ²Massachusetts General Hospital, Dept of Radiology, Boston, MA  
(Presented By: Sarah Psutka)

Poster #98  IMPACT OF NON-ISCHEMIC TECHNIQUE ON INTERMEDIATE RENAL FUNCTION AFTER OPEN PARTIAL NEPHRECTOMY  
Ryan Kopp¹, Wassim Bazzi¹, Sean Stroup¹, Jonathan Silberstein², Kerrin Palazzi-Churas¹, Reza Mehrazin³, Anthony Patterson³ and Ithaar Derweesh¹  
¹UCSD Division of Urology, San Diego, CA; ²Memorial Sloan-Kettering Cancer Center, New York, NY; ³University of Tennessee Health Sciences Center, Department of Urology, Memphis, TN  
(Presented By: Ryan Kopp)

Poster #99  RISK OF SPECIFIC SECONDARY MALIGNANCY IN TESTICULAR CANCER PATIENTS EXPOSED TO RADIATION  
Dan Lewinshtein and Christopher Porter  
Virginia Mason Medical Center  
(Presented By: Dan Lewinshtein)

Poster #100  THE ECONOMIC CONSEQUENCES OF KIDNEY, BLADDER, AND PROSTATE CANCER IN WASHINGTON STATE  
Sandra Koo, Dan Lewinshtein, Paul Kozlowski and Christopher Porter  
Virginia Mason Medical Center, Seattle WA  
(Presented By: Sandra Koo)

Poster #101  CONSUMERISM AND ITS IMPACT ON ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY  
Sultan Alkhateeb¹ and Nathan Lawrencechuk²  
¹Riyadh, Saudi Arabia; ²Melbourne, Vic, Australia  
(Presented By: Sultan Alkhateeb)
Poster #102  EARLY FUNCTIONAL AND ONCOLOGIC OUTCOMES OF ROBOT-ASSISTED LAPAROSCOPIC PARTIAL ADRENALECTOMY FOR PHEOCHROMOCYTOMA

Kevin Asher, Gopal Gupta, Marston Linehan, Peter Pinto and Gennady Bratslavsky
Urologic Oncology Branch, National Institutes of Health, Bethesda, MD
(Presented By: Kevin Asher)

6:30 p.m. – 7:30 p.m.  SUO Reception
Location: Grand Ballroom Foyer

7:30 p.m. – 10:00 p.m.  SUO Dinner
Location: Grand Ballroom, Salons A&B

FRIDAY, DECEMBER 10, 2010
(Friday Industry Sponsored Breakfasts located at the Bethesda North Marriott; All Friday Scientific Sessions located at the Natcher Conference Center)

7:00 a.m. – 4:00 p.m.  Registration/Information Desk Open

6:30 a.m. – 7:30 a.m.  Industry Breakfast Symposium
Location at Marriott: Grand Ballroom, Salons A&B

“New and Emerging Agents for the Treatment of Castrate-Resistant Prostate Cancer”
Speaker?
Affiliation?

Funding Provided By: Centocor Ortho Biotech

7:00 a.m. – 8:00 a.m.  Continental Breakfast at the Natcher Center
Location: Auditorium Foyer

8:00 a.m. – 9:10 a.m.  Prostate Cancer II
Session Chair: Chris Evans, MD
Management of Adverse Pathology Following Surgery
Moderator: Neil Fleshner, MD

8:00 a.m. – 8:05 a.m.  Introduction
Neil Fleshner, MD

8:05 a.m. – 8:15 a.m.  Defining the Positive Surgical Margin
Andrew Evans, MD, PhD

8:15 a.m. – 8:25 a.m.  Molecular Markers of Progression
Dan Lin, MD

8:25 a.m. – 8:45 a.m.  Debate: All Patients Should Receive Adjuvant Radiotherapy for All Radical Prostatectomy Positive Surgical Margins
Pro: Howard Sandler, MD
Con: Peter Scardino, MD
Rebuttals: Howard Sandler, MD; Peter Scardino, MD
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45 a.m. – 9:10 a.m.</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>9:10 a.m. – 10:55 a.m.</td>
<td>Kidney Cancer Session II</td>
</tr>
<tr>
<td></td>
<td>Session Chair: Brian Rini, MD</td>
</tr>
<tr>
<td></td>
<td><strong>Modern Debates in Partial Nephrectomy</strong></td>
</tr>
<tr>
<td></td>
<td>Moderators: Paul Russo, MD</td>
</tr>
<tr>
<td></td>
<td>Ramaprasad Srinivasan, MD, PhD</td>
</tr>
<tr>
<td>9:10 a.m. – 9:20 a.m.</td>
<td>Case Presentation(s)</td>
</tr>
<tr>
<td></td>
<td>Moderators: Paul Russo, MD</td>
</tr>
<tr>
<td></td>
<td>Ramaprasad Srinivasan, MD, PhD</td>
</tr>
<tr>
<td>9:20 a.m. – 10:00 a.m.</td>
<td><strong>Is Partial Nephrectomy Appropriate for a Renal Carcinoma &gt; 7cm?</strong></td>
</tr>
<tr>
<td>9:20 a.m. – 9:30 a.m.</td>
<td><strong>PRO</strong></td>
</tr>
<tr>
<td></td>
<td>Gennady Bratslavsky, MD</td>
</tr>
<tr>
<td>9:30 a.m. – 9:40 a.m.</td>
<td><strong>CON</strong></td>
</tr>
<tr>
<td></td>
<td>Stephen Campbell, MD, PhD</td>
</tr>
<tr>
<td>9:40 a.m. – 10:00 a.m.</td>
<td><strong>Abstract Presentation</strong></td>
</tr>
<tr>
<td></td>
<td>#9 <strong>OFF-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY PRESERVES POSTOPERATIVE RENAL FUNCTION</strong></td>
</tr>
<tr>
<td></td>
<td>Arvin George¹, Amin Herati², Arun Srinivasan², Soroush Rais-Bahrami³, Nikhil Waigankar², Mostafa Sadek², Lee Richstone² and Louis Kavoussi²</td>
</tr>
<tr>
<td></td>
<td>¹NSLIJ Health System/Hofstra University; ²NSLIJ (Presented By: Arvin George)</td>
</tr>
<tr>
<td>9:50 a.m. – 10:00 a.m.</td>
<td>Q&amp;A</td>
</tr>
<tr>
<td>10:00 a.m. – 10:55 a.m.</td>
<td>The Biology and Management of Ischemia During Nephrectomy</td>
</tr>
<tr>
<td>10:00 a.m. – 10:10 a.m.</td>
<td><strong>Molecular Markers of Ischemia</strong></td>
</tr>
<tr>
<td></td>
<td>Brian Lane, MD</td>
</tr>
<tr>
<td>10:10 a.m. – 10:20 a.m.</td>
<td><strong>Warm Ischemia Less Than 30 Minutes is Safe</strong></td>
</tr>
<tr>
<td></td>
<td>Lou Kavoussi, MD</td>
</tr>
<tr>
<td>10:20 a.m. – 10:30 a.m.</td>
<td><strong>Warm Ischemia Less Than 30 Minutes is Not Safe: Every Minute Counts</strong></td>
</tr>
<tr>
<td></td>
<td>Scott Eggener, MD</td>
</tr>
<tr>
<td>10:30 a.m. – 10:40 a.m.</td>
<td><strong>Abstract Presentation</strong></td>
</tr>
<tr>
<td></td>
<td>#10 <strong>ANALYSIS OF TYPE AND DURATION OF ISCHEMIA DURING PARTIAL NEPHRECTOMY IN 660 SOLITARY KIDNEYS REVEALS PREDOMINANT ROLE OF NON-MODIFIABLE FACTORS IN DETERMINING ULTIMATE RENAL FUNCTION</strong></td>
</tr>
<tr>
<td></td>
<td>Brian Lane¹, Paul Russo², Robert Uzzo³, Adrian Hernandez⁴, Stephen Boorjian³, Houston Thompson³, Amr Fergany³, Thomas Love⁶ and Steven Campbell⁴</td>
</tr>
<tr>
<td></td>
<td>¹Spectrum Health / Michigan State University; ²Memorial Sloan-Kettering, New York, NY; ³Fox Chase Cancer Center, Philadelphia, PA; ⁴Cleveland Clinic, Cleveland, OH; ⁵Mayo Clinic, Rochester, MN; ⁶Case Western Reserve University, Cleveland, OH (Presented By: Steven Campbell)</td>
</tr>
<tr>
<td>10:40 a.m. – 10:55 a.m.</td>
<td>Q&amp;A</td>
</tr>
</tbody>
</table>
10:55 a.m. – 11:55 a.m.  Oral Abstract Session
Moderator: Joel Nelson, MD

10:55 a.m.  #11  A CRITICAL ANALYSIS OF ACTIVE SURVEILLANCE WITH DELAYED CURATIVE INTENT FOR THE TREATMENT OF SMALL RENAL MASSES
Marc Smaldone¹, Alexander Kutikov¹, Daniel Canter¹, Michael Leveridge², Michael Jewett² and Robert Uzzo¹
¹Fox Chase Cancer Center, Philadelphia, PA; ²University of Toronto, ON, Canada
(Presented By: Marc Smaldone)

11:05 a.m.  #12  QUALITY OF CARE IN PATIENTS WITH BLADDER CANCER: A CASE REPORT?
Karim Chamie¹, Christopher S. Saigal¹, Julie Lai², Jan M. Hanley², Badrinath R. Konety³, Mark S. Litwin¹ and the Urologic Diseases in America
¹UCLA, Los Angeles, CA; ²RAND, Santa Monica, CA; ³University of Minnesota, Minneapolis, MN
(Presented By: Karim Chamie)

11:15 a.m.  #13  MULTI-INSTITUTIONAL QUALITY OF CARE INITIATIVE FOR NON-METASTATIC MUSCLE-INVASIVE TRANSITIONAL CELL CARCINOMA OF THE BLADDER: PHASE 1
Andrew Feifer¹, Jennifer Taylor¹, Marwan Shouery², Caroline Savage³, Gary Steinberg³, Walter Stadler¹, Joel Decastro², Seth Lerner², Guilherme Godoy³, Yair Lotan³, Adam S. Feldman³, Wassim Kassouf³, Faysal Yafi⁴, Alex Zlotta³, Peter Black⁴, Marc Schoenberg⁴, Robert Grubb III⁵, Andrew Stephenson⁵, Amit Patel⁶, Cheryl Lee⁶, Alon Weizer⁶, Dean Bajorin⁵, Matthew Milowsky⁵, Ethan Basch⁶ and Bernard Bocner⁷
¹Urology Service, Memorial Sloan-Kettering Cancer Center; ²Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center; ³Dept. of Surgery, Division of Urology, University of Chicago; ⁴Dept. of Medicine, University of Chicago; ⁵Dept. of Surgery, Division of Urology, Baylor College of Medicine; ⁶Dept. of Urology, University of Texas Southwestern; ⁷Dept. of Urology, Massachusetts General Hospital; ⁸Division of Urology, McGill University Health Center; ⁹Dept. of Surgery (Urology), University of Toronto; ¹⁰Department of Urologic Sciences, University of British Columbia; ¹¹James Buchanan Brady Urological Institute, Johns Hopkins Medical Institution; ¹²Division of Urology, Washington University in St. Louis; ¹³Department of Urology, Cleveland Clinic; ¹⁴Department of Urology, University of Michigan Health System; ¹⁵Genitourinary Oncology Service, Memorial Sloan-Kettering Cancer Center; ¹⁶Genitourinary Oncology Service and Health Outcomes Unit, Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center; ¹⁷Dept. of Surgery (Urology), Memorial Sloan-Kettering Cancer Center
(Presented By: Andrew Feifer)

11:25 a.m.  #14*  PROSPECTIVE VALIDATION OF PROGNOSTIC BIOMARKER PANEL FOR BLADDER CANCER MANAGEMENT AT TIME OF TRANSURETHRAL RESECTION OF BLADDER TUMORS
Shahrokh Shariat, Ramy Youssef, Suzette Toombs, Joseph Scales, Christian Bolenz, Arthur Sagalowsky, Raheela Ashfaq and Yair Lotan
(Presented By: Yair Lotan)
*Not CME accredited

11:35 a.m.  #15*  DUTASTERIDE REDUCES PROSTATE CANCER PROGRESSION AND CANCER DIAGNOSIS ON RE-BIOPSY IN THE REDEEM ACTIVE SURVEILLANCE STUDY
Neil Fleshner¹, Scott Lucia², Karen Melich³, Indrani Nandy³, Libby Black³ and Roger Rittmaster³
¹Princess Margaret Hospital, University Health Network, Toronto, ON, Canada; ²University of Colorado Health Sciences Center, Denver, CO; ³GlaxoSmithKline, Research Triangle Park, NC
(Presented By: Neil Fleshner)
*Not CME accredited
11:45 a.m.  #16  THE RELATIONSHIP BETWEEN CHANGE IN PSA AND BIOPSY PROGRESSION IN PATIENTS WITH PROSTATE CANCER MANAGED WITH ACTIVE SURVEILLANCE
Jared Whitson, Sima Porten, Janet Cowan, Joan Hilton, Nannette Perez, Matthew Cooperberg, Kirsten Greene, Maxwell Meng, Jeff Simko, Katsuto Shinhara and Peter Carroll
UCSF, San Francisco, CA
(Presented By: Jared Whitson)

11:55 a.m. – 1:10 p.m.  Lunch

1:10 p.m. – 1:30 p.m.  State-of-the-Art: ETS-Fusion Proteins: From Discovery to Clinical Practice
Mark Rubin, MD

1:30 p.m. – 1:40 p.m.  SUO Huggins Medal Presentation
Eric A. Klein, MD
Cleveland Clinic
President, SUO

1:40 p.m. – 2:00 p.m.  Huggins Medal Lecture
Charles L. Sawyers, MD
Memorial Sloan-Kettering Cancer Center

2:00 p.m. – 3:05 p.m.  Bladder Cancer Session II
Session Chair: Bernard H. Bochner, MD
Management of Invasive Bladder Cancer in the Non-Cystectomy Candidate
Moderator: Matt Milowsky, MD

2:00 p.m. – 2:05 p.m.  Introduction
Matt Milowsky, MD

2:05 p.m. – 2:15 p.m.  Update of Clinical Trial Data for Trimodality Therapy
Jason Efstathiou, MD, DPhil

2:15 p.m. – 2:30 p.m.  Radical TURB for Management of Muscle Invasive Disease
Eduardo Solsona, MD

2:30 p.m. – 3:00 p.m.  Case-Based Discussion with Audience Participation
Panel: Jason Efstathiou, MD, DPhil
Harry Herr, MD
Jonathan Rosenberg, MD
Eduardo Solsona, MD

2:30 p.m. – 2:45 p.m.  Management of the Surgical Candidate that Desires Bladder Preservation

2:45 p.m. – 3:00 p.m.  Management of the Non-Surgical Candidate with Invasive Bladder Cancer

3:00 p.m. – 3:05 p.m.  Update from the Bladder Cancer Think Tank
Cheryl T. Lee, MD
## ProGram Schedule

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker(s)</th>
</tr>
</thead>
</table>
| 3:05 p.m. – 4:00 p.m. | **Prostate Cancer III**  
Session Chair: Chris Evans, MD | **Mechanisms and Integration of New Systemic Therapies**  
Moderator: Adam Kibel, MD  
**Basic Mechanisms of New Systemic Therapies**  
Philip Kantoff, MD  
**Integration and Sequencing of New Systemic Therapies**  
Robert Dreicer, MD |
| 3:05 p.m. – 3:20 p.m. | **Basic Mechanisms of New Systemic Therapies**  
Philip Kantoff, MD |
| 3:20 p.m. – 3:35 p.m. | **Integration and Sequencing of New Systemic Therapies**  
Robert Dreicer, MD |
| 3:35 p.m. – 3:45 p.m. | **Abstract Presentation**  
DENOSUMAB VERSUS ZOLEDRONIC ACID IN PATIENTS WITH BONE METASTASES FROM CASTRATION-RESISTANT PROSTATE CANCER: RESULTS FROM A PHASE 3 RANDOMIZED TRIAL  
Neal Shore¹, Matthew Smith², Lawrence Karsh³, Karim Fizazi⁴, Michael Carducci⁵, Ronaldo Damião⁶, Janet Brown⁷, Piotr Milecki⁸, Huei Wang⁹, Roger Dansey⁹ and Carsten Goessl⁹  
¹Carolina Urological Research Center, Myrtle Beach, SC; ²Massachusetts General Hospital Cancer Center, Boston, MA; ³The Urology Center of Colorado, Denver, CO; ⁴Institut Gustave Roussy, University of Paris, Villejuif, France; ⁵Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, Baltimore, MD; ⁶Hospital Universitario Pedro Ernesto, Rio de Janeiro, Brazil; ⁷Cancer Research UK Clinical Centre, Leeds, UK; ⁸Wielkopolskie Centrum Onkologii, Poznan, Poland; ⁹Amgen Inc., Thousand Oaks, CA  
(Presented By: Neal Shore)  
*Not CME accredited* | |
| 3:45 p.m. – 4:00 p.m. | **Case Presentations with Audience Participation** |
| 4:00 p.m. – 6:00 p.m. | **Poster Session II / Reception**  
*Poster Walks* |

**Poster #103**  
**TOPICAL TREATMENT OF UPPER TRACT UROTHELIAL CARCINOMA IN-SITU (CIS)**  
Andrew J. Lightfoot¹, Kenneth G. Nepple², Henry M. Rosevear² and Michael A. O’Donnell²  
¹University of Iowa, Iowa City, IA; ²University of Iowa Department of Urology, Iowa City, IA  
(Presented By: Andrew J. Lightfoot)

**Poster #104**  
**STRESS PROTEINS AND CYTOKINES MAY SERVE AS URINARY BIOMARKERS FOR DIAGNOSIS AND STAGING OF BLADDER CANCER**  
David Margel¹, Meirav Pesner-Fischer³, Jack Baniel³, Ofer Yossépovitch³ and Irun Cohen²  
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Department of Immunology, The Weizmann Institute of Science, Rehovot, Israel; ³Institute of Urology, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel  
(Presented By: David Margel)

**Poster #105**  
**LONG-TERM ONCOLOGIC OUTCOMES OF PATIENTS WITH STAGE PT0 FOLLOWING RADICAL CYSTECTOMY**  
Manoj Rao, Cory Hugen, Anthony Polcari, Ahmer Farooq, Robert C. Flanigan and Marcus L. Quek  
Loyola University Medical Center  
(Presented By: Manoj Rao)
Poster #106

**NODAL YIELD IS NOT INDEPENDENTLY ASSOCIATED WITH SURVIVAL IN PATIENTS WITHOUT NODAL METASTASIS AT RADICAL CYSTECTOMY**

John Fitzgerald¹, Shahrokh F. Shariat², Colin P. Dinney³, Giacomo Novara⁴, Eila C. Skinner⁵, Yves Fradet⁶, Patrick J. Bastian⁷, Wassim Kassouf⁸, Pierre Karakiewicz⁹, Hans-Martin Fritsche¹⁰, Jonathan I. Izawa¹¹, Derya Tilk¹², Vincenzo Ficarra¹³, Bjorn G. Volkmer¹⁴, Hendrik Isbarn¹⁵ and Robert S. Svatek¹⁶

¹University of Texas Health Science Center, San Antonio, TX; ²Weill Medical College of Cornell University, New York, NY; ³University of Texas MD Anderson Cancer Center, Houston, TX; ⁴University of Padua, Padua, Italy; ⁵University of Southern California, Los Angeles, CA; ⁶Laval University, Québec City, QC, Canada; ⁷University of Padua, Italy; ⁸University of Padua, Italy; ⁹University of Southern California, Los Angeles, CA; ¹⁰Ludwig-Maximilians-Universität München, Klinikum Grosshadern, Munich, Germany & Universität of Bonn, Bonn, Germany; ¹¹McGill University Health Centre, Montréal, QC, Canada; ¹²University of Montréal, Montréal, QC, Canada; ¹³University of Regensburg, Regensburg, Germany; ¹⁴University of Western Ontario, London, ON, Canada; ¹⁵Ludwig-Maximilians-Universität München, Klinikum Grosshadern, Munich, Germany; ¹⁶University of Ulm, Ulm, Germany; ¹⁷University of Texas Health Science Center, San Antonio, TX

(Presented By: John Fitzgerald)

Poster #107

**THE RELEVANCE OF ATYPICAL VOIDED CYTOLOGY IN BCG AND NON-BCG TREATED PATIENTS**

Alex Sokol, Daniel Thorner and Nicholas Karanikolas

SUNY Downstate Medical School, Department of Urology, Brooklyn, NY

(Presented By: Daniel Thorner)

Poster #108

**COMPARISON OF RECURRENCE PATTERNS OF UPPER TRACT UROTHELIAL CARCINOMAS TREATED ENDOSCOPICALLY OR WITH RADICAL NEPHRECTOMY**

Mark Anderson, GM Preminger and BA Inman

Duke University, Durham, NC

(Presented By: Mark Anderson)

Poster #109

**CAN WE RELIABLY IDENTIFY PATIENTS FOR RADICAL CYSTECTOMY WITHOUT NEOADJUVANT CHEMOTHERAPY?**

Rian Dickstein, H. Barton Grossman, Shannah Pretszch, Jose Karam, Randall Millikan, Colin Dinney and Ashish Kamat

The University of Texas MD Anderson Cancer Center, Houston, TX

(Presented By: Rian Dickstein)

Poster #110

**LONGITUDINAL EVALUATION OF THE CONCORDANCE AND PROGNOSTIC VALUE OF LYMPHOVASCULAR INVASION IN TRANSURETHRAL RESECTION AND RADICAL CYSTECTOMY SPECIMENS**

Matthew Resnick¹, Meredith Bergey², Laurie Magerfleisch³, John Tomaszewski⁴, S. Bruce Malkowicz⁵ and Thomas Guzzo⁶

¹Division of Urology, University of Pennsylvania School of Medicine; ²Division of Urology, University of Pennsylvania School of Medicine, Philadelphia, PA; ³Department of Pathology, University of Pennsylvania School of Medicine, Philadelphia, PA

(Presented By: Matthew Resnick)

Poster #111

**WITHDRAWN**

Poster #112

**SENSITIVITY OF URINE CYTOLOGY AND CT UROGRAPHY IN ISOLATED UPPER TRACT UROTHELIAL CARCINOMA AND IN THE DETECTION OF BLADDER UROTHELIAL CARCINOMA RECURRENCES**

Mohummad M. Siddiqui and Dianne Sacco

Massachusetts General Hospital, Boston, MA

(Presented By: Mohummad M. Siddiqui)
Poster #113  SECONDARY TRANSURETHRAL RESECTION FOR T1 BLADDER CANCER: MORE IMPORTANT THAN JUST STAGING?
Eric Umbreit, Mark Shimko, R. Houston Thompson and Igor Frank
Mayo Clinic, Rochester, MN
(Presented By: Eric Umbreit)

Poster #114  EFFECT OF RESIDUAL PATHOLOGIC STAGE AFTER TRANSURETHRAL RESECTION AT RADICAL CYSTECTOMY FOR UROTHELIAL CARCINOMA
Matthew Tollefson¹, Stephen Boorjian² and Igor Frank²
¹Mayo Clinic; ²Mayo Clinic, Rochester, MN
(Presented By: Matthew Tollefson)

Poster #115  SIGNIFICANCE OF CIRCULATING TUMOR CELLS IN PATIENTS WITH TRANSITIONAL CELL AND RENAL CELL CARCINOMA
Helen Levey and Manish Vira
Hofstra North Shore LIJ School of Medicine
(Presented By: Helen Levey)

Poster #116  ABILITY OF UROVYSION FISH ANALYSIS TO SELECT PATIENTS WITH LOW OR INTERMEDIATE RISK NON-MUSCLE INVASIVE BLADDER (LI-NMIBC) CANCER FOR DECREASED SURVEILLANCE
Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Poster #117  UTILITY OF QUANTITATIVE FLUOROSCENT IN SITU HYDRIDIZATION (FISH) TO PREDICT NON-MUSCLE INVASIVE BLADDER CANCER (NMIBC) RECURRENCE
Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Poster #118  THE IMPACT OF RACE AND GENDER IN PATIENTS UNDERGOING RADICAL CYSTECTOMY FOR BLADDER CANCER
Sean Sawh, Joshua Langston, J. Patrick Selph, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Sean Sawh)

Poster #119  DOES ROBOTIC RADICAL CYSTECTOMY FOR BLADDER CANCER AFFECT LONG-TERM HEALTH-RELATED QUALITY OF LIFE?
J. Patrick Selph, Joshua Langston, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: J. Patrick Selph)

Poster #120  COMPARATIVE OUTCOMES IN OCTOGENARIANS UNDERGOING RADICAL CYSTECTOMY
Adam D. Berneking¹, Henry Rosevear², James A. Brown³ and Michael A. O’Donnell³
¹University of Iowa College of Medicine; ²University of Iowa, Iowa City, IA; ³University of Iowa Department of Urology
(Presented By: Henry Rosevear)
Poster #121  LYMPH NODE DENSITY: UTILITY IN STRATIFYING PATIENTS FOR ADJUVANT THERAPY AFTER RADICAL CYSTECTOMY FOR BLADDER CANCER
Eugene Lee¹, Harry Herr², Wassim Kassouf³, Mark Munsell¹, H. Barton Grossman¹, Colin Dinney¹ and Ashish Kamat¹
¹University of Texas MD Anderson Cancer Center, Houston, TX; ²Memorial Sloan-Kettering Cancer Center, New York, NY; ³McGill University Health Centre, Montreal, QC, Canada
(Presented By: Eugene Lee)

Poster #122  REAL TIME DIAGNOSIS OF BLADDER CANCER WITH PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY
Jen-Jane Liu¹, Katherine Wu², Winifred Adams², Katherine Mach³, Kristin Jensen³ and Joseph Liao²
¹Stanford University, Stanford, CA; ²Department of Urology, Stanford University, Stanford, CA; ³Department of Pathology, Stanford University, Stanford, CA
(Presented By: Jen-Jane Liu)

Poster #123  EXTRAVESICAL NON-MUSCLE INVASIVE INVOLVEMENT OF UROTHELIAL CANCER
Andrew J. Lightfoot¹, Benjamin Carpenter², Henry M. Rosevear² and Michael A. O'Donnell²
¹University of Iowa, Iowa City, IA; ²University of Iowa Department of Urology, Iowa City, IA
(Presented By: Andrew J. Lightfoot)

Poster #124  THE USE OF HEXYLANOLAEVULINIC ACID (HEXVIX ) DURING THE INITIAL RESECTION IN NON-MUSCLE INVASIVE BLADDER CANCER: DECREASE OF RECIDIVE
Ana Maria Autran Gomez¹, Francis Dubosq², Olivier Dumonceau², Mohammed Fennouri², Bogdan Ilescu³, Laurence Peyrat³, Vincent Molinie² and Herve Baumert²
¹Division of Urology Department of Surgery London Health Sciences Center, University of Western Ontario, London, ON, Canada; ²Groupe Hospitalier Paris Saint Joseph Paris, France
(Presented By: Ana Maria Autran Gomez)

Poster #125  EXTERNAL VALIDATION OF POSTOPERATIVE NOMOGRAM FOR PREDICTION OF RECURRENCE AND SURVIVAL FOLLOWING RADICAL CYSTECTOMY IN PATIENTS WITH UROTHELIAL CARCINOMA OF THE BLADDER
Michael Brooks¹, Maxine Sun², Pierre I. Karakiewicz³, Shahrokh F. Shariat³, Gilad E. Amiel¹, Seth P. Lerner¹ and Guilherme Godoy¹
¹Scott Department of Urology, Baylor College of Medicine, Houston, TX; ²University of Montreal Health Center, Montreal, QC, Canada; ³Weil Medical College Cornell University, New York, NY
(Presented By: Michael Brooks)

Poster #126  QUALITY AND CONSISTENT PELVIC LYMPH NODE DISSECTION FOR BLADDER CANCER DESPITE POTENTIALLY ADVERSE CLINICAL VARIABLES
Brigitte Espinoza¹, Samuel Lawindy², Hui-Yi Lin³, Xiuhua Zhao³, Julio PowSang¹, Philippe Spiess¹ and Wade Sexton¹
¹Moffitt Cancer Center, Tampa, FL; ²University of South Florida, Tampa, FL; ³Biostatistics Department, Moffitt Cancer Center & Research Institute, Tampa, FL
(Presented By: Brigitte Espinoza)

Poster #127  CLINICAL OUTCOMES AND IMPACT OF SURGICAL TREATMENT IN THE RENAL FUNCTION OF SECOND PRIMARY TUMORS OF THE UPPER URINARY TRACT FOLLOWING RADICAL CYSTECTOMY
Joceline Liu, Guilherme Godoy, Gilad E. Amiel and Seth P. Lerner
Scott Department of Urology, Baylor College of Medicine, Houston, TX
(Presented By: Joceline Liu)
Poster #128  SURGICAL MANAGEMENT OF RENAL LESIONS: A COMPARISON OF CRYOABLATION, PARTIAL AND RADICAL NEPHRECTOMY IN THE NATIONWIDE INPATIENT SAMPLE
Jeffrey Woldrich, Ryan Kopp, Sean Stroup, Kerrin Palazzi-Churas and Ithaar Derweesh
UCSD, San Diego, CA
(Presented By: Jeffrey Woldrich)

Poster #129  NEPHROMETRY SCORING AS A PREDICTIVE TOOL FOR PERIOPERATIVE OUTCOMES
Nikhil Waingankar, Mostafa Sadek, Sylvia Montag, Zhamshid Okhunov, Lee Richstone, Louis Kavoussi and Manish Vira
Smith Institute for Urology, North Shore-Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Nikhil Waingankar)

Poster #130  URINARY COLLECTING SYSTEM INVASION IS A PREDICTOR FOR OVERALL AND DISEASE-SPECIFIC SURVIVAL IN LOCALLY INVASIVE RENAL CELL CARCINOMA
Christopher B. Anderson, Peter E. Clark, Todd M. Morgan, Kelly L. Stratton, S. Duke Herrell, Rodney Davis, Michael S. Cookson, Joseph A. Smith, Jr. and Sam S. Chang
Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN
(Presented By: Christopher B. Anderson)

Poster #131  POPULATION BASED ANALYSIS OF SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA AND VENOUS TUMOR THROMBUS
Jared Whitson, Adam Reese and Maxwell Meng
UCSF, San Francisco, CA
(Presented By: Jared Whitson)

Poster #132  SYNERGISTIC ANTIPROLIFERATIVE EFFECT OF COMBINATION MUSHROOM BETA-GLUCAN AND VITAMIN C ON ADVANCED RENAL CELL CARCINOMA: INDUCTION OF APOPTOSIS
Andrew Fishman, Bobby Alexander, David Green, Muhammad Choudhury, John Phillips and Sensuke Konno
Department of Urology, New York Medical College, Valhalla, NY
(Presented By: Andrew Fishman)

Poster #133  PERIOPERATIVE MANAGEMENT OF RENAL CELL CARCINOMA WITH INFERIOR VENA CAVAL TUMOR THROMBUS: AN INSTITUTIONAL PROTOCOL
Daniel Woodruff, Peter Van Veldhuizen, Phillip Johnson, Greg Muehlebach, Timothy Williamson and Jeffery Holzbeierlein
University of Kansas Medical Center, Kansas City, KS
(Presented By: Daniel Woodruff)

Poster #134  ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR RENAL TUMORS GREATER THAN 4 CM: A MULTI-INSTITUTIONAL ANALYSIS OF PERIOPERATIVE OUTCOMES IN 445 PATIENTS
Firas Petros¹, Georges-Pascal Haber², Lori Dulabon³, Shyam Sukumar³, Sam Bhayani⁴, Michael Stifelman⁵, Jihad Kaouk⁶ and Craig Rogers⁷
¹Vattikuti Urology Institute, Henry Ford Hospital, Detroit, MI; ²Glickman Urological and Kidney Institute, Cleveland Clinic Foundation, Cleveland, OH; ³Department of Urology, NYU Medical Center, New York, NY; ⁴Division of Urological Surgery, Washington University School of Medicine, St. Louis, MO
(Presented By: Firas Petros)
<table>
<thead>
<tr>
<th>Poster #</th>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>#135</td>
<td>ASSOCIATION OF R.E.N.A.L. NEPHROMETRY SCORE AND ISCHEMIA TIME DURING PARTIAL NEPHRECTOMY</td>
<td>Jason Bylund, Dustin Gayheart, Ramakrishna Venkatesh, David Preston, Stephen Strup and Paul Crispen</td>
<td>University of Kentucky, Lexington, KY</td>
<td>Jason Bylund</td>
</tr>
<tr>
<td>#136</td>
<td>RADIOGRAPHIC PREDICTORS OF VENA CAVA WALL INVASION BY TUMOR THROMBUS IN RENAL CELL CARCINOMA</td>
<td>Eric Umbreit, Mark Shimko, R. Houston Thompson and Bradley Leibovich</td>
<td>Mayo Clinic, Rochester, MN</td>
<td>Eric Umbreit</td>
</tr>
<tr>
<td>#137</td>
<td>PERCUTANEOUS ABLATION OF T1A RENAL CELL CARCINOMA: THE ALBANY MEDICAL CENTER EXPERIENCE</td>
<td>Michael Feuerstein¹, Ronald Kaufman, Jr¹, Kenneth Mandato², Allen Herr², Badar Mian¹, Hugh Fisher¹ and Gary Siskin²</td>
<td>Albany Medical College and Stratton Veterans Affairs Medical Center, Albany, NY; Albany Medical College, Albany, NY</td>
<td>Michael Feuerstein</td>
</tr>
<tr>
<td>#138</td>
<td>FEASIBILITY AND OUTCOMES OF LAPAROSCOPIC RENAL INTERVENTION AFTER PRIOR OPEN IPSILATERAL RETROPERITONEAL SURGERY</td>
<td>Ronald Boris¹, Gopal Gupta², W. Marston Linehan², Peter Pinto² and Gennady Bratslavsky²</td>
<td>Indiana University Medical Center, Indianapolis, IN; National Cancer Institute, Bethesda, MD</td>
<td>Ronald Boris</td>
</tr>
<tr>
<td>#139</td>
<td>OUTCOMES OF KIDNEY CANCER ARISING FROM THE DISTAL NEPHRON – A SEER ANALYSIS</td>
<td>Michael Abern¹, Annie Dude² and Christopher Coogan¹</td>
<td>Rush University Medical Center, Chicago, IL; University of Chicago, Chicago, IL</td>
<td>Michael Abern</td>
</tr>
<tr>
<td>#140</td>
<td>ONCOLOGIC OUTCOMES OF ENUCLEATIVE SURGERY FOR HIGH GRADE CLEAR CELL RENAL CELL CARCINOMA IN VHL PATIENTS</td>
<td>Heinric Williams, Anup Vora, Peter Pinto, W. Marston Linehan and Gennady Bratslavsky</td>
<td>National Cancer Institute</td>
<td>Heinric Williams</td>
</tr>
<tr>
<td>#141</td>
<td>COMPARISON OF OPEN, LAPAROSCOPIC, AND ROBOTIC PARTIAL NEPHRECTOMY FOR PT1B RENAL TUMORS</td>
<td>Nicholas Power, Preston Sprenkle, Tarek Ghoneim, Paul Russo and Jonathan Coleman</td>
<td>MSKCC, NY, NY</td>
<td>Nicholas Power</td>
</tr>
<tr>
<td>#142</td>
<td>WITHDRAWN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Poster #143  OFF-CLAMP VERSUS ON-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY: DOES CLINICAL STAGE MATTER?
The Arthur Smith Institute for Urology, North Shore - Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Soroush Rais-Bahrami)

Poster #144  A COMPARISON OF PERI-OPERATIVE OUTCOMES OF ROBOT-ASSISTED AND PURE LAPAROSCOPIC PARTIAL NEPHRECTOMY
Rebecca O’Malley¹, Tara Kowalik¹, Matthew Hayn¹, Timothy Collins¹, Hyung Kim² and Thomas Schwaab¹
¹Roswell Park Cancer Institute, Buffalo, NY; ²Cedars-Sinai Medical Center, Los Angeles, CA
(Presented By: Rebecca O’Malley)

Poster #145  UTILIZATION OF PARTIAL NEPHRECTOMY AT A CANCER CENTER IN THE MODERN ERA
Rebecca O’Malley¹, Tara Kowalik¹, Matthew Hayn¹, Timothy Collins¹, Khurshid Guru¹, Willie Underwood¹, Hyung Kim² and Thomas Schwaab¹
¹Roswell Park Cancer Institute, Buffalo, NY; ²Cedars-Sinai Medical Center, Los Angeles, CA
(Presented By: Rebecca O’Malley)

Poster #146  LAPAROSCOPIC-GUIDED RADIOFREQUENCY ABLATION IS SAFE FOR TREMENT OF ENHANCING RENAL MASSES IN PATIENTS TAKING WARFARIN AND/OR ANTIPLATELET AGENTS
Michael Gorin¹, Elie Antebi¹, Robert Carey² and Vincent Bird³
¹University of Miami, Miami, FL; ²Sarasota, FL; ³University of Florida, Gainesville, FL
(Presented By: Michael Gorin)

Poster #147  PERIOPERATIVE AND ONCOLOGIC OUTCOMES OF LAPAROSCOPIC RADICAL NEPHRECTOMY FOR RENAL CELL CARCINOMA WITH VENOUS EXTENSION
Nikhil Waingankar, Mostafa Sadek, Basit Khan, Lee Richstone, Louis Kavoussi and Manish Vira
Smith Institute for Urology, North Shore-Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Nikhil Waingankar)

Poster #148  RENAL NEPHROMETRY SCORE MAY NOT BE ASSOCIATED WITH OPERATIVE MODALITY FOR PARTIAL NEPHRECTOMY
Ryan Kopp¹, James L’Esperance², Michael Santomasso³, Kerrin Palazzi-Churas¹, Sean Stroup¹ and Ithaar Derweesh¹
¹UCSD Division of Urology, San Diego, CA; ²Department of Urology, Naval Medical Center, San Diego, CA
(Presented By: Ryan Kopp)

Poster #149  PARTIAL NEPHRECTOMY FOR TUMORS OVER 4 CMS: ONCOLOGICAL, CLINICAL OUTCOMES AND ASSESSMENT OF COMPLICATION USING A GRADED SCORE
Division of Urology, Department of Surgery, London Health Science Centre, University of Western Ontario, London, ON, Canada
(Presented By: Ali Al-Zahrani)

Poster #150  PROSPECTIVE EVALUATION OF BIOMARKERS IN PATIENTS WITH UPPER TRACT UROTHELIAL CARCINOMA: prognostic role of cell cycle regulators
Ramy Youssef, Tyler Arendt, Nicholas Cost, Arthur Sagalowsly, Yair Lotan and Vitaly Margulis
UT Southwestern Medical Center, Dallas, TX
(Presented By: Ramy Youssef)
Poster #151  PRIMARY FEMALE URETHRAL CANCERS: A RARE AND DIFFICULT EARLY DIAGNOSIS  Luke Wiegand¹, Brigitte Espinoza¹, Peter Mennie³, Matthew Biagioli³, Jorge Lockhart¹, Julio Powsang¹, Philippe Spiess¹, Raul Ordorica⁴ and Wade Sexton¹ ¹Moffitt Cancer Center, Tampa, FL; ³University of South Florida, Tampa, FL  (Presented By: Brigitte Espinoza)

Poster #152  LAPAROSCOPIC ADRENALECTOMY FOR ADRENAL CORTICAL CARCINOMA  Helen R Levey¹, Soroush Rais-Bahrami¹, Philip Pierorazio³, Trinity J Bivalacqua³, Nikhil Waingankar¹, Mohamad Aliafi³, Louis R Kavoussi¹ and Manish Vira¹ ¹The Arthur Smith Institute for Urology North Shore-Long Island Jewish Health System, New Hyde Park, NY; ³The James Buchanan Brady Urological Institute Johns Hopkins Medical Institutions, Baltimore MD  (Presented By: Helen R Levey)

Poster #153  END OF LIFE COMPLICATIONS IN MEN DYING FROM PROSTATE CANCER TREATED WITH AND WITHOUT RADICAL PROSTATECTOMY USING A POPULATION-BASED APPROACH  Kara Babaian¹, Deanna Cross², Mark Ritter³, Jeremy Cetnar³ and David Jarrard³ ¹University of Wisconsin, Madison, WI; ²Marshfield Clinic, Marshfield, WI; ³University of Wisconsin  (Presented By: Kara Babaian)

Poster #154  OUTCOMES OF MEN WITH AN ELEVATED PREOPERATIVE PSA AS THEIR SOLE INTERMEDIATE OR HIGH RISK FEATURE PRIOR TO PROSTATECTOMY  Ashley Ross, Phillip Pierorazio, Trinity Bivalacqua, Mark Ball, Elizabeth Humphreys, Misop Han, Jonathan Epstein, Alan Partin and Edward Schaeffer  The Johns Hopkins Brady Urological Institute, Baltimore, MD  (Presented By: Ashley Ross)

Poster #155  SPATIAL RE-TARGETING BIOPSY TECHNIQUE USING TRUS/MR FUSION IMAGE WITH GPS GUIDANCE  Casey Ng¹, Osamu Ukimura¹, Mitchell Gross¹, Suzanne Palmer², Samuel Valencerina³, Andre Berger¹, Ricardo Brandina¹, Monish Desai¹ and Inderbir Gill¹ ¹Department of Urology, USC Keck School of Medicine, Los Angeles, CA; ²Department of Radiology, USC Keck School of Medicine, Los Angeles, CA  (Presented By: Casey Ng)

Poster #156  PROSTATE SIZE AS A PREDICTOR OF GLEASON SCORE UPGRADING IN LOW-RISK PROSTATE CANCER PATIENTS  Judson Davies, Monty Aghazadeh, Sharon Phillips, Shady Salem, Peter Clark, Michael Cookson, Rodney Davis, S. Duke Herrell, Sam Chang, Joseph Smith and Daniel Barocas  Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN  (Presented By: Judson Davies)

Poster #157  OBESITY AND PROSTATE ENLARGEMENT IN MEN WITH LOCALIZED PROSTATE CANCER  Ryan Kopp¹, J. Kellogg Parsons¹, Alan Partin³, Elizabeth Humphreys², Stephen Freedland³ and Misop Han² ¹UCSD Division of Urology, San Diego, CA; ²The Brady Urological Institute, The Johns Hopkins Medical Institution, Baltimore, MD; ³Division of Urologic Surgery, Departments of Surgery and Pathology, Duke University, Durham, NC  (Presented By: Ryan Kopp)

Poster #158  CD151 AS A PROGNOSTIC BIOMARKER FOR PROSTATE CANCER  Carlos Martinez, Catalina Vasquez, Susanne Chan, Venu Chalasani, Jose Gomez-Lemus, Andrew Williams, Larry Stitt, Joseph Chin and John Lewis  University of Western Ontario, London, ON, Canada  (Presented By: Andrew Williams)
Poster #159  PATIENTS ON STATINS ARE LESS LIKELY TO HAVE PROSTATE CANCER AND HAVE LOWER CANCER VOLUME
Nelly Tan¹, Eric Klein², Jianbo Li³, Ayman Mousa³ and J Stephen Jones³
¹Yale-New Haven Hospital, New Haven, CT; ²Cleveland Clinic, Cleveland, OH (Presented By: Nelly Tan)

Poster #160  SHORT TIME TO PSA NADIR AFTER RADICAL PROSTATECTOMY IS ASSOCIATED WITH INCREASED RISK OF BIOCHEMICAL RECURRENCE: RESULTS FROM THE SEARCH DATABASE
Jean-Alfred Thomas¹, Joseph Presti², William Aronson³, Martha Terris⁴, Christopher Kane⁵, Christopher Amling⁶, Stephen Freedland¹ and Daniel Moreira¹
¹Division of Urologic Surgery, Department of Surgery, and the Duke Prostate Center, Duke University School of Medicine, Durham, NC and Urology Section, Veterans Affairs Medical Center Durham, NC; ²Department of Urology, Stanford University Medical Center and Urology Section, Department of Surgery, Veterans Affairs Medical Center, Palo Alto, CA; ³Urology Section, Department of Surgery, Veterans Affairs Medical Center, Greater Los Angeles, Los Angeles, CA; ⁴Division of Urology, Department of Surgery, University of California at San Diego Medical Center, San Diego, CA; ⁵Division of Urology, Department of Surgery, Oregon Health & Science University, Portland, OR (Presented By: Jean-Alfred Thomas)

Poster #161  ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: EVALUATION OF THE FUNCTIONAL AND ONCOLOGIC LEARNING CURVE
Joshua Langston, J. Patrick Selph, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Joshua Langston)

Poster #162  RADIATION THERAPY FOR PROSTATE CANCER INCREASES BOTH THE RISK OF RECTAL CANCER AND ITS AGGRESSIVENESS
David Margel¹, Jack Baniel², Nir Wasserberg³, Micha Bar-Chana⁴ and Ofer Yossepowitch²
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Institute of Urology, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel; ³Department of Surgery B, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel; ⁴Israel National Cancer Registry, Ministry of Health, Jerusalem (Presented By: David Margel)

Poster #163  AVOIDING ANDROGEN DEPRIVATION THERAPY IN MEN WITH HIGH RISK PROSTATE CANCER: THE ROLE OF RADICAL PROSTATECTOMY AS INITIAL TREATMENT
Ranko Miocinovic, Ryan Berglund, Andrew Stephenson, Stephen Jones, Amr Fergany, Jihad Kaouk and Eric Klein
Cleveland Clinic, Cleveland, Ohio (Presented By: Ranko Miocinovic)

Poster #164  PSA SCREENING IN PATIENTS WITH DE NOVO METASTATIC PROSTATE CANCER
Jessica Kreshover¹, Rian Dickstein² and Mark Katz¹
¹Boston University Medical Center, Boston, MA; ²MD Anderson Cancer Center, Houston, TX (Presented By: Jessica Kreshover)

Poster #165  PROSTATE CANCER-SPECIFIC SURVIVAL THIRTY YEARS AFTER RADICAL PROSTATECTOMY
Dan Lewinshtein and Christopher Porter
Virginia Mason Medical Center, Seattle, WA (Presented By: Dan Lewinshtein)
<table>
<thead>
<tr>
<th>Poster #</th>
<th>Title</th>
<th>Authors</th>
<th>Presenting Author</th>
<th>Institution(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#166</td>
<td>THE EFFECT OF THE NUMBER CORES AND PROSTATE RISK FACTORS ON THE ACCURACY OF NEEDLE BIOPSY</td>
<td>Michael Jurewicz, Ali Dabaja, Emil Kheterpal, Naveen Pokala, Mireya Diaz-Insua, Mani Menon and Priyush Agarwal</td>
<td>(Presented By: Michael Jurewicz)</td>
<td>Vattikuti Urology Institute, Henry Ford Hospital, Detroit, MI</td>
</tr>
<tr>
<td>#167</td>
<td>LOW SERUM FOLATE IS A RISK FACTOR FOR BIOCHEMICAL RECURRENCE AFTER RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE</td>
<td>Daniel Moreira¹, Lionel Banez², William Aronson³, Martha Terris⁴, Christopher Amling⁵, Christopher Kane⁶, Joseph Presti⁷ and Stephen Freedland⁸</td>
<td>(Presented By: Daniel Moreira)</td>
<td>¹The Arthur Smith Institute for Urology, New Hyde Park, NY; ²Duke University, Durham, NC; ³UCLA, Los Angeles, CA; ⁴Medical College of Georgia, Augusta, GA; ⁵Oregon Health &amp; Science University, Portland, OR; ⁶University of California, San Diego, CA; ⁷Stanford University, Palo Alto, CA</td>
</tr>
<tr>
<td>#168</td>
<td>BIOPSY CHARACTERISTICS OF HIGH-GLEASON DISEASE PREDICTIVE OF FAVORABLE PATHOLOGY AT RADICAL PROSTATECTOMY</td>
<td>Phillip Pierorazio, Ashley Ross, Brian Lin, Jonathan Epstein, Misop Han, Patrick Walsh, Alan Partin, Christian Pavlovich and Edward Schaeffer</td>
<td>(Presented By: Phillip Pierorazio)</td>
<td>Brady Urological Institute, Johns Hopkins Medical Institutions, Baltimore, MD</td>
</tr>
<tr>
<td>#169</td>
<td>A MULTI-INSTITUTIONAL STUDY OF 3794 PATIENTS TO DETERMINE THE LEARNING CURVE FOR ROBOTIC RADICAL PROSTATECTOMY</td>
<td>Prasanna Sooriakumaran, Majnu John¹, David Lee², Peter Wiklund³ and Ashutosh Tewari¹</td>
<td>(Presented By: Prasanna Sooriakumaran)</td>
<td>¹Weill Cornell Medical College, New York, NY; ²University of Pennsylvania, Philadelphia, PA; ³Karolinska Institute, Stockholm, Sweden</td>
</tr>
<tr>
<td>#170</td>
<td>NOMOGRAMS TO PREDICT PROSTATE BIOPSY POSITIVITY BASED ON TYROL SCREENING DATA</td>
<td>Prasanna Sooriakumaran, Majnu John¹, Jasmin Bektic², Mike Herman¹, Doug Scherr¹ and Ashutosh Tewari¹</td>
<td>(Presented By: Prasanna Sooriakumaran)</td>
<td>¹Weill Cornell Medical College, New York, NY; ²Innsbruck Medical University, Innsbruck, Austria</td>
</tr>
<tr>
<td>#171</td>
<td>HOW DOES LEVEL I EVIDENCE AFFECT TREATMENT TRENDS OF EBRT+AST COMBINATION THERAPY FOR PROSTATE CANCER?</td>
<td>Shaheen Alaneé, Stephanie Jarosek¹, Beth Virnig¹ and Sean Elliott²</td>
<td>(Presented By: Shaheen Alaneé)</td>
<td>¹University of Minnesota, School of Public Health, Minneapolis, MN; ²University of Minnesota, Department of Urologic Surgery and School of Public Health, Minneapolis/MN</td>
</tr>
<tr>
<td>#172</td>
<td>RATIONALLY DESIGNED PEPTIDOMIMETICS TARGET ANDROGEN RECEPTOR SIGNALING IN PROSTATE CANCER</td>
<td>Ganesh Raj</td>
<td>(Presented By: Ganesh Raj)</td>
<td></td>
</tr>
</tbody>
</table>
Poster #173  THE USE OF MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY FOR THE TREATMENT OF LOCALIZED PROSTATE CANCER: A PHASE I STUDY  
Alexandra Colquhoun, Harry Foster, Linda Sugar, Masoom Haider, Laurence Klotz, Michael Bronskill and Rajiv Chopra  
Sunnybrook Health Sciences Centre, Toronto, ON, Canada  
(Presented By: Alexandra Colquhoun)

Poster #174  CONSISTENCY OF TUMOR POSITION ON REPEAT PROSTATE BIOPSY IN MEN ON ACTIVE SURVEILLANCE FOR PROSTATE CANCER—IMPLICATIONS FOR FOCAL THERAPY  
Greg Trottier, Nathan Lawrentschuk, Robert Sowerby, Neil E. Fleshner, Ants Toi, Andrew Evans, Theodorus H. van der Kwast, Kimberly A. Fernandes and Antonio Finelli  
Princess Margaret Hospital, University of Toronto, Toronto, ON, Canada  
(Presented By: Greg Trottier)

Poster #175  DO UROLOGIC PROCEDURES SUCH AS PROSTATE NEEDLE BIOPSY AND VASECTOMY CAUSE ERECTILE DYSFUNCTION?  
Sandra Koo, Dan Lewinshtein and Christopher Porter  
Virginia Mason Medical Center, Seattle, WA  
(Presented By: Sandra Koo)

Poster #176  FRAGMENTATION OF PROSTATE CANCER SURVIVORSHIP CARE: IMPLICATIONS FOR COST AND QUALITY  
Ted Skolarus, Yun Zhang, Bruce Jacobs and Brent Hollenbeck  
Department of Urology, University of Michigan, Ann Arbor, MI  
(Presented By: Ted Skolarus)

Poster #177  COMPETING RISKS OF DEATH IN PATIENTS WITH LOCALIZED PROSTATE CANCER: RESULTS FROM THE CAPSURE DATABASE  
Alexander Kutikov¹, Alan T. Paciorek², Peter R. Carroll² and Stephen A. Boorjian³  
¹Fox Chase Cancer Center, Philadelphia, PA; ²University of California San Francisco, San Francisco, CA; ³Mayo Clinic, Rochester, MN  
(Presented By: Alexander Kutikov)

Poster #178  PRESENCE OF GLEASON PATTERN 5 ON BIOPSY: SUBCLASSIFICATION OF HIGH RISK PATIENTS FROM THE SEARCH DATABASE  
Sean Stroup¹, Stephen Freedland², Fred Millard¹, Martha Terris², William Aronson², Joseph Presti³, Christopher Amling⁴ and Christopher Kane¹  
¹University of California, San Diego, CA; ²Duke University, Durham, NC; ³Stanford University, Palo Alto, CA; ⁴Oregon Health & Science University, Portland, OR  
(Presented By: Sean Stroup)

Poster #179  LOCALLY ADVANCED PROSTATE CANCER: A POPULATION-BASED STUDY OF TREATMENT PATTERNS  
William Lowrance, Elena Elkin, David Yee, Andrew Feifer, Behfar Ehdai, Coral Swartz, Peter Scardino and James Eastham  
MSKCC, New York, NY  
(Presented By: William Lowrance)
| Poster #180 | PREDICTORS AND OUTCOMES OF MACROSCOPICALLY POSITIVE LYMPH NODES FOUND INTRAOPERATIVELY DURING ROBOTIC RADICAL PROSTATECTOMY DESPITE NEGATIVE PREOPERATIVE IMAGING  
Shyam Sukumar, Wooju Jeong, Nilesh Patil, Firas Petros, Ramgopal Satyanarayana, James Peabody, Mani Menon and Craig Rogers  
Vattikuti Urology Institute, Henry Ford Health System, Detroit, MI  
(Presented By: Shyam Sukumar) |
| --- | --- |
| Poster #181 | SALVAGE PROSTATECTOMY AFTER RADIATION THERAPY FOR PROSTATE CANCER: A SINGLE CENTER EXPERIENCE  
Galaxy Shah, Ahmed Eldefrawy, Elie Antebi, Mohan Arianayagam, Kristell Acosta, Murugesan Manoharan and Mark Soloway  
University of Miami, Miller School of Medicine, Miami, FL  
(Presented By: Galaxy Shah) |
| Poster #182 | LOW INCIDENCE OF BIOCHEMICAL AND CLINICAL HYPOGONADISM FOLLOWING HYPOFRACTIONATED STEREOTACTIC BODY RADIATION THERAPY (SBRT) MONOTHERAPY FOR LOW TO INTERMEDIATE RISK PROSTATE CANCER  
Eric Oermann¹, Simeng Suy¹, Heather Hanscom¹, Sue Lei¹, Nathaniel Piel¹, Hyeon Park¹, Joy Kim¹, Viola Chen¹, Brian Collins¹, Nicholas Constantinople², Stephen Dejter³, William Maxted³, John Pahira³, Kevin McGeagh³, Reena Jha⁴, Nancy Dawson⁴, Anatoly Dritschilo¹, John Lynch³ and Sean Collins¹  
¹Department of Radiation Medicine, Georgetown University Hospital, Washington, DC; ²Department of Radiology, Georgetown University Hospital, Washington, DC; ³Department of Urology, Georgetown University Hospital, Washington, DC; ⁴Department of Medical Oncology, Georgetown University Hospital, Washington, DC  
(Presented By: Sean Collins) |
| Poster #183 | OUTCOMES OF ACTIVE SURVEILLANCE FOR MEN WITH INTERMEDIATE-RISK PROSTATE CANCER  
Matthew Cooperberg, Janet Cowan, Joan Hilton, Adam Reese, Harras Zaid, Sima Porten, Katsuto Shinohara, Maxwell Meng, Kirsten Greene and Peter Carroll  
UCSF, San Francisco, CA  
(Presented By: Matthew Cooperberg) |
| Poster #184 | A PROSPECTIVE CONTROLLED PHASE II STUDY OF NEOADJUVANT EXISULIND THERAPY INITIATED PRIOR TO RADICAL PROSTATECTOMY: EFFECT ON APOPTOSIS  
Christopher Weight, Simon Kim, Matthew Tollefson, R. Jeffrey Karnes, Eric Bergstralh and Bradley Leibovich  
Mayo Clinic, Rochester, MN  
(Presented By: Christopher Weight) |
| Poster #185 | COMORBID CONDITIONS, TREATMENT TYPE AND ENSUING SURVIVAL IN MEN WITH PROSTATE CANCER: A STATE OF MISMATCH  
Karim Chamie, Timothy J. Daskivich and Mark S. Litwin  
UCLA, Los Angeles, CA  
(Presented By: Karim Chamie) |
| Poster #186 | FUNCTIONAL OUTCOMES FOLLOWING CATHETERLESS ROBOTIC RADICAL PROSTATECTOMY UTILIZING A SUPRAPUBIC DEVICE – AN EXTENDED STUDY  
Sonal Grover, Sandhya Rao, Abhishek Srivastava and Ashutosh Tewari  
Weill Cornell Medical College, New York, NY  
(Presented By: Sonal Grover) |
Poster #187  EFFECT OF ADJUVANT AND SALVAGE RADIATION THERAPY FOR PROSTATE CANCER ON THE RISK OF SUBSEQUENT URINARY OBSTRUCTION AND INCONTINENCE
Andrew Feifer¹, Jaspreet Sandhu¹, William Lowrance¹, Caroline Savage² and Elena Elkin²
¹Urology Service, Memorial Sloan-Kettering Cancer Center; ²Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center
(Presented By: Andrew Feifer)

Poster #188  CHANGES IN PROSTATE CANCER GRADE IN MEN UNDERGOING SERIAL BIOPSIES ON ACTIVE SURVEILLANCE
Sima Porten, Jared Whitson, Janet Cowan, Matthew Cooperberg, Katsuto Shihohara, Nannette Perez, Maxwell Meng, Kirsten Greene and Peter Carroll
San Francisco, CA
(Presented By: Sima Porten)

Poster #189  ROBOTIC ASSISTED LAPAROSCOPIC VS. OPEN CYSTOPROSTATECTOMY: RELATING PRE-OPERATIVE COMORBIDITIES TO POSTOPERATIVE COMPLICATIONS USING A STANDARDIZED REPORTING SYSTEM
Ercole Barbara, J. Michael Drake, John P. Fitzgerald, Yuanyuan Liang, Yumin Chen and Dipen J. Parekh
UTHSCSA, San Antonio, TX
(Presented By: Ercole Barbara)

Poster #190  RACIAL VARIATION IN THE UTILIZATION OF HIGH-VOLUME SURGEONS AND HIGH-VOLUME HOSPITALS FOR RADICAL PROSTATECTOMY AMONG MEN WITH PROSTATE CANCER
Daniel Barocas¹, Darryl Gray², David Penson¹, Jay Fowke³, Stephen Kappa¹, Jeffrey Blume¹, Sharon Phillips¹, Sam Chang¹, Michael Cookson¹ and Joseph Smith, Jr.¹
¹Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN; ²Center for Quality Improvement and Patient Safety, Agency for Healthcare Research and Quality, Rockville, MD; ³Vanderbilt University Medical Center, Division of Epidemiology, Nashville, TN; ⁴Vanderbilt University Medical Center, School of Medicine, Nashville, TN; ⁵Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN
(Presented By: Daniel Barocas)

Poster #191  FINANCIAL IMPLICATIONS OF ACTIVE SURVEILLANCE FOR PROSTATE CANCER: THE IMPACT OF DELAYED ACTIVE TREATMENT VERSUS INITIAL TREATMENT
Kirk Keegan¹, Marc Dall’Era² and Christopher Evans²
¹Vanderbilt University, Department of Urologic Surgery; ²University of California, Davis, CA
(Presented By: Kirk Keegan)

Poster #192  MULTIPARAMETRIC 3T MR IMAGING OF PROSTATE CANCER: HISTOPATHOLOGIC CORRELATION USING CUSTOMIZED MRI-BASED SPECIMEN MOLDS
Baris Turkbey¹, Haresh Mani², Vijay Shah¹, Marcelino Bernardo¹, Thomas Pohida³, Maria Merino³, Ardeshir Rastinehad⁴, Compton Benjamin⁴, Peter Choyke¹ and Peter Pinto⁴
¹Molecular Imaging Program, NCI, NIH, Bethesda, MD; ²Laboratory of Pathology, NCI, NIH, Bethesda, MD; ³Division of Computational Bioscience, Center for Information Technology, NIH, Bethesda, MD; ⁴Urologic Oncology Branch, NCI, NIH, Bethesda, MD
(Presented By: Baris Turkbey)

Poster #193  GTX-758 LOWERS SERUM CONCENTRATIONS OF TOTAL AND FREE TESTOSTERONE IN HEALTHY MEN
Ronald Morton, Gary Barnette, Michael Hancock, Jeffrey Kearbey, James Dalton and Mitchell Steiner
GTx, Inc., Memphis, TN
(Presented By: Mitchell Steiner)
<table>
<thead>
<tr>
<th>Poster #194</th>
<th>PROSTATE ATYPIA: CLINICAL AND PATHOLOGIC VARIABLES ASSOCIATED WITH CANCER DIAGNOSIS ON REPEAT BIOPSY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ryan Kopp¹, J. Kellogg Parsons¹, Jonathan Shiau¹, Jessica Wang-Rodriguez², Kerrin Palazzi-Churas¹, Jonathan Silberstein³, Ithaar Derweesh¹ and Kyoko Sakamoto²</td>
<td></td>
</tr>
<tr>
<td>¹UCSD Division of Urology, San Diego, CA; ²VA San Diego Medical Center; ³Memorial Sloan-Kettering Cancer Center, New York, NY</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Ryan Kopp)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #195</th>
<th>ROBOTIC RADICAL PROSTATECTOMY FOR ELDERLY PATIENTS WITH HIGH RISK PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Craig Rogers, Shyam Sukumar, Jesse Sammon, Firas Petros, James Peabody and Mani Menon</td>
<td></td>
</tr>
<tr>
<td>Vattikutti Urology Institute, Henry Ford Health System, Detroit, MI</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Shyam Sukumar)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #196</th>
<th>THE FATE OF MEN WITH INCIDENTAL PROSTATE CANCER DIAGNOSED AT THE TIME OF RADICAL CYSTECTOMY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joshua Langston, J. Patrick Selph, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Joshua Langston)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #197</th>
<th>PROSTATE VOLUME IS AN IMPORTANT PREDICTOR OF HISTOPATHOLOGIC VARIABLES OF ONCOLOGIC IMPORTANCE IN PROSTATE CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prasanna Sooriakumaran, Abhishek Srivastava, Sonal Grover, Youssef El-Douaihy, Sivaram Rajan, Robert Leung and Ashutosh Tewari</td>
<td></td>
</tr>
<tr>
<td>Weill Cornell Medical College, New York, NY</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Prasanna Sooriakumaran)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #198</th>
<th>USE OF A NOVEL ABSORBABLE BARBED SUTURE ENABLES A ‘SELF-CINCHING’ TECHNIQUE OF VESICO-URETHRAL ANASTOMOSIS DURING ROBOTIC PROSTATECTOMY AND IMPROVES ANASTOMOTIC TIMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abhishek Srivastava, Prasanna Sooriakumaran, Sonal Grover, Sivaram Rajan, Swathi Roy, Robert Leung and Ashutosh Tewari</td>
<td></td>
</tr>
<tr>
<td>Weill Cornell Medical College, New York, NY</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Abhishek Srivastava)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #199</th>
<th>ROBOTIC RADICAL PROSTATECTOMY, RETROGRADE APPROACH: A NOVEL TECHNIQUE THAT MIMICS THE OPEN APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youssef Tanagho and Rabii Madi</td>
<td></td>
</tr>
<tr>
<td>Urological Institute, Case Western Reserve University, Cleveland, OH</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Youssef Tanagho)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Poster #200</th>
<th>HIGH RISK PROSTATE CANCER FEATURES ON DIAGNOSIS IN AFRICAN AMERICAN MALES: ANALYSIS OF THE MODERN SEER DATABASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaheen Alanee, Stephanie Jarosek¹, Beth Virnig¹, Badrinath Konety² and Sean Elliott²</td>
<td></td>
</tr>
<tr>
<td>¹University of Minnesota, School of Public Health; ²University of Minnesota, Urologic Surgery Department</td>
<td></td>
</tr>
<tr>
<td>(Presented By: Shaheen Alanee)</td>
<td></td>
</tr>
</tbody>
</table>
Poster #201  THE RISK OF AGGRESSIVE PROSTATE CANCER AMONG HMO VS. FEE-FOR-SERVICE MEDICARE PATIENTS  
Shaheen Alanee, Stephanie Jarosek¹, Beth Virnig¹, Badrinath Konety² and Sean Elliott³  
¹University of Minnesota, School of Public Health, Minneapolis, MN; ²University of Minnesota, Urologic Surgery Department, Minneapolis, MN; ³University of Minnesota, Urologic Surgery Department and School of Public Health, Minneapolis, MN  
(Presented By: Shaheen Alanee)

Poster #202  PRETHERAPY ASSESSMENT AND POSTTHERAPY QUALITY OF LIFE IN MEN UNDERGOING DEFINITIVE TREATMENT FOR LOCALIZED PROSTATE CANCER  
Karim Chamie¹, Natalia Sadetsky² and Mark S. Litwin¹  
¹UCLA, Los Angeles, CA; ²UCSF, San Francisco, CA  
(Presented By: Karim Chamie)

Poster #203  FLUTAMIDE WITH OR WITHOUT A POXVIRAL-BASED THERAPEUTIC CANCER VACCINE IN PATIENTS WITH NONMETASTATIC CASTRATION-RESISTANT PROSTATE CANCER(CRPC)  
Ravi Madan, Marijo Bilusic, Christopher Heery, Philip Arlen, Andrea Apolo, William Dahut, Jeffry Schlom and James Gulley  
National Cancer Institute, Bethesda, MD  
(Presented By: Ravi Madan)

Poster #204  PREDICTORS FOR GLEASON SUM UPGRADING IN POTENTIAL CANDIDATES FOR ACTIVE SURVEILLANCE OF PRESUMED LOW-RISK PROSTATE CANCER  
Abhishek Srivastava, Sonal Grover, Prasanna Sooriakumaran and Ashutosh Tewari  
Weill Cornell Medical College, New York, NY  
(Presented By: Abhishek Srivastava)

6:00 p.m.  Adjourn
PRE-OPERATIVE PREDICTION OF MALIGNANT AND HIGH GRADE PATHOLOGY BASED ON ANATOMICAL FEATURES OF ENHANCING RENAL MASSES
Fox Chase Cancer Center, Philadelphia, PA
(Presented By: Alexander Kutikov)

Introduction: We sought to evaluate whether preoperative radiographic attributes of renal masses could predict pathological characteristics and developed a comprehensive nomogram to quantitate pre-operative likelihood of malignancy and of high grade pathology.

Methods: We queried our prospective Kidney Cancer Database for renal mass where Nephrometry Score (NS) was available. The individual components of NS were compared to pathological features (histology and grade) of resected tumors by Kruskal Wallis tests. We used a multiple logistic regression to develop nomograms predicting the malignancy of tumors and likelihood of high versus low grade disease among malignant tumors.

Results: NS was available on 525 of 1750 renal masses. 13.7% of the masses were benign and 38% were high grade. Nephrometry score correlated with both tumor grade (p<0.0001) and histology (p<0.0001). Small, endophytic, non–hilar tumor features predicted benign pathology (primarily oncocytoma). Conversely, large, interpolar, and hilar tumor features predicted high grade pathology. Based on this data, the resulting nomogram (Figure 1) integrates anatomic tumor attributes with patient’s age and gender into a useful tool for pre-operative prediction of tumor pathology.

Conclusion: Anatomic features of renal masses appear to predict benign vs. malignant histology. Using the Nephrometry Score we developed a tool to quantitate pre-operative likelihood of malignant and high grade pathology of the enhancing renal mass.
Objective: Despite the increased morbidity and mortality of radical cystectomy (RC) in elderly individuals with bladder cancer, numerous studies have demonstrated that surgery can provide a survival benefit. Given the inherent potential risks of RC in this population, however, we sought to better identify those patients at substantial risk of mortality following surgery.

Methods: We evaluated 159 consecutive patients age 75 years and older treated with RC for bladder cancer at a single institution from 2000–2008 and in whom complete information was available. A Cox proportional hazards model was used to determine the value of pre–cystectomy clinical information (age, gender, clinical stage [non–muscle invasive vs. muscle invasive], Charlson Co–morbidity Index [CCI], and pre–operative albumin) in predicting 90–day survival post RC. These results were then used to create a nomogram predicting the probability of 90–day survival post RC.

Results: The cohort had a mean age of 79.8 years (± 3.7 years), and there were a total of 16 deaths (10%) within 90 days post RC. In the Cox regression analysis, older age (HR 2.75, CI 1.41–6.31 for 75th vs. 25th percentile) and lower pre–operative albumin (HR 0.31, CI 0.12–0.80 for 75th vs. 25th percentile) were significant predictors of 90–day mortality. A nomogram based on age, gender, clinical stage, CCI, and albumin predicting the likelihood of 90–day mortality with an accuracy of 80% was developed.

Conclusion: Balancing the risks and benefits of RC for elderly individuals with bladder cancer remains challenging. Given the relatively high 90–day mortality rate in these individuals observed in this and other studies, predictive tools are needed to help guide the management of these patients. This nomogram provides individualized risk estimations predicting the probability of 90–day mortality in patients 75 years and older post–RC, potentially informing pre–operative counseling and providing clinicians with an added tool to help individualize treatment decisions in this challenging patient population.
Podium #3

**ECONOMIC BURDEN OF REOPERATIVE RENAL SURGERY: DO THE MEANS JUSTIFY THE ENDS?**

Nnena Agochukwu¹, W. Marston Linehan² and Gennady Bratslavsaky²
¹NCI; ²National Cancer Institute, Urologic Oncology Branch
(Presented By: Nnena Agochukwu)

**Methods:** We reviewed the charts of patients treated at the NCI requiring RRS from 1989 to 2010. The data extracted included total time in the OR, ICU stay, total hospital stay, need for additional procedures, blood products, laboratory evaluation, and surveillance imaging until the next intervention on the operated unit or most recent follow up. The cost hospitalization was calculated based on current Medicare reimbursement rates based on Current Procedural Terminology (CPT) codes. Those costs were compared to the estimated cost of dialysis.

**Results:** We identified 30 patients treated with RRS on a solitary renal unit. The average procedure lasted 7.76 hours (4.25–11 hours) requiring an average of 7.16 units of blood transfused (0–32 units). The average time of hospitalization was 9.56 days (6–30 days), with the average ICU stay of 4.03 days (range 1–12 days), and an average floor stay of 6.64 (2–18 days). The estimated cost for hospitalization per patient was $52,058 (that included an average of $13,000 per patient for the OR, $16,258 for anesthesia, $6,499 for the ICU stay, $5,544 for the floor stay, $983 for OR return procedures, $1,644 for blood products, $299.10 for labs, and $3209 for surveillance imaging with an average of 4 years (0–16). With the cost of dialysis of 32,850 per year the financial benefit for avoiding dialysis is reached after 1.6 years. At our present follow up of 4 years the average cost savings per patient is $78,840 and will continue to increase as these patients continue to avoid dialysis.

**Conclusions:** While associated with high morbidity, the RRS on the solitary unit may provide an opportunity for the majority of patients to retain their native renal remnants, preserve quality of life, and allow for savings for the healthcare system. These benefits are in addition to savings not included in our analysis that are associated with the morbidity and complications associated with dialysis in addition to the costs of regular follow up and care required for patients on dialysis.
DEVELOPMENT AND CHARACTERIZATION OF TUMOR MODELS FROM PATIENTS WITH RENAL CELL CARCINOMA
Jose Karam¹, Xiuxing Zhang¹, Pheroze Tamboli¹, Vitaly Margulis², Hua Wang¹, E. Jason Abel³, Stephen Culp¹ and Christopher Wood¹
¹UT MD Anderson Cancer Center; UT MD Anderson Cancer Center, Houston, TX; ²UT Southwestern Medical Center, Dallas, TX; ³University of Wisconsin, Madison, WI
(Presented By: Jose Karam)

Purpose: To establish and characterize a panel of mouse models of renal cell carcinoma derived from patients undergoing radical nephrectomy. Patients and Methods: Renal cell carcinoma mouse models were established from four patients with distinct histologies of renal cell carcinoma. Tumor tissues obtained during surgery were implanted into subcutaneous space of female BALB/c nude mice and serially passaged into new mice. Tumors obtained directly from patients and those derived from serial passages in nude mice were characterized by histology, Short Tandem Repeat (STR) fingerprinting, VHL gene sequencing, and Single Nucleotide Polymorphism (SNP) analysis for each of the four histologies. Tumor-bearing mice were treated with sunitinib or everolimus and growth was compared between different histologies and different tumor passages. Primary cell cultures were also derived from patient tumors and were transfected with a lentiviral vector carrying the luciferase gene. Bioluminescence imaging (BLI) of mice was performed after intraperitoneal injection of luciferin in 2 of the models. Results: Four subcutaneous xenograft mouse models were developed: MDA−RCC−48, MDA−RCC−55, MDA−RCC−62, and MDA−RCC−80, representing papillary type 1, papillary type 2, clear cell, and clear cell with sarcomatoid features renal cell carcinoma, respectively. Tumor growth was dependent on the histologic type, size of implanted tumor chip, and possibly the passage number. We confirmed that the mouse tumors accurately and faithfully represent their respective original patient tumors as STR fingerprints were matching, histology on H&E staining was comparable, and SNP profiles and VHL mutation status were conserved with multiple passages. BLI results were commensurate with the subcutaneous xenograft growth patterns and enabled sequential and non-invasive monitoring of growth in an orthotopic implantation setting. Mice treated with sunitinib and everolimus exhibited an initial response to these agents, followed by a later stage of resistance to these agents, which mimics the clinical observations in patients with RCC. Conclusions: We have developed four mouse xenograft models of RCC with clear cell and papillary histologies, with stable histologic and molecular characteristics. We are currently using these models to identify mechanisms of action, molecular correlates of response, and resistance to novel targeted therapies.

Podium #5

RADICAL CYSTECTOMY AND URINARY DIVERSSION IS ASSOCIATED WITH A GREATER RISK OF FRACTURES IN PATIENTS WITH BLADDER CANCER
Amit Gupta¹, Nicole Ishill¹, Shahrokh Shariat¹, Behfar Ehdai², Harry Herr¹, Farhang Rabbani² and Elena Elkin¹
¹Memorial Sloan-Kettering Cancer Center, New York, NY; ²Albert Einstein College of Medicine, New York, NY
(Presented By: Amit Gupta)

Introduction and Objectives: Bladder cancer patients who have radical cystectomy have chronic metabolic acidosis due to reabsorption of ammonium by the intestinal urinary diversion. Chronic metabolic acidosis may lead to bone loss and increase the risk of fractures. We examined the association between urinary diversion and fractures in a population–based cohort of Medicare beneficiaries with bladder cancer. Methods: In Surveillance, Epidemiology and Ends Results (SEER) cancer registry data linked with Medicare claims, we identified 46,701 subjects diagnosed with non−metastatic bladder cancer, of whom 4,453 had radical cystectomy and urinary diversion between 1998 and 2007. We estimated the fracture incidence and the impact of cystectomy on the risk of fracture, controlling for sociodemographic and disease characteristics. Cystectomy was included as a time−varying variable in a proportional hazards regression, and patients were censored at diagnosis of bone metastases. Funding was institutional.
Results: Patients who had cystectomy were younger, had fewer comorbid conditions, and had higher stage and higher grade cancer compared with patients who did not have cystectomy. Of the patients who had cystectomy, 1,369 developed a fracture on follow-up. For men the incidence was 0.116 fractures per person-year, and for women it was 0.284 fractures per person-year. The 5-year cumulative incidence rate was 22.8% for men and 45.6% for women (figure). Cystectomy and urinary diversion were associated with a 46% higher risk for fracture (hazard ratio [HR] 1.46, p<0.0001). Age, female gender, white ethnicity, higher Charlson comorbidity score, prior history of fractures and higher stage disease were also associated with an increased fracture risk.

Conclusions: Cystectomy and urinary diversion are associated with a higher risk of fracture in bladder cancer patients. Bone health should be monitored in these patients. To prevent fractures, trials are needed to establish prophylactic and therapeutic strategies for patients with urinary diversions.

ORAL CONTRACEPTIVE USE IS ASSOCIATED WITH PROSTATE CANCER: AN ECOLOGIC STUDY
David Margel and Neil Fleshner
Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada
(Presented By: David Margel)

Introduction: Recently there have been several studies suggesting that estrogen exposure may increase the risk of prostate cancer (PCa). In this report we examine associations between PCa incidence and mortality and population-based use of oral contraceptives (OCs). We hypothesized that OCs by-products may cause an environmental contamination leading to an increased low level estrogen exposure and therefore higher PCa incidence and mortality.

Methods: The hypothesis was studied in an ecologic study. We used data from the “international agency for research on cancer” (IACR) to retrieve age-standardized rates of prostate cancer in 2007 and the “United Nations 2007 use of contraceptive report” to retrieve data on contraceptive use. We subsequently used a Pearson correlation to associate the percentage of women using OCs, intrauterine devices, condoms or vaginal barriers to the age standardized prostate cancer incidence and mortality. We performed these analyses by individual nation and by continent worldwide.

Results: OCs use was significantly associated with prostate cancer incidence and mortality in the individual nation world wide (r=0.63 and r=0.51, respectively p<0.05 for all). PCa incidence was also associated with OCs use in Europe (r=0.545 p<0.05) and by continent (r=0.522 p<0.05). All other forms of contraceptives (i.e. intra-uterine devices, condoms or vaginal barriers) were not correlated with prostate cancer incidence or mortality.

Conclusion: In this hypothesis generating ecologic study we have demonstrated a significant association between OCs and PCa. We hypothesize that oral contraceptive effect may be mediated through environmental estrogen levels; this novel concept is worth further investigation.
RTOG 96-01: A PHASE III TRIAL OF ANTI-ANDROGEN THERAPY (BICALUTAMIDE) WITH SALVAGE RADIATION THERAPY (RT) IN PT2-3, PNO PROSTATE CANCER (PC) PATIENTS WITH ELEVATED PSA LEVELS AFTER SURGERY

Niall Heney¹, Daniel Hunt², William Shipley¹, Himu Lukka³, Pierre Major³, David Grignon⁴, Maltibehn Patel³, Jean-Paul Bahary⁵, Colleen Lawton⁶ and Howard Sandler⁷

¹Massachusetts General Hospital, Boston, MA; ²RTOG Statistical Center, Philadelphia, PA; ³McMaster University Juravinski Cancer Center, Hamilton, ON; ⁴Indiana University Medical School, Indianapolis, IN; ⁵Centre Hospitalier de l’ Universite’ de Montreal (CHUM), Montreal, QC; ⁶Medical College of Wisconsin, Milwaukee, WI; ⁷Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Los Angeles, CA

(Presented By: Niall Heney)

Introduction and Objectives: To test if anti–androgen therapy (AAT), when combined with RT, will improve further the cancer control outcomes as well as overall survival in this subgroup of patients with elevated PSA levels after radical prostatectomy (RP).

Methods: RP patients with pT3, N0 or with pT2, N0 (and also positive margins) who have an elevated PSA were entered on a double–blinded, placebo–controlled trial of RT alone (64.8 Gy in 36 fractions of 1.8 Gy) Vs RT plus AAT (24 months of bicalutamide, 150mg QD) during and after RT. The primary end–point is overall survival.

Results: From 3/98 to 3/03, 771 eligible patients (median age 65) were randomized to RT plus AAT (387) or RT alone (383). 252 patients (33%) were pT2, N0 and 518 patients (67%) were pT3, N0. 672 patients (87%) had a PSA nadir after RP of < 0.5 ng/ml. 655 patients (85%) had an entry PSA value of <1.6, 115 patients (15%) had an entry PSA of 1.6−3.9. Median follow up is 7.1 years. The actuarial overall survival at 7 years is 91% for RT plus AAT and 86% for RT alone. Too few “primary end–point events” have occurred as yet to allow a statistical comparison between these groups. PSA progression was defined as a PSA > 0.4 ng/ml in patients whose protocol treatment resulted in an undetectable PSA or, if not, when the PSA rose 0.3 ng/ml above the entry PSA. Freedom From PSA Progression (FFP) at 7 years is 57% for RT plus AAT and 40% for RT alone (P < 0.0001); for 226 patients with GS < 6 are 63% and 50% (P<0.02): for 411 GS 7 are 55% and 39% (P<0.0006), and for 134 GS 8−10 are 56% and 26% ( P < 0.0008). The cumulative incidence of metastatic PC at 7 years is in the RT & AAT arm, 7.4% ( 25 patients), Vs 12.6% (46 patients) in the RT & placebo arm (p<0.041).

Late Grade 3 and 4 GU, GI and cardiac toxicity were similar in the bicalutamide and placebo arms. Gynecomastia differed significantly, 89% and 15%. In the RT plus AAT arm Grade 3 was the highest liver toxicity observed which occurred in 3 of 387 patients.

Conclusions: The addition of 24 months of peripheral androgen blockade (AAT) during and after RT significantly improved FFP and reduced the incidence of metastatic PC without adding significantly to radiation toxicity. The significance of the benefit in overall survival, as well analysis of risk–stratified subsets, awaits longer follow up.

Funding: Supported by RTOG grant U10 CA21661, and CCOP grant U10 CA37422 from the National Cancer Institute and by AstraZeneca.
EARLY PRIMARY TUMOR RESPONSE IN PATIENTS WITH METASTATIC RCC UNDERGOING TREATMENT WITH SUNITINIB IS AN INDEPENDENT PREDICTOR OF OVERALL SURVIVAL

Introduction and Objectives: The optimal timing of surgery in combination with sunitinib for patients with metastatic renal cell carcinoma (mRCC) is unknown. In patients treated with targeted agents who have their primary tumor in situ, an early primary tumor response (PTR) may indicate a better overall PTR but it is unknown how this correlates to survival. The purpose of our study was to evaluate whether early PTR was associated with improved overall survival (OS) in patients with mRCC undergoing treatment with sunitinib.

Methods: We reviewed our institutional database to identify patients with mRCC treated with sunitinib with primary tumor in situ. Clinical and pathological data were collected for each patient. Sequential abdominal CT or MRI scans were reviewed to evaluate PTR. Early PTR was defined as ≥10% decrease in tumor diameter within the first 60 days of treatment. Univariable and multivariable stepwise Cox proportional hazards regression analysis were performed to identify predictors of OS in these patients.

Results: There were 75 consecutive patients identified between 2005 and 2009 with median follow-up of 15 months (IQR: 7.5, 30.2) who were eligible for analysis. 24 patients exhibited an early PTR, with a median maximum response of 23.1% (range: −53.4, −10.2) decrease in primary tumor diameter at a median of 90.5 days (IQR: 84, 212) after treatment initiation. Early PTR was associated with a decreased risk of death on multivariate analysis (HR: 0.18; 95% CI 0.05, 0.62, p<0.01).

Independent predictors of decreased survival on multivariate analysis included local symptoms at presentation, multiple bone metastases, clinical evidence of renal vein/IVC thrombus, lactate dehydrogenase > upper limit of normal, and more than two visceral metastatic sites. In addition, median OS was improved in patients with an early PTR (30.2 vs. 12.7 months).

Conclusions: Early PTR ≥ 10% is associated with improved survival in patients with mRCC. Future studies should consider this variable when evaluating sunitinib in mRCC treatment.
OFF-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY PRESERVES POSTOPERATIVE RENAL FUNCTION

Arvin George¹, Amin Herati², Arun Srinivasan³, Soroush Rais-Bahrami³, Nikhil Waigankar³, Mostafa Sadek³, Lee Richstone³ and Louis Kavoussi³

¹NSLIJ Health System/Hofstra University; ²NSLIJ (Presented By: Arvin George)

Introduction: Traditionally, laparoscopic partial nephrectomy (LPN) partial nephrectomy is completed with vascular control of the renal hilum. Off clamp strategies have the potential to eliminate ischemic damage incurred during partial nephrectomy. This study assesses a single surgeon’s initial experience with off-clamp LPN to evaluate its effect on postoperative renal function.

Methods: A prospective review was completed of 451 patients undergoing LPN. Preoperative imaging assessed tumor characteristics. Patient demographics, perioperative parameters, and postoperative outcomes were documented. Multivariable linear regression analysis was used to assess factors contributing to changes in postoperative renal function between off-clamp and clamped LPN.

Results: Three hundred and eighteen LPN were performed on-clamp and 133 were performed off–clamp. Tumors in the on-clamp group were larger compared to the off-clamp group (2.2 ± 1.1 cm versus 1.84 ± 2.0 cm, p=0.001). Multivariable analysis comparing off-clamp to on-clamp cohorts revealed that increased EBL (p= 0.013), and hilar clamping (p<0.001) were independently associated with worsening GFR (p<0.05). Multivariable analysis comparing clamp times among the on-clamp cohort demonstrated that EBL (p=0.027) and clamp time (p<0.001) were the only significant predictors of decreased GFR in the postoperative period. There was no difference in positive margin status or complication rates between the groups.

Conclusion: LPN without hilar clamping is feasible, safe and is associated with less renal injury as assessed by postoperative GFR in select patients. With experience it can be applied to complex renal lesions.
ANALYSIS OF TYPE AND DURATION OF ISCHEMIA DURING PARTIAL NEPHRECTOMY IN 660 SOLITARY KIDNEYS REVEALS PREDOMINANT ROLE OF NON-MODIFIABLE FACTORS IN DETERMINING ULTIMATE RENAL FUNCTION

Brian Lane¹, Paul Russo², Robert Uzzo³, Adrian Hernandez⁴, Stephen Boorjian⁵, Houston Thompson⁵, Amr Fergany⁴, Thomas Love⁶ and Steven Campbell⁴

¹Spectrum Health / Michigan State University; ²Memorial Sloan-Kettering, New York, NY; ³Fox Chase Cancer Center, Philadelphia, PA; ⁴Cleveland Clinic, Cleveland, OH; ⁵Mayo Clinic, Rochester, MN; ⁶Case Western Reserve University, Cleveland, OH

(Presented By: Steven Campbell)

Purpose: Factors that determine renal function after partial nephrectomy (PN) are not well defined, including the impact of cold vs. warm ischemia and the relative importance of modifiable and nonmodifiable factors. We studied these determinants in a large cohort of patients with a solitary functioning kidney undergoing PN.

Patients and Methods: In 1980–2009, 660 PN were performed at 4 centers for tumor in a solitary-functioning kidney under cold (n=300) or warm (n=360) ischemia. Data were collected in IRB-approved registries; follow-up averaged 4.5 years. Pre- and post-operative glomerular filtration rates (GFR) were estimated via CKD-EPI equation.

Results: At 3 months after PN, median GFR decreased by equivalent amounts with cold or warm ischemia (21% vs. 22%, respectively, p=0.7), although median cold ischemic times were much longer (45 vs. 22 min. respectively, p<0.001). In multivariable analyses, increasing age, larger tumor size, lower preoperative GFR, and longer ischemia time were associated with decreased postoperative GFR (p<0.05). When percentage of parenchyma spared was incorporated into the analysis, this factor and preoperative GFR proved to be the primary determinants of ultimate renal function, and duration of ischemia lost statistical significance.

Conclusions: This non-randomized comparative study suggests that long-term renal function after PN is determined primarily by the amount of renal parenchyma that can be preserved and its level of function prior to surgery, as reflected by preoperative GFR. Within the parameters of conventional practice, i.e., predominantly short ischemic intervals and judicious use of hypothermia, ischemia time was not an independent predictor of ultimate renal function after PN.
Podium #11

A CRITICAL ANALYSIS OF ACTIVE SURVEILLANCE WITH DELAYED CURATIVE INTENT FOR THE TREATMENT OF SMALL RENAL MASSES
Marc Smaldone¹, Alexander Kutikov¹, Daniel Canter¹, Michael Leveridge², Michael Jewett² and Robert Uzzo¹
¹Fox Chase Cancer Center, Philadelphia, PA; ²University of Toronto, ON, Canada
(Presented By: Marc Smaldone)

Background: Active surveillance for enhancing, small renal masses (SRMs) has emerged as an alternative to surgical therapy in select patients. We conducted a systematic review to summarize available literature investigating the natural history of SRMs under observation with an emphasis on tumor growth kinetics and clinical characteristics of documented lesions that have progressed to metastases.

Methods: A MEDLINE search was performed to identify all clinical series reporting observation of suspected renal malignancies. All extracted demographic, clinical, and pathologic variables were compared between those who progressed to metastases and those who did not.

Results: A total of 18 studies met inclusion criteria (all ≤ level III evidence). Data for 880 patients (936 SRMs) with a mean maximum linear diameter of 2.95cm at diagnosis were included in our analysis. Over a mean period of 34 months, these lesions demonstrated a mean calculated growth rate of 0.37cm/year. 32.5% of lesions exhibited zero net growth over time; of this sub-cohort, no SRM progressed to metastasis. Eighteen cases (2.1%) with documented progression to metastasis were identified (mean 40.2 months); significant trends when comparing this group to the overall cohort included larger masses at presentation (4.2 vs. 2.95cm, p=0.01) and conclusion of observation (5.9 vs. 3.2cm, p=0.0003). An increased mean growth rate (0.77 vs. 0.4 cm/yr, p=0.07) and proportion of patients with absolute indications for AS (61.5% vs. 27%, p=0.37) were observed, although these did not reach statistical significance.

Conclusions: Our systematic review confirms that the majority of SRMs under radiographic surveillance exhibit slow growth kinetics with a low short term risk of metastatic progression. However, while generally late events, a small proportion of SRMs under surveillance demonstrate evidence of clinical progression, and the prediction of their natural growth history cannot be reliably determined by serial radiographic data alone. Utilizing available characteristics, lesions that exhibit zero growth over time may represent a population appropriate for prolonged AS while SRMs with net positive growth rates may self select for delayed intervention. In the absence of level I evidence, while it appears that observation of SRMs may be delayed without negative sequelae in patients with objectified competing risks, AS should remain an alternative to definitive surgical therapy in acceptable operative candidates.

Podium #12

QUALITY OF CARE IN PATIENTS WITH BLADDER CANCER: A CASE REPORT?
Karim Chamie¹, Christopher S. Saigal¹, Julie Lai², Jan M. Hanley², Badrinath R. Konety³, Mark S. Litwin¹ and the Urologic Diseases in America
¹UCLA, Los Angeles, CA; ²RAND, Santa Monica, CA; ³University of Minnesota, Minneapolis, MN
(Presented By: Karim Chamie)

Introduction: Clinical practice guidelines for the management of patients with bladder cancer, like any other chronic condition, encompass surveillance and treatment strategies to minimize morbidity and improve survival. We sought to determine the compliance rate with clinical practice guidelines for patients with high-grade non-muscle-invasive bladder cancer.

Patients and Methods: Using linked SEER–Medicare data, we identified 4,790 patients with a diagnosis of high-grade non-muscle-invasive bladder cancer from 1992 who survived at least two years and did not undergo definitive treatment during that time. We determined the compliance rate with surveillance (cystoscopy, cytology and upper tract imaging) and intravesical treatment strategies (instillation of mitomycin C and Bacillus Calmette-Guérin (BCG)). We attempted to determine whether patient, tumor, and provider characteristics were associated with compliance with any of the individual and comprehensive strategies using univariate analysis and multilevel logistic regression analysis.
Results: Only one patient received all the recommended measures. Strict compliance was high with upper-tract imaging (87%), but low for BCG (17%), cytology and cystoscopy (5%), and mitomycin C (3%). On univariate analysis, only the utilization of BCG has increased (13% to 20%, p<0.001) after establishment of practice guidelines in 1998. On multivariate analysis, octogenarians had lower odds of compliance, while being married, diagnosed in the Northeast, having an undifferentiated or T1 tumor were independently associated with higher odds of compliance.

Conclusion: There is marked underuse of guideline-recommended care in this potentially curable cohort, despite level I evidence (intravesical therapy). Improving compliance with clinical practice guidelines via a systematic quality-improvement initiative serves as the primary target to meliorate care. Otherwise, we would anticipate 25% compliance with four or more cystoscopies and cytologies and six instillations of BCG in the year 2027.

Podium #13

MULTI-INSTITUTIONAL QUALITY OF CARE INITIATIVE FOR NON-METASTATIC MUSCLE-INVASIVE TRANSITIONAL CELL CARCINOMA OF THE BLADDER: PHASE 1

Andrew Feifer¹, Jennifer Taylor¹, Marwan Shouery², Caroline Savage³, Gary Steinberg³, Walter Stadler³, Joel Decastro³, Seth Lerner³, Guilherme Godoy⁴, Yair Lotan⁴, Adam S. Feldman⁵, Wassim Kassouf⁶, Faysal Yafi⁶, Alex Zlotta⁶, Peter Black⁶, Marc Schoenberg⁷, Robert Grubb III⁷, Andrew Stephenson⁷, Amit Patel⁷, Cheryl Lee⁸, Alon Weizer⁸, Dean Bajorin⁹, Matthew Milowsky⁹, Ethan Basch¹⁰ and Bernard Bochner¹¹

¹Urology Service, Memorial Sloan-Kettering Cancer Center; ²Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center; ³Dept. of Surgery, Division of Urology, University of Chicago; ⁴Dept. of Medicine, University of Chicago; ⁵Dept. of Surgery, Division of Urology, Baylor College of Medicine; ⁶Dept. of Urology, University of Texas Southwestern; ⁷Dept. of Surgery, Massachusetts General Hospital; ⁸Division of Urology, McGill University Health Center; ⁹Dept. of Surgery (Urology), University of Toronto; ¹⁰Department of Urologic Sciences, University of British Columbia; ¹¹James Buchanan Brady Urological Institute, Johns Hopkins Medical Institution; ¹²Division of Urology, Washington University in St. Louis; ¹³Department of Urology, Cleveland Clinic; ¹⁴Department of Urology, University of Michigan Health System; ¹⁵Genitourinary Oncology Service, Memorial Sloan-Kettering Cancer Center; ¹⁶Genitourinary Oncology Service and Health Outcomes Unit, Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center; ¹⁷Dept. of Surgery (Urology), Memorial Sloan-Kettering Cancer Center

(Presented By: Andrew Feifer)

Introduction: Recent evidence supports a multimodal treatment approach for muscle invasive bladder cancer [MIBC]. However, little is known about the variation of actual practice patterns among academic institutions. Herein, we evaluated baseline treatment disparities related to perioperative chemotherapy and surgical therapy. After establishing a set of quality of care indicators to evaluate, we will collect prospective data, with emphasis on reasons for treatment disparity.

Methods: A multi-institutional 2-phased study was developed to investigate practice patterns among academic institutions. Phase 1 is a retrospective evaluation and Phase 2 a prospective study. This report represents the initial data evaluation of Phase 1. Retrospective data were collected from each institution of all patients treated for cT2−4 N0M0 MIBC from 2003–2008. Centrally analyzed data points of interest included: rates of neoadjuvant and adjuvant therapy, type of chemotherapy, number of cycles and rates of limited vs. extended pelvic lymph node dissection.

Results: 12 institutions participated, with data compiled on 4359 patients who met eligibility criteria. Of this cohort, 34% received perioperative chemotherapy. The overall use of neoadjuvant and adjuvant therapy was 12% [5.7%–22.9%] and 22 [5.86%–39.5%] respectively. 30% [15.4%–84.5%] of those who received any perioperative chemotherapy received cisplatinum-based multiagent chemotherapy. The median number of cycles received was 3 [1–6]. BPLND was performed in 95% of patients, of which 80% were considered to be “extended template”.

Conclusions: Rates of multimodality care vary considerably across this cohort of North American academic institutions. 65% of eligible patients did not receive perioperative chemotherapy, and only 12% of patients received neoadjuvant chemotherapy. Rates of cisplatinum-based therapy also vary considerably. The underlying reasons for treatment disparity will be evaluated in a prospective fashion, in phase 2 of this investigation.
**Podium #14**

PROSPECTIVE VALIDATION OF PROGNOSTIC BIOMARKER PANEL FOR BLADDER CANCER MANAGEMENT AT TIME OF TRANSURETHRAL RESECTION OF BLADDER TUMORS

Shahrokh Shariat, Ramy Youssef, Suzette Toombs, Joseph Scales, Christian Bolenz, Arthur Sagalowsky, Raheela Ashfaq and Yair Lotan

(Presented By: Yair Lotan)

**Introduction:** Retrospective studies found that molecular markers predict increased risk of poor outcomes in patients with urothelial carcinoma of the bladder (UCB). This study prospectively evaluates the clinical significance of molecular marker in patients undergoing transurethral resection of bladder tumors (TURBT).

**Methods:** We prospectively stained serial sections from 154 TUR specimens from consecutive patients with high-grade UCB for cyclin E1, p53, p21, p27, and Ki−67. Scoring was performed using advanced cell imaging and color detection software. We assessed the association of the biomarker panel expression signature (number of biomarkers altered) with clinical and pathologic features (gender, age, history of bladder cancer, TUR stage, concomitant CIS, perioperative intravesical Mitomycin C, adjuvant intravesical BCG), time to disease recurrence, and time to disease progression.

**Results:** Overall, 78 patients had Ta or Tis UCB (51%), 53 had T1 UCB (34%), and 23% had ≥T2 UCB (15%). Altered biomarkers were identified in 148 patients (96%). Of these, 36 (23%), 82 (53%), 26 (17%), and 4 (3%) had 1, 2, 3 or more than 4 alterations, respectively. Within a median follow-up of 14.6 months, 67 (44%) patients recurred, 21 (14%) progressed to higher stage, and 40 underwent radical cystectomy.

In univariate analyses, higher number of altered biomarkers was associated with advancing TUR stage (p=0.048) and increased risk of progression (HR 2.3, 95%CI 1.5−3.5, p<0.001), but not recurrence (p=0.12). On multivariable analyses that adjusted for gender, age, BCG, and TUR stage; higher number of altered biomarkers was independently associated with disease progression (HR 2.1, 95% CI 1.4−3.3, p=0.001). In the 40 patients who underwent radical cystectomy, patients with three or more altered biomarkers were more likely to have lymphovascular invasion (30% vs 13%), lymph node metastasis (25% vs 15%), and non−organ−confined UCB (27% vs 12%).

**Conclusions:** In a prospective study, we validated the prognostic value of this biomarker panel. The combination of cyclin E1, p53, p21, p27, and Ki−67 identifies high grade TUR patients who are at increased risk of disease progression. This biomarker panel may help stratify patients with high grade UCB on TUR into risk groups that can be used to guide clinical decision making regarding early cystectomy and neo-adjuvant chemotherapy. Further accrual and longer follow-up is needed before definitive conclusions can be made.

---

**Podium #15**

DUTASTERIDE REDUCES PROSTATE CANCER PROGRESSION AND CANCER DIAGNOSIS ON RE-BIOPSY IN THE REDEEM ACTIVE SURVEILLANCE STUDY

Neil Fleshner¹, Scott Lucia², Karen Melich³, Indrani Nandy³, Libby Black³ and Roger Rittmaster³

¹Princess Margaret Hospital, University Health Network, Toronto, ON, Canada; ²University of Colorado Health Sciences Center, Denver, CO; ³GlaxoSmithKline, Research Triangle Park, NC

(Presented By: Neil Fleshner)

**Introduction:** The REDEEM (Reduction by Dutasteride of Clinical Progression Events in Expectant Management of Prostate Cancer) study was designed to test whether dutasteride could control the growth of existing low risk, localized prostate cancers and hence reduce the need for aggressive therapy in men being followed under active surveillance.

**Methods:** 302 men, aged 48–, with prostate specific antigen (PSA) <11 ng/ml, and Gleason score <6 prostate cancer (≤3 cores positive, <50% of any one core positive) were randomized to dutasteride or placebo for 3 years. Repeat 12−core biopsies were performed at 18 and 36 months, or for−cause at other times during the study. The primary endpoint was time to progression, defined as the earliest of either pathological progression (Gleason score >6, 4 or more cores positive, or >50% of any one core positive) or therapeutic progression (radical prostatectomy, radiation therapy, or hormonal ablation).
**Oral Abstract Session**

**Results:** 96% of participants either reached the primary endpoint or had a post-baseline biopsy. Dutasteride reduced time to prostate cancer progression (relative risk reduction 38.9%, 95% CI: 12.4–4.4%, P=0.007). 49% (N=71) progressed in the placebo group compared to 38% (N=51) in the dutasteride group. 23% of men (N=31) in the placebo group and 36% of men (N=50) in the dutasteride group had no cancer detected on their final biopsy. 38% (N=51) in the placebo group and 31% (N=43) in the dutasteride group had pathological progression. 16% (N=21) of men in the placebo group and 14% (N=19) of men in the dutasteride group had Gleason score progression (Gleason 7–; there were no Gleason 9 or 10 cancers). 3 men in the placebo group and 2 men in the dutasteride group had Gleason 8 cancers. Prostate cancer-related anxiety was reduced in the dutasteride arm compared to the placebo arm (P=0.036), as assessed by the Memorial Anxiety Scale for Prostate Cancer (MAX–PC). The drug-related adverse events in REDEEM were similar to those previously reported for dutasteride.

**Conclusions:** In men followed for prostate cancer with active surveillance, dutasteride delayed the time to cancer progression, increased the number of men with no detectable cancer, and improved prostate cancer-related anxiety. There was no evidence of increased Gleason score upgrading in the dutasteride arm. Dutasteride may provide a useful adjunct to active surveillance for management of prostate cancer.

**Acknowledgement** Funding for this study was provided by GlaxoSmithKline.

---

**Podium #16**

**THE RELATIONSHIP BETWEEN CHANGE IN PSA AND BIOPSY PROGRESSION IN PATIENTS WITH PROSTATE CANCER MANAGED WITH ACTIVE SURVEILLANCE**

Jared Whitson, Sima Porten, Janet Cowan, Joan Hilton, Nannette Perez, Matthew Cooperberg, Kirsten Greene, Maxwell Meng, Jeff Simko, Katsuto Shinohara and Peter Carroll

UCSF, San Francisco, CA

(Presented By: Jared Whitson)

**Objectives:** To assess whether an association exists between change in prostate specific antigen (PSA) and biopsy progression in men with prostate cancer who are managed with active surveillance.

**Methods:** A cohort of patients undergoing active surveillance for prostate cancer was identified from the UCSF Urologic Oncology Database. Multivariable logistic regression was performed to determine if PSA velocity (PSAV), defined as change in log(PSA) per year, is associated with biopsy progression, defined as any Gleason upgrade or volume progression on repeat biopsy within 24 months of diagnosis. We report the PSA ratio at 1 year relative to at diagnosis, which equals exp(PSAV).

**Results:** 241 men met the inclusion criteria. At diagnosis the mean age was 61 (SD 7) years and the mean PSA was 4.9 (SD 2.2) ng/mL. The median time to repeat biopsy was 10 (IQR 6–13) months and biopsy progression occurred in 55 men (23%): Gleason score upgrade in 46 (19%), percent positive cores >33% in 11 (5%), and maximum single core positive >50% in 12 (5%). Based on a median of 15 months’ PSA surveillance, the median PSA ratio 1 year after diagnosis was 1.0 (IQR 0.87 to 1.16). Seven patients had a PSA ratio >2 (i.e., PSA doubled within 1 year of diagnosis), and 15 patients had a PSA ratio <0.5 (i.e., PSA halved within 1 year of diagnosis). In multivariable analysis, PSAV was associated with a statistically non-significant increase in the odds of biopsy progression (OR 1.7, 95% CI 0.7–3.7, p=0.22).

**Conclusions:** There is very little change in PSA over the first 24 months of active surveillance in men with well staged low risk prostate cancer. We failed to exclude a clinically relevant increase in biopsy progression in men with a substantial increase in PSA. We believe that these findings highlight the importance of repeat biopsy during the first 24 months of surveillance.
DENOSUMAB VERSUS ZOLEDRONIC ACID IN PATIENTS WITH BONE METASTASES FROM CASTRATION-RESISTANT PROSTATE CANCER: RESULTS FROM A PHASE 3 RANDOMIZED TRIAL
Neal Shore¹, Matthew Smith², Lawrence Karsh³, Karim Fizazi⁴, Michael Carducci⁵, Ronaldo Damiao⁶, Janet Brown⁷, Piotr Milecki⁸, Huei Wang⁹, Roger Dansey⁹ and Carsten Goessl⁹
¹Carolina Urological Research Center, Myrtle Beach, SC; ²Massachusetts General Hospital Cancer Center, Boston, MA; ³The Urology Center of Colorado, Denver, CO; ⁴Institut Gustave Roussy, University of Paris, Villejuif, France; ⁵Sidney Kimmel Comprehensive Cancer Center at Johns Hopkins, Baltimore, MD; ⁶Hospital Universitario Pedro Ernesto, Rio de Janeiro, Brazil; ⁷Cancer Research UK Clinical Centre, Leeds, UK; ⁸Wielkopolskie Centrum Onkologii, Poznan, Poland; ⁹Amgen Inc., Thousand Oaks, CA
(Presented By: Neal Shore)

Background: Men with castration-resistant prostate cancer (CRPC) may experience skeletal-related events (SRE) associated with bone metastases, which are mediated through RANKL activation of osteoclasts. Inhibition of RANKL, a central mediator of osteoclast activation and differentiation, may delay or prevent SREs.

Methods: Patients (n = 1901) with metastatic CRPC, without prior IV bisphosphonate use, received the investigational fully human anti-RANKL monoclonal antibody denosumab 120 mg SC and placebo IV (n = 950), or placebo SC and zoledronic acid (ZA) 4 mg IV (n = 951) adjusted for creatinine clearance every 4 weeks. Supplemental calcium and vitamin D was strongly recommended. The primary endpoint was time to first on-study SRE, defined as pathologic fracture, radiation or surgery to bone, or spinal cord compression.

Results: Denosumab significantly delayed the time to first on-study SRE compared with ZA, (HR 0.82; 95% CI: 0.71, 0.95; P = 0.008.) Median time to first on-study SRE was 20.7 months denosumab vs. 17.1 months ZA, a difference of 3.6 months. Denosumab also significantly delayed the time to first and subsequent on-study SRE (multiple event analysis) (HR 0.82; 95% CI: 0.71, 0.94; P = 0.008). Overall, adverse event (AE) rates (97% each) and serious AEs (63% denosumab, 60% ZA) were similar, irrespective of potential relationship to study drugs. AEs of hypocalcemia were reported in 13% and 6% of denosumab and ZA patients. Osteonecrosis of the jaw occurred in 22 (2.3%) denosumab compared with 12 (1.3%) ZA patients (P = 0.09). Overall survival was similar between treatment arms (HR 1.03; 95% CI: 0.91, 1.17; P = 0.65).

Conclusion: Denosumab administered subcutaneously every 4 weeks, demonstrated superiority over ZA administered by intravenous infusion every 4 weeks in delaying or preventing SREs in men with bone metastases from CRPC. Adverse events were consistent in both treatment groups with those previously reported in advanced cancer populations. 

Funding: Research funded by Amgen Inc., Thousand Oaks, CA
THE IMPACT OF ABNORMAL DIGITAL RECTAL EXAMINATION ON PROSTATE CANCER DETECTION IN OBESE MEN

David Chu, Daniel Moreira, Leah Gerber, Madeline McKeever, Stephen Freedland and Lionel Bañez
Division of Urologic Surgery, Department of Surgery, Duke University, Durham, NC
(Presented By: David Chu)

Introduction: Obese men diagnosed with prostate cancer (CaP) are at higher risk for cancer−specific death than non−obese men. A potential contributor to worse CaP outcomes in obese men is sub−optimal cancer detection secondary to lower PSA levels and technical difficulties in performing a digital rectal exam (DRE).

Objective: To examine the impact of DRE findings on cancer detection as a function of obesity in a multi−racial cohort of men undergoing prostate biopsy.

Methods: Data were retrospectively collected from 1,039 men from the Durham VA hospital who underwent initial prostate biopsy between 1994 and 2009. Distribution of clinical parameters including DRE results were compared across BMI categories (<25, 25−29.9, ≥30 kg/m2) using ANOVA, Fisher’s exact and Χ2 tests. Odds of biopsy−proven CaP attributed to abnormal DRE findings were estimated for each BMI group using crude and multivariable−adjusted logistic regression controlling for PSA, age, year of biopsy, and ethnicity while trend across BMI categories was compared using test for interaction.

Results: Median age at biopsy was 63 years and median PSA was 6 ng/ml. The proportion of men with abnormal DRE decreased across increasing BMI categories from 36.9, 27.5, 23.2% in normal weight, overweight, and obese men, respectively (p=0.001). On crude analysis, the risk of cancer diagnosis for an abnormal DRE was found to increase significantly across increasing BMI categories (p−trend=0.019; Table 1). This significant upward trend was maintained even after adjusting for clinical covariates (p−trend=0.027). Specifically, among men with an abnormal DRE, the odds of detecting CaP among obese men were nearly two−fold greater than in normal weight men.

Conclusions: Obese men are less likely to have an abnormal DRE compared to non−obese men. However, an abnormal DRE in an obese man portends a significantly greater risk of finding CaP on biopsy than in a normal weight man. Together these findings suggest that CaP detection using DRE is negatively impacted by excess body weight. While performing DRE may be technically difficult in morbidly obese men, it should not be neglected because an abnormal DRE is a stronger predictor of CaP among obese men than in non−obese men.

Table 1. Risk of cancer−positive initial prostate biopsy with abnormal DRE findings compared to normal DRE across BMI categories

<table>
<thead>
<tr>
<th>BMI (&lt;25)</th>
<th>BMI 25−29.9</th>
<th>BMI ≥30</th>
<th>p−trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>OR (Crude)</td>
<td>1.45</td>
<td>2.14</td>
<td>3.58</td>
</tr>
<tr>
<td>95% CI</td>
<td>0.84−2.52</td>
<td>1.34−3.33</td>
<td>2.13−6.04</td>
</tr>
<tr>
<td>p−value</td>
<td>0.178</td>
<td>&lt;0.001</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Adjusted OR (adjusted for log PSA, age at biopsy, year of biopsy, ethnicity using multivariable logistic regression) | 2.14 | 2.42 | 3.98 | 0.027 |
| 95% CI | 1.08−4.21 | 1.55−3.90 | 2.30−6.91 |
| p−value | 0.028 | <0.001 | <0.001 |
MEASUREMENT OF INTRAOPERATIVE PENILE OXYGENATION CAN PROVIDE VALUABLE FEEDBACK TO SURGEONS DURING NERVE SPARING ROBOTIC PROSTATECTOMY

Abhishek Srivastava, Prasanna Sooriakumaran, Phil Dorsey, Sonal Grover, Yousssef El-Douaihy, Robert Leung and Ashutosh Tewari
Weill Cornell Medical College, New York, NY
(Presented By: Abhishek Srivastava)

Background and Objective: We hypothesize that non-neuronal cause such as vascular insults due to intraoperative tissue handling may have a minor but definite role in penile ischemia and consequent postoperative sexual dysfunction. We monitored the intraoperative penile oxygenation using a tissue oximeter and adjusted our surgical technique and tissue handling so as to maintain levels of tissue oxygenation ≥ 85%. We assessed the effects of these deliberate intraoperative changes on postoperative functional outcomes.

Materials and Methods: Between May 2008 and June 2008 there were 96 patients who underwent robotic assisted radical prostatectomy at our institution. Of these, 64 patients gave written informed consent and were enrolled in the study. These patients had intraoperative tissue oxygen saturation monitoring (study). 128 patients, matched for preoperative PSA and clinical stage also operated in 2008 prior to the study group, formed the control group. These patients did not have any intraoperative tissue oxygenation monitoring. In study group, following sterilization, the Odissey Tissue OximeterTM probe was placed on the shaft of the penis, 2cm from its base. The patient underwent continuous penile tissue saturation monitoring, which was maintained above 85% throughout the surgery. Surgical dissection was altered whenever the oxygen saturation alarm went off until it was restored to ≥ 85%.

Results: 95.3% of the study group and 93.8% of the control group completed and returned the one−year follow−up questionnaire. A higher percentage of study group patients with bilateral nerve sparing achieved continence compared with control group patients, but the differences were not statistically significant (97.4% vs. 94.8%; p=0.252). A significantly higher percentage of study group patients with bilateral nerve sparing achieved potency compared with control group patients (92.3% vs. 87%; p=0.04).

Conclusion: Our preliminary data shows that there is ischemic stress to the penis during robotic radical prostatectomy. Avoidance of such ischemic stress can prevent acute and prolonged damage to the neurovascular bundles and penile tissue. This improves postoperative functional outcomes in the patients, especially with regard to potency.
DOES VARIATION IN EITHER AGE AT START OF THERAPY OR DURATION OF THERAPY MAKE CHEMOPREVENTION WITH FINASTERIDE COST-EFFECTIVE?
Suzanne Biehn Stewart¹, Charles Scales, Jr.¹, Judd Moul¹ and Shelby Reed²
¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Center for Clinical and Genetic Economics, Duke Clinical Research Institute, Duke University School of Medicine, Durham, NC
(Presented By: Suzanne Biehn Stewart)

Introduction: Finasteride is an effective chemoprevention therapy for prostate cancer. However, previous studies have shown that widespread utilization of finasteride for prostate cancer prevention is likely not a cost–effective strategy. The majority of these analyses are based on a model where chemoprevention is started in men aged 50–55 years. The influence of varying age at start of therapy and duration of chemoprevention on the cost–effectiveness of finasteride has not been investigated.

Objectives: We sought to evaluate the impact of varying both age at commencement of therapy and length of therapy on the cost–effectiveness of finasteride.

Methods: A Markov model with probabilistic sensitivity analysis was designed to estimate lifetime prostate health related costs, survival, and quality–adjusted survival for men receiving or not receiving chemoprevention with finasteride. Model assumptions were based on PCPT, SEER, national cancer registries, and medical literature. The model was continued to age 85, as the average remaining life expectancy at age 75 in the US is 10 years. Incremental cost–effective ratios (ICER) of models varying in age at start of therapy and duration of chemoprevention were compared.

Results: In the base case analysis, the ICER for men starting chemoprevention with finasteride at age 50 years was $86,600 per quality adjusted life year (QALY) (95% CI: $57,900–$147,300) when assuming finasteride reduces all grades of prostate cancer by 24.8%. When age at start of therapy is increased, the ICERs initially trend downward, nadir at an age of 65 years, ICER $65,600 per QALY (95% CI $45,500–$112,100), and then subsequently rise to where commencing therapy at age 80, the ICER is $78,300 per QALY (95% CI $49,600–$139,000). At each age of therapy commencement, sensitivity analysis of duration of chemoprevention showed that stopping use at age 80 was most cost–effective.

Conclusion: Assuming equal effectiveness at all ages and across years of treatment, the cost–effectiveness of chemoprevention with finasteride is optimized when initiated at age 65 and continued until age 80 years.
LONG-TERM OUTCOME OF RANDOMIZED TRAIL BETWEEN CRYOABLATION AND EXTERNAL BEAM THERAPY FOR LOCALLY ADVANCED PROSTATE CANCER (T2C-T3B)
Ali Al-zahrani¹, Ana Maria Autran¹, Andrew Williams¹, Juan Pablo Barroso¹, Chen Lü¹, Glenn Bauman² and Joseph Chin¹
¹Division of Urology, Department of Surgery, London Health Sciences Centre, University of Western Ontario, London, ON, Canada; ²Division of Radiation, Department of Oncology, London Health Sciences Centre, University of Western Ontario, London, ON, Canada
(Presented By: Ali Al-zahrani)

Introduction and Objective: Our primary objective is to assess and compare the survival outcomes between cryoablation (CRYO) and External Beam Radiation Therapy (EBRT) in locally advanced prostate cancer (T2c−T3b).

Methods: This is a single institution, retrospective study. Our institution ethics board had approved this study. Patients were initially recruited for the trial between 1999 and 2002. The inclusion criteria for the trial were patients with cT2c−cT3b prostate cancer, PSA < 25ng/ml, with negative metastatic evaluation on CT and bone scan. Patients with evidence of metastasis, prior pelvic radiotherapy or hormone therapy, prostate volume > 75 ml or American Society of Anesthesiology Risk class > 3 were excluded. The biochemical failure was based on the Phoenix criteria (PSA nadir + 2ng/dl). Patients were subjected for regular trans−rectal ultrasound and biopsy till 24 months of follow−up (at 3, 6, 12, 18, 24 months for CRYO and at 18, 24 months for EBRT) and then as clinically indicated. Biochemical disease−free survival (bDFS), disease−specific survival (DSS) and overall survival (OS) were analysed with Kaplan−Meier curve.

Results: Sixty two patients completed the trial with a median follow−up of 105.2 (± 35.8) months. Preoperative demographic and clinicopathological characteristics of both groups were comparable. All patients received neoadjuvant hormonal therapy for 3 months prior and continued for 3 months after the procedures. The prostate volume before the therapy was smaller in the CRYO group (31.3 ml vs 40.9 ml) (p<0.01). There was greater reduction in the prostate volume in the CRYO group after the intervention (−54% vs 34%) (p<0.01). Three patients in the cryotherapy arm and 2 patients in the radiotherapy arm were crossed over to the other modality at the time of biochemical or biopsy proven progression. The DSS and the OS were comparable between both groups. The 8−year bDFS rate was significant lower in the CRYO group (17.4% vs 59.1%) (p=0.01).

Conclusion: This randomized trial showed that CRYO was suboptimal in attaining bDFS at 8 years in patients with locally advanced prostate cancer (cT3). Other recent randomized trial showed favorable outcome with CRYO for localized prostate cancer.
DIFFERENTIAL EXPRESSION OF MICRORNA IN RADICAL PROSTATECTOMY SPECIMENS: COMPARING FOCI OF PROSTATE CANCER TO AREAS OF BENIGN GLANDULAR ARCHITECTURE

Soroush Rais-Bahrami¹, Reid Mergler¹, Nikhil Waingankar¹, Helen Levey¹, Houman Khalili², Peter Gregersen², Theresa Chan³ and Manish Vira¹
¹The Arthur Smith Institute for Urology, North Shore - Long Island Jewish Health System, New Hyde Park, NY; ²The Feinstein Institute for Medical Research, North Shore - Long Island Jewish Health System; ³Department of Pathology and Laboratory Medicine, North Shore - Long Island Jewish Health System
(Presented By: Soroush Rais-Bahrami)

Introduction and Objectives: Various microRNA (miRNA) molecules have been implicated in cell proliferation, differentiation, and carcinogenesis through their hypothesized role in regulating gene expression. In prostate cancer, miRNA expression is under investigation to elucidate their potential role as a biomarker leading to improved diagnosis and treatment of this common malignancy.

Methods: RNA was extracted from foci of prostate cancer as well as areas of benign glandular architecture from paraffin embedded radical prostatectomy specimens from 5 patients using the “RecoverAll™ Total Nucleic Acid Isolation Kit for Formalin–Fixed Paraffin Embedded Tissues” (Applied Biosystems, Carlsbad, CA). Foci of prostate cancer were outlined during secondary review by a uropathologist. Subsequently, miRNA profiles were analyzed using an Illumina miRNA microarray profiling assay, and levels of expression were analyzed and compared using the associated GenomeStudio software platform with internal controls for all reported miRNAs with p-values <0.05 (Illumina, San Diego, CA).

Results: Of the 5 patients in the study, age ranging from 49 to 68 years, all had preoperative PSA>5.4 and pathologic Gleason sum of 7. Analysis of differential expression revealed 7 miRNAs that were consistently upregulated and 7 miRNAs consistently downregulated in cancer foci compared to non–cancerous areas in all 5 patients. Figure#1 displays the fold change in miRNA expression for these 14 miRNAs of interest for each patient analyzed.

Conclusions: We have identified 14 specific miRNAs for which expression varies consistently from areas of cancerous glands compared to benign glands in patients with prostate cancer. These miRNA “signatures” found in this pilot study will be further investigated in an effort to better define miRNA significant in prostate cancer, not only to serve as a potential biomarker but possibly as a route to better understand the genetic and epigenetic roles of carcinogenesis in these patients.
VALIDATION IN CAPSURE OF SEXUAL OUTCOME AFTER PRIMARY PROSTATE CANCER TREATMENT PREDICTED BY PROSTQA
Meredith Regan¹, Natalia Sadetsky², Mehrdad Alemozaffar¹, Peter Carroll², Martin Sanda¹ and Matt Cooperberg²
¹Beth Israel Deaconess Medical Center, Boston, MA; ²University of California, San Francisco, CA
(Presented By: Mehrdad Alemozaffar)

Introduction: Patients with localized prostate cancer desiring treatment with a curative intent are usually offered a choice between radical prostatectomy (RP), external radiation therapy (XRT), or brachytherapy (BT). As these therapies are reported to yield similar survival outcomes, the focus for many patients decision-making has shifted towards maximizing health related quality of life outcomes, especially erectile function (EF).

Objectives: We developed models for individualized sexual outcome expectations following prostate cancer treatment with RP, XRT, or BT at academic centers based on pre−treatment patient, disease, and HRQOL details and sought to validate these models in a community−based cohort to ensure the findings are generalizable.

Methods: The PROSTQA cohort was utilized to create models predicting the likelihood of EF at 2 years following therapy for localized prostate cancer with RP, XRT, or BT (N=1027), based on pre−treatment patient, disease, and HRQOL characteristics.
CaPSURE participants who had sufficient information on model covariates, and pre and post−treatment follow up to evaluate EF (N=1931), were used for validation. It was achieved by evaluation of AUC from fitting univariable logistic regression of reported 2−year EF on model−predicted probability, and calibration by examining model−predicted probability vs. observed EF at 2 years.

Results: The PROSTQA models performed well in predicting EF at 2−years following treatment with AUC’s of 0.76, 0.81, and 0.89 for men undergoing RP, XRT, and BT, respectively. Calibration showed that predicted rates of EF based on the PROSTQA−derived models corresponded to the observed outcome in the CaPSURE cohort across a broad range of predicted probabilities. (Table 1)

Conclusion: Validation of the predictive models for recovery of EF following treatment of localized prostate cancer with RP, XRT, and BT based on pretreatment EF and various patient and treatment characteristics in a community−based cohort suggests that these models are generalizable.
Poster #7

EXTERNAL BEAM RADIOTHERAPY FOR PROSTATE CANCER INCREASES THE RISK OF HIP FRACTURE
Sean Elliott¹, Stephanie Jarosek², Shaheen Alanee, Badrinath Konety¹, Kathryn Dusenbery³ and Beth Virnig⁴
¹University of Minnesota/Department of Urologic Surgery, Minneapolis/MN; ²University of Minnesota/School of Public Health, Minneapolis/MN; ³Department of Therapeutic Radiology, Minneapolis/MN; ⁴University of Minnesota/School of Public Health, Minneapolis/MN
(Presented By: Shaheen Alanee)

Background: We tested the hypothesis that pelvic external beam radiotherapy (EBRT) is a risk factor for hip fractures but not fractures outside the radiation field (distal forearm fractures) in men with prostate cancer.

Methods: 45,662 men aged ≥66 years, diagnosed with prostate cancer 1992–2004 were identified from the SEERMedicare database. Using Cox proportional hazards models, the risk of hip (primary outcome) and wrist fractures (secondary outcome) were compared among men who received RP, EBRT, EBRT+AST or AST alone, controlling for age, osteoporosis, race and other comorbidities.

Findings: After controlling for covariates, EBRT increased the risk of hip fractures by 76% (HR 1.76, 95% CI 1.38–2.40) without increasing the risk of distal forearm fractures (HR 0.80, 95% CI 0.36–1.78). Combination therapy with EBRT+AST increased the risk of hip fracture by 145% relative to RP (HR 2.45, 95% CI 1.88–3.19) and increased the risk of distal forearm fracture by 43% relative to RP (1.43, 95% CI 0.97–2.10). The risk of hip fracture with EBRT+AST was an increase of 40% compared to EBRT alone (HR 1.40, 95% CI 1.17–1.68). AST as single-modality therapy increased the risk of hip fracture by 197% (HR 2.97, 95% CI 2.32–3.80) and the risk of distal forearm fracture by 102% (HR 2.02, 95% CI 1.43–2.85).

Conclusion: Pelvic EBRT increases the risk of hip fractures compared to men treated with RP. EBRT+AST increases this risk slightly further. Men treated with EBRT for prostate cancer may benefit from bone health assessment and monitoring as well as measures designed to sustain bone health.

Poster #8

THE INFLUENCE OF STATIN MEDICATION AND GENETIC VARIATION ON PROSTATE CANCER OUTCOMES
Robert Hamilton¹, Joseph Vijai¹, David Gallagher¹, Caroline Savage¹, Jasmine Bhatia¹, Andrew Vickers¹, Mia Gaudet², Samson Fine¹, Howard Scher¹, Ana Dutra-Clarke¹, Jennifer Przybylo¹, Robert Klein¹, Peter Scardino¹, Hans Lilja¹, James Eastham¹, Tomas Kirchhoff¹ and Kenneth Offit¹
¹Memorial Sloan-Kettering Cancer Center, New York, NY; ²Albert Einstein College of Medicine, New York, NY
(Presented By: Robert Hamilton)

Background: The relationship between statin use and prostate cancer risk and outcome remains controversial. Genetic variation in cholesterol and statin metabolism pathways appear to modify the effect of statins on serum cholesterol and their protective association with some cancers. However, no studies to date have examined this pharmacogenetic interaction in the setting of prostate cancer.

Methods: Blood was collected for DNA extraction from 782 men of Ashkenazi Jewish ancestry treated for prostate cancer at Memorial Sloan-Kettering Cancer Center. Statin use at the time of diagnosis was recorded. Associations between statin use and biochemical recurrence, castration-resistant metastasis and prostate cancer-specific survival were analyzed using Cox proportional hazards models adjusted for age, year of diagnosis, PSA, Gleason grade, clinical stage, and treatment. Subsequent analyses will assess interactions between 40 single nucleotide polymorphisms (SNPs) implicated in cholesterol biosynthesis and the relationship between statin use and prostate cancer outcome.
**Poster Session I**

**Results:** In total, 140 (18%) men were taking a statin at diagnosis. Statin users were diagnosed more recently (median year: 2002 vs. 1997, p<0.001), at lower clinical stages (T1:57% vs. 43%, p=0.01) and with modestly lower PSA (6.5 vs. 7.3 ng/mL, p=0.09). No significant differences were noted in Gleason scores (p=0.95) or primary treatment received (p=0.11). Statin use was associated with a reduced risk of biochemical recurrence (HR 0.56, 95% CI 0.39–0.79, p=0.001), but this association was weaker after multivariate adjustment (HR 0.75, 95% CI 0.51–1.09, p=0.13). Statin users had a decreased risk of metastases (HR 0.39, 95% CI 0.16–0.97, p=0.04) that was not altered with multivariate adjustment, and a decreased risk of prostate cancer–specific death (HR 0.32, 95% CI 0.08–1.33, p=0.12) that was strengthened after multivariate adjustment (HR 0.20, 95% CI 0.05–0.84, p=0.03). Analysis of these associations stratified by SNP genotypes is in progress and will be presented. All 40 SNPs have call rates >80%.

**Conclusions:** In this cohort, statin use was associated with a reduced risk of biochemical recurrence, metastases and prostate cancer death. If significant genetic interactions are also observed and confirmed in other cohorts, this may identify potential pathways of relevance to prostate cancer treatment.

**Poster #9**

**SINGLE CELL TRANSCRIPTOMIC PROFILING OF PROSTATE CANCER CELLS**

Christopher Welty¹, Ilsa Coleman², Roman Gulati², Roger Coleman², Bryce Lakely³, Shu Chen², Marty Kinnunen³, Lisha Brown³, Eva Corey³, Peter Nelson², Robert Vessella³, Daniel Lin and Colm Morrissey³

¹University of Washington, Department of Urology, Seattle, WA; ²Fred Hutchinson Cancer Research Center, Seattle, WA; ³University of Washington Department of Urology, Seattle, WA

(Presented By: Christopher Welty)

**Introduction:** We have previously shown that the presence of disseminated tumor cells (DTC) after prostatectomy predicts recurrence, however not all patients with DTC will go on to recur. To identify the molecular signature of DTC that will produce a metastasis, we have pooled small numbers of DTC for gene expression analysis. This approach is limited by potential heterogeneity among DTC. Therefore, we assessed the ability of current commercially available technologies to obtain a transcriptomic profile from a single prostate cancer (PCa) cell.

**Methods:** We clonally selected and cultured a single passage of C4–2B cells. Cells were treated with Aphidicolin 24 h prior to isolation to ensure cell cycle synchronization. Ten sets of single, 5– or 10–cells were isolated using a micromanipulator under direct visualization with an inverted microscope. RNA was amplified using the WT–Ovation one–direct system (NuGEN). The amplified material was hybridized to oligo arrays (Agilent). A gene was considered expressed if its signal was 10–fold above background. Sensitivity and specificity of the single cell transcriptomic profile was determined by comparison to the 5– and 10–cell transcriptomic profiles.

**Results:** Using this approach, 18,551 probes were positive on the 10–cell arrays, 13,311 probes on the 5–cell arrays, and 8,046 probes in the 1–cell arrays. The sensitivity and specificity of gene detection on the single–cell arrays were 0.428 and 0.995 respectively when compared to 10–cell arrays, and 0.572 and 0.983 respectively when compared to 5–cell arrays.

**Conclusions:** We have shown that a transcriptomic profile can be reliably obtained from a single PCa cell using commercially available technologies. When using a high stringency cut–off, fewer amplified genes are detected from single cell than 5– or 10–cell pools. However, genes detected by amplification from a single cell are likely to be truly amplified, as indicated by the high specificity of the single cell transcriptomic profile. We are currently applying this technology to the characterization of DTC in PCa.

**Funding:** These studies were supported by the NIH RC1 CA144825–01 ARRA Challenge. CW was supported by the Ruth L. Kirschstein National Research Service Award (NRSA) Training Grant (T32). CM is a recipient of the Career Development Award from the Pacific Northwest Prostate Cancer SPORE. This material is the result of work supported by resources from the VA Puget Sound Health Care System, Seattle, Washington.
TIME TO PROGRESSION: COMPARISON OF PROSTATE CANCER PATIENTS TREATED WITH DEGARELIX AND LEUPROLIDE

Neal Shore¹, Judd Moul², E David Crawford³, Egbert van der Meulen⁴, Tine Kold Olesen⁴ and Bo-Eric Persson⁵
¹Carolina Urologic Research Center, Myrtle Beach, SC; ²Duke University Medical Center, Durham, NC; ³University of Colorado Health Sciences Center, Denver, CO; ⁴Ferring Pharmaceuticals, Copenhagen, Denmark; ⁵Ferring Pharmaceuticals, Saint-Prex, Switzerland
(Presented By: Neal Shore)

Introduction: Comparative effectiveness of the gonadotrophin–releasing hormone (GnRH) blocker, degarelix, versus the GnRH agonist, leuprolide, was evaluated during a 1–year phase III pivotal trial (CS21); data have been previously presented. We now report long–term PSA data from an ongoing 5–year degarelix extension trial.

Methods: In the 1–year trial, patients with prostate cancer (all stages) were randomized to receive degarelix [240 mg for the first month, followed by monthly maintenance doses of 80 mg (n=207) or 160 mg (n=202)], or leuprolide 7.5 mg/month (n=201). Leuprolide patients could receive bicalutamide for flare protection. Of the 504 patients who completed the 1–year study, 384 chose to continue in an extension trial; those on leuprolide were re–randomized to one of the two degarelix doses. PSA progression–free survival (PFS) was defined as time to first PSA failure (two consecutive increases in PSA of 50% and ≥5 ng/mL above nadir) or death. Time for 25% of patients to experience PSA PFS (TTP25%) was analysed using Weibull estimates.

Results: Up to 1 year, the risk of PSA failure or death was significantly lower with degarelix 240/80 mg compared with leuprolide (p=0.05, log–rank). At 27.5 months’ median follow–up, the leuprolide patients who switched to degarelix had a significantly decreased PSA PFS hazard rate compared with before the switch (from 0.20 to 0.08; p=0.003). TTP25% for patients with baseline PSA >20ng/mL was numerically longer with degarelix vs leuprolide (407 vs 303 days; p=0.085) for the 1–year data and an even greater difference was seen when analysing TTP25% using degarelix data beyond one year: 514 vs 303 days; p=0.01 (Fig).

Conclusions: Patients receiving degarelix had a significantly lower risk of PSA failure or death vs leuprolide during the first year of treatment. After switching to degarelix, patients who initially received leuprolide achieved a lower rate of PSA failure or death. TTP25% was longer for degarelix patients (Fig). These data support the durability of the statistically significant benefit of degarelix over monthly leuprolide observed during the first year and the use of degarelix as first–line androgen deprivation therapy.

Funding: Funded by Ferring Pharmaceuticals.
Poster Session I

Poster #11

DOES THE MULTIDISCIPLINARY APPROACH IMPROVE ONCOLOGIC OUTCOMES IN MEN UNDERGOING SURGICAL TREATMENT FOR PROSTATE CANCER?
Suzanne Biehn Stewart¹, Donghua Xie¹, Stephen Freedland¹, Cary Robertson¹, Thomas Polascik¹, Phillip Walther¹, Bridget Koontz², Zelijko Vujaskovic³, Robert Lee⁴, Phillip Febbo⁵, Daniel George⁵, Andrew Armstrong⁵, Judd Moul¹ and Lionel Banez¹
¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Department of Radiation Oncology, Duke University Medical Center, Durham, NC; ³Division of Medical Oncology, Department of Medicine, Duke University Medical Center, Durham, NC
(Presented By: Suzanne Biehn Stewart)

Introduction: The multidisciplinary (MD) approach has become increasingly utilized in urologic oncology. The central goal of this approach is to provide comprehensive evaluation and treatment recommendation by experts in the field of surgical, medical and radiation oncology. This strategy is assumed to improve patient outcomes; however, the efficacy of the MD approach has not been investigated. Furthermore, there is concern that this extensive evaluation may delay treatment. Objectives: To compare short−term oncologic outcomes between MD clinic (MDC) and urology prostate cancer clinic (UPCC) at Duke University Medical Center who underwent radical prostatectomy (RP) as primary treatment.

Methods: We retrospectively analyzed data on patients seen for evaluation who pursued RP, by the same surgeon group, in the MDC (n=194) and UPCC (n=741) from 2005 to 2009. Comparisons of baseline characteristics between the two groups were examined using rank sum and X²−tests. Differences in time to RP and oncologic outcomes between groups were evaluated using multivariate linear and Cox regression, respectively.

Results: There were a significantly greater proportion of clinically high−risk patients (D'Amico criteria) evaluated at the MDC compared to UPCC (23.2% vs. 15.6%, p=0.014). There was no difference between groups with respect to demographics, socioeconomic factors and RP technique. Mean−adjusted time from biopsy to RP was significantly shorter for MDC patients (85.6 vs. 96.8 days, p=0.006). Overall, after a median follow−up of 21 months, we found no significant difference between MDC and UPCC patients in risk of biochemical recurrence (BCR; 4.7% vs. 9.5%), detectable PSA leading to secondary treatment (7.1% vs. 10.9%), overall PSA failure (8.3% vs. 15.4%) or risk of adjuvant treatment (1.0% vs. 3.2%). However, among D’Amico high−risk patients, there was a trend towards lower BCR−risk among MDC patients that did not reach statistical significance (7.7% vs. 33.3%; HR 0.26; p=0.07).

Conclusion: Despite having higher−risk disease at diagnosis, men evaluated using the MD approach had oncologic outcomes comparable to men who underwent standard urologic evaluation. Moreover, time to RP was not delayed for MDC patients. External validation and longer follow−up is warranted to compare metastasis−free and cancer−specific survival after RP as well as radiation therapy to further evaluate the utility of the multidisciplinary approach in prostate cancer management.

Poster #12

LONG TERM RESULTS OF SALVAGE CRYOTHERAPY FOR PROSTATE CANCER
Andrew Williams, Carlos Martinez, Venu Chalasani, Stephen E. Pautler and Joseph L. Chin
University of Western Ontario, London, Ontario
(Presented By: Andrew Williams)

Introduction: The optimum treatment of Prostate cancer recurrence following external beam radiation therapy (EBRT) remains a controversial topic. The primary problem with comparing salvage techniques following EBRT is the lack of long term data. We reviewed the long term overall survival, disease specific survival and disease free survival of patients who have undergone salvage cryotherapy to the prostate gland.

Methods: A retrospective analysis was performed on all patients undergoing salvage cryotherapy for locally recurrent prostate cancer after EBRT by a single surgeon at a single institution from 1995–2004. Patients preoperative, perioperative and postoperative data was reviewed and recorded. Should a patient no longer be followed by the urology service the Patients and the patient’s primary care physician or urologist were contacted. Mortality data, PSA results, bone scan results and any details of hormone therapy were recorded for this study.
**Results:** 187 patients were included in the current study from which 176 patients had records available for follow up giving a follow up rate of 94%. Mean follow up was 7.46 years (1–14 years). 52 patients were followed for greater than 10 years. Average time to prostate cancer recurrence in patients who developed recurred was 2.3 years and average time to hormone therapy in these patients was 2.8 years. Overall survival at 10 years was high at 87%. Risk factors for recurrence of tumour identified were pre salvage PSA, pre radiation and pre salvage gleason score. Pre gleason score had little impact on survival. PSA nadir of >1.0ng/ml was highly predictive of early recurrence. Disease free survival rates of between 39 and 64% depending on risk factors.

**Conclusion:** Cryotherapy has a definite role in the management of prostate cancer, representing a minimally invasive salvage treatment with acceptable 10 year disease free survival (DFS) of upwards of 39% and specific groups attaining 10 year DFS of 64%. Pre salvage PSA and Gleason score are the best predictors of disease recurrence, whilst pre radiation gleason score did not correlate with risk of disease recurrence. A PSA Nadir greater than 1 ng/ml indicates a poor prognosis in which early ADT should be strongly considered.

**Poster #13**

**PROSTATE CANCER GENE EXPRESSION SIGNATURE OF PATIENTS WITH HIGH BODY MASS INDEX**

Shashwat Sharad¹, Patrick Parker², Anjali Srivastava³, Suma Ravulapalli³, Yongmei Chen², Hua Li², Gyorgy Petrovics² and Albert Dobi²

¹Center for Prostate Disease Research, Department of Surgery, USUHS; ²CPDR/Rockville, MD

(Presented By: Shashwat Sharad)

**Introduction and Objectives:** The objective of this research was to assess prostate cancer gene expression signatures associated with elevated body mass index (BMI).

**Methods:** We compared global gene expression profiles of prostate tumor cells with matching normal epithelial cells between patients presented with normal− and high BMI at the time of radical prostatectomy.

**Results:** Bioinformatic analyses revealed associations of high BMI with altered gene expression levels of lipid metabolism and cholesterol homeostasis. Consistently altered expression of the stearoyl−CoA desaturase 1 (SCD1) and insulin−induced gene 1 (INSIG1) was found in prostate tumor cell signatures. These genes were connected by knowledge−based pathway analysis to known genes of tumorigenesis, such as, v−maf (musculoaponeurotic fibrosarcoma) oncogene homolog (MAF), notch receptor ligand, jagged 1 (JAG1), and the alanyl aminopeptidase (ANPEP/CD13) genes.

**Conclusions:** Our study revealed that SCD1, a known target of statins, may play a mechanistic role in the recently noted beneficial effects of statin treatment in reducing biochemical recurrence of prostate cancer.

**Funding:** NIH Grant RO1 DK065977 and Center for Prostate Disease Research Program HU001–04–C–1502

**Poster #14**

**IDENTIFICATION OF GENES ASSOCIATED WITH CLINICAL RECURRENCE IN MEN WITH LOCALIZED PROSTATE CANCER TREATED WITH RADICAL PROSTATECTOMY**

Eric Klein¹, Tara Maddala², Sara Falzarano², Diana Cherbackaz², William Novotny², Carl Millward² and Cristina Magi-Galluzzi³

¹Cleveland Clinic, Urologic Oncology; ²Genomic Health, Inc. Redwood City, CA; ³Cleveland Clinic, Anatomic Pathology, Cleveland, OH

(Presented By: Eric Klein)

**Introduction and Objectives:** A genomic test that distinguishes between clinically indolent and aggressive disease could help men with localized prostate cancer and their doctors decide between active surveillance and immediate therapy. We report initial results of tumor−derived gene expression profiles that correlate with clinical recurrence (cR) after radical prostatectomy (RP).
Posters Session I

**Methods:** All patients (pts) with clinical stage T1/T2 prostate cancer treated with RP at Cleveland Clinic between 1987 and 2004 were identified (n=2,600). A cohort sampling design was used to select 127 patients with cR and 374 patients without cR after RP. Pts were stratified by clinical T-stage (T1, T2), year (≤1993, >1993), and surgical Gleason Score (≤7, >7). Surgical Gleason Score and clinical data were centrally reviewed. RNA was extracted from six manually dissected 10 μm fixed paraffin embedded tissue sections obtained from the RP specimen and expression of 732 cancer-related and reference genes was quantified using a well-validated RT-PCR-based approach. Clinical recurrence-free interval (cRFI), was analyzed using Cox PH regression. PSA recurrence, prostate cancer-specific survival (PCSS), and upgrading/upstaging from biopsy to RP were also analyzed.

**Results:** Blocks from 431 patients were evaluable by pre-specified criteria. Median follow-up was 5.8 years. Pts were mostly Caucasian (83%), <70 years old (93%), clinical stage T1 (66%), had baseline PSA <10 ng/mL (82%), and had surgical Gleason score ≤7 (87%). Two hundred and ninety-five genes were significantly associated (unadjusted p<0.05) with cRFI, well in excess of the number expected by chance. Most of the genes significantly associated with other endpoints were also associated with cRFI (PSA recurrence: 213/235 genes, PCSS: 171/203 genes, upgrading/upstaging: 130/192 genes). Increased expression of cell migration genes (eg. FLNA) and epithelia genes (eg. KRT5) were associated with lower risk of recurrence. Increased expression of extracellular matrix genes (eg. COL3A1) were associated with higher risk of recurrence.

**Conclusions:** This genomic study was notable for the large number of cR events, the use of a standardized quantitative assay, as well as rigorous central review of pathology and clinical data. This allowed us to identify a large number of genes strongly associated with clinical recurrence, as well as PSA recurrence, prostate cancer-specific survival and upgrading/upstaging.

**Poster #15

PROSTVAC: A PROMISING NEW THERAPEUTIC VACCINE FOR PROSTATE CANCER

James Gulley¹, Ravi Madan¹, Chris Heery¹, Marijo Bilusic¹, William Dahut² and Jeffrey Schlom¹

¹LTIB, CCR, NCI, Bethesda, MD; ²MOB, CCR, NCI, Bethesda, MD

(Presented By: James Gulley)

**Introduction:** Prostvac, (also known as PSA-TRICOM), is a potent third-generation vaccine designed to stimulate a patient’s immune system to recognize and attack tumor cells expressing prostate specific antigen (PSA).

**Methods:** A recently-completed 43-center randomized, controlled, double-blinded phase II clinical trial was conducted in 125 patients with metastatic castration dependant prostate cancer. Similar to other recently reported vaccine studies, the progression free survival (the primary endpoint of the study) was not different between the arms. However there was a 44% reduction in the death rate for patients getting Prostvac compared with the control arm (HR 0.56, p=0.006). The median overall survival on that study was 8.5 months longer for patients getting vaccine than control (25.1 v 16.6 months), with minimal toxicity noted. This is among the largest treatment effect seen in any randomized study of metastatic castration-resistant prostate cancer.

**Results:** A concurrent study demonstrated a trend towards improved survival in patients mounting the best immune response to vaccine. That study also demonstrated that patients on average lived 9.2 months longer than predicted based on a validated nomogram. This study also suggested that the half of patients with longer predicted survival (associated with lower tumor burdens and less aggressive disease) were the group with the largest apparent treatment benefit (living >16.4 months longer than predicted). This study also provides insight into why patients may have no improvement in time to progression but still have improvement in overall survival.

**Conclusion:** Based on the consistent and provocative improvements in overall survival seen in these two studies a global, randomized, controlled, double-blind phase III clinical trial of Prostvac is scheduled to open in the first half of 2011 to confirm if this vaccine can improve overall survival compared with placebo. Other ongoing trials with prostate cancer vaccines at the NCI include a trial of flutamide +/- vaccine in patients with non-metastatic CRPC, a trial of Quadramet +/- vaccine in patients with metastatic CRPC and a planned trial of definitive radiotherapy and androgen deprivation therapy +/- vaccine for patients with high risk localized disease.
LONG TERM BIOCHEMICAL RECURRENCE WITH CELL SAVER USAGE DURING TOTAL PROSTATECTOMY: IS THE RISK INCREASED?
Ahmed Eldefrawy, Galaxy Shah, Elie Antebi, Mohan Arianayagam, Murugesan Manoharan and Mark Soloway
University of Miami, Miller School of Medicine, Miami, FL
(Presented By: Ahmed Eldefrawy)

Introduction and Objectives: The usage of cell saver blood has dramatically lowered blood transfusion rate. However cell saver usage is still debatable in oncological procedures. Our aim is to identify whether there is association between the long term biochemical recurrence (BR) of patients undergoing total prostatectomy (TP) and receiving cell saver blood.

Methods: Between 1992 and 2009, 2077 men underwent TP by a single surgical team. The exclusion criteria were preoperative radiotherapy or androgen deprivation, immediate postoperative radiotherapy or androgen deprivation prior to BR and patients with follow-up less than 5 years. BR was defined as prostate specific antigen (PSA) of ≥ 0.2. The final cohort was divided into 2 groups based on receiving cell saver blood. Chi square test was used to identify differences in BR between the 2 groups with the same preoperative risk using D'Amico criteria, postoperative Gleason sum (GS), extra prostatic extension (EPE) and seminal vesicle invasion (SVI). The mean time to recurrence was compared using independent sample t test. Kaplan Meier survival analysis identified the 5 and 10 year recurrence free survival of the 2 groups.

Results: 677 patients were included in the study of them 158 (23.5%) received cell saver blood. The mean follow-up was 100 months. The mean time to recurrence in cell saver group was 45 months and in non cell saver group was 49 (p = 0.20). There was no difference BR rate between cell saver receiving patients when compared to non cell saver receiving patients with low preoperative risk (p = 0.26), intermediate (p = 0.21) and high risk (p = 0.12). There was no difference in BR when comparing patients with the pathological GS (p = 0.20) for GS ≤ 6, (p = 0.06) for GS 7 and (p = 0.55) for GS 8-10. There was no difference in BR of patients with T2 pathological stage (p = 0.44), T3a (p = 0.39) and T3b (p = 0.14).

The 5 and 10 year recurrence free survival of cell saver group was 82.3% and 69% respectively. For the non cell saver group, the 5 and 10 year recurrence free survival was 81.6% and 70% respectively (p = 0.67). Fig1.

Conclusions: Cell saver blood does not increase the risk or the timing of BR in men undergoing TP for localized prostate cancer.
Introduction and Objectives: This was a prospective study involving Multiphoton Microscopy imaging and histopathological correlations of human prostate and peri-prostatic tissue. The aim of these studies is to improve the results of nervesparing radical prostatectomy and decrease the chance of missing extra prostatic extension (EPE; i.e. having a positive surgical margin). In this study we have used Multiphoton Microscopy (MPM) for ex vivo tissue imaging in order to assess its potential as a future intraoperative imaging modality.

Methods: We used two types of specimens for imaging: (1) Intraoperative margins and biopsies; (2) Tissue sections obtained from the excised prostate. The imaging was carried out using intrinsic fluorescence and scattering properties of the tissues without any exogenous dye or contrast agent. A custom-built MPM, consisting of an Olympus BX61WI upright frame and a modified Bio–Rad MRC 1024 scanhead, was used. A femtosecond pulsed titanium/sapphire laser at 780-nm wavelength was used to excite the tissue; laser power under the objective was modulated via a Pockels cell. Second harmonic generation (SHG) signals were collected at 390 (+/−35 nm), and broadband autofluorescence was collected at 380 to 530 nm. The images obtained from SHG and from tissue fluorescence were then merged and color coded during post processing for better appreciation of details. The corresponding tissues were subjected to hematoxylin and eosin staining for histological confirmation of the structures.

Results: High-resolution images of the periprostatic tissue, nerves, prostate capsule, underlying acini, and individual acinar cells were obtained at varying magnifications. Histological confirmation and correlation of the periprostatic tissue, prostate gland, fat, blood vessels and nerves validated the findings of MPM.

Conclusions: We have utilized a novel approach for real time tissue imaging which seems to provide microscopy level resolution in fresh tissue, without the need for any extrinsic labeling agents. This should allow for more accurate surgical decision making. Further studies will better define its role in actual clinical setting.
Poster #18

ELASTIC REGISTRATION OF 3D PROSTATE BIOPSY TRAJECTORY BY REAL-TIME 3D MRI/TRUS FUSION: PILOT STUDY
Casey Ng¹, Osamu Ukimura¹, Mihir Desai¹, Suzanne Palmer², Samuel Valencerrina², Andre Berger¹, Ricardo Brandina¹, Monish Aron¹ and Inderbir Gill¹
¹Department of Urology, USC Keck School of Medicine, Los Angeles, CA; ²Department of Radiology, USC Keck School of Medicine, Los Angeles, CA
(Presented By: Casey Ng)

Introduction and Objectives: Current, standard TRUS biopsies are insufficiently accurate to localize prostate cancer lesions with sub–millimeter accuracy. Development of a clinically−relevant prostate focal therapy protocol, precise three−dimensional (3D) localization of the interventional needle is critical. By combining 3−Tesla MR images with real−time 3D TRUS, prostate biopsy needle could placed precisely. The aim of study is to determine the accuracy of a computer−aided 3D TRUS system with MR image fusion for guiding prostate biopsy using phantoms.

Methods: Using prostate training phantoms from CIRS (CIRS−053), which contain 3 randomly located hypo−echoic lesions 0.5cc in volume, and (CIRS−066), which contain 3 randomly located iso−echoic but MR−visible lesions 0.5cc in volume. We performed 3 targeted biopsies in each lesion, and the biopsy tracts were discriminated by gadolinium−based contrast agent mixed with different colored India inks, to assess the accuracy with 1−mm step−section MRI and step−section analysis of the phantoms. The external software (Koelis, France) is capable of registering 3D trajectory of each biopsy in the 3D TRUS volume data of the prostate.

Results: A total of 27 US−guided biopsies were targeted into 9 hypo−echoic lesions; each biopsy (27/27; 100%) successfully hit the target, resulting in a procedural error of 1.5±0.78mm. Adding the system registration error of 0.83, the mean total targeting error into US−visible lesions was 2.4mm. Of 27 MR fusion guided biopsies targeted into 9 iso−echoic MR−only−visible lesions, 24 (89%) successfully hit the target, of which 3 missed biopsies occurred during initial targeting due to the learning curve, resulting in a procedural targeting error of 2.1±1.28mm. Adding the system registration error, the mean needle registration error into MR−only−visible lesions was 2.9mm.

Conclusions: The computer−guided 3D TRUS guided biopsy localization system with MR/US fusion achieved encouraging accuracy (<3mm error) in the registration of each biopsy trajectory in the 3D prostatic space.

Poster #19

ERG ONCO PROTEIN IN PRE-INVASIVE AND INVASIVE PROSTATE CANCER: AN EVIDENCE FOR CLONAL PROGRESSION
Isabell A. Sesterhenn¹, Shy−Han Tan², Bungo Furusato³, Denise Young⁴, Albert Dobi³, Ahmed Mohamed⁵, Yongmei Chen², Gary McMaster⁶, Taduru Sreenath³, Gyorgy Petrovics², David G. McLeod⁷ and Shiv Srivastava²
¹Department of Genitourinary Pathology, Armed Forces Institute of Pathology; ²Center for Prostate Disease Research, Department of Surgery, Uniformed Services University of the Health Sciences, Rockville, MD; ³Department of Genitourinary Pathology, Armed Forces Institute of Pathology, Rockville, MD; ⁴Department of Genitourinary Pathology, Armed Forces Institute of Pathology, Washington, DC; ⁵Center for Prostate Disease Research, Department of Surgery, Uniformed Services University of the Health Sciences, Rockville, MD; ⁶Affymetric, Inc., Fremont, CA; ⁷Urology Service, Walter Reed Army Medical Center, Washington, DC
(Presented By: Isabell A. Sesterhenn)

Introduction and Objectives: Frequent overexpression of ERG in prostate tumors is a result of prevalent gene fusions involving upstream sequences of androgen regulated genes (predominantly TMPRSS2) and downstream coding sequences of nuclear transcription factors within the ETS gene family (primarily ERG). Despite numerous reports of ERG alterations at the transcript and genome levels, the features of ERG oncoprotein still needs to be defined. Sensitivity and specificity of an anti−ERG monoclonal antibody (ERG−MAb) developed by our group was established. An ERG oncoprotein expression portrait was unveiled in prostate towards the goal of assessing its utility in prostate cancer diagnosis and prognosis.

Methods: Specificity of the ERG−MAb was established by using cell culture models harboring endogenous or ectopic expression of TMPRSS2−ERG fusion and human and mouse prostate specimens. Using representative whole−mount prostate sections over 150 prostatectomy specimens, ERG protein expression was analyzed in PIN, tumor foci, benign glands and other cell types in prostate. In randomly selected cases ERG protein expression was correlated with ERG fusion status.
**Results:** ERG–MAb showed striking specificity for detecting prostate tumor cells (>99.9%). Specimens from 65% patients had one or more ERG positive tumor focus. Overall 45% of all 261 individual tumors were ERG positive. Examination of detecting ERG positive PINs and ERG positive tumors within the same whole−mount sections revealed a 97% concordance. Normal prostate in human and mouse lacked ERG expression with the exception of endothelial cells exhibiting strong ERG expression.

**Conclusions:** Striking association of focally ERG positive PIN lesions with ERG positive carcinoma highlights the biological role of ERG in clonal progression of prostate cancer cells. Taken together, the homogeneous and strong ERG expression in individual tumors and the remarkable correlation between ERG positive PIN lesions and tumors suggests a role for ERG in the pre−invasive to invasive transition of prostate cancer cells.

**Funding:** NIH Grant RO1 DK065977; DoD, CDMRP PC073614; and Center for Prostate Disease Research Program HU001−04−C−1502

---

**Poster #20**

**PHASE II TRIAL OF BEVACIZUMAB (A), LENALIDOMIDE (R), DOCETAXEL (T), AND PREDNISONE (P) IN PATIENTS (PTS) WITH METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (mCRPC)**

Xuan Huang, Yang-Min Ning¹, James L. Gulley², Philip M. Arlen¹, David Adelberg¹, Paul Kluetz¹, Seth M. Steinberg³, Andrea B. Apolo¹, William L. Dahut¹

¹Medical Oncology Branch, National Cancer Institute; ²Laboratory of Tumor Immunology and Biology, Medical Oncology Branch, National Cancer Institute; ³Biostatistics and Data Management Service, Medical Oncology Branch, National Cancer Institute; ⁴Cancer Therapy Evaluation Program, Division of Cancer Treatment and Diagnosis, National Cancer Institute; ⁵Division of Cancer Prevention, Preclinical Development Research Core, National Cancer Institute; ⁶Department of Radiology and Imaging, Clinical Center, National Cancer Institute; ⁷National Institute of Dental and Craniofacial Research; ⁸Molecular Pharmacology Section, Medical Oncology Branch, National Cancer Institute, National Institute of Health, Bethesda, MD

(Presented By: Xuan Huang)

**Introduction:** Angiogenesis appears to play critical role in the progression of mCRPC. Previously we have demonstrated anti−tumor activity in mCRPC with the combination of T, thalidomide, with A and P (Ning JCO 28:2070−76, 2010). We hypothesized that combining R, an analogue of thalidomide, with A, T and P would provide superior tolerability without comprising potent anti−tumor activity in mCRPC.

**Methods:** Pts with progressive mCRPC and no prior chemotherapy were enrolled in the study. A run-in phase with R at 15 mg and 20 mg was conducted on 6 pts in two cohorts prior to dose level at 25 mg. Treatment includes T at 75 mg/m2, A at 15 mg/kg on day 1 every 21 days as one cycle, plus R at 25 mg daily for 14 days and P at 10 mg daily. Enoxaparin was used for thrombosis prevention. After grade 3 neutropenia was seen in > 80% of pts the protocol was amended to include prophylactic pegfilgrastim. PSA is evaluated every cycle with restaging studies after cycle 2 and then every 3 cycles thereafter.

**Results:** 26 of a planned 51 pts have been enrolled. Pt characteristics include: median age 65.5 [55−78], Gleason score 8 [69.2% 8−10, 30.8% 6−7], on-study PSA 95.3 ng/ml [9.2−3520], and pre-study PSA doubling time 1.43 months [0.52−4.07]. Median treatment cycle was 8.5 [1−19]. One pt was taken off study after 6 cycles due to clinical progression with worsening bone pain. 25 pts remain on study. 18/19 pts who have completed ≥4 cycles (94.7%) had PSA-decline of ≥50%. 13 pts with measurable disease were evaluable with 2 complete responses (1 unconfirmed), 8 partial responses (2 unconfirmed), 3 stable disease, a 76.9% overall response rate. Grade ≥ 3 toxicities include neutropenia (16/26), anemia (5/26), thrombocytopenia (1/26), and bacteremia (1/26). Febrile neutropenia was seen in 2/26 pts. Grade 2 osteonecrosis of the jaw (ONJ) was identified in 8/26 pts (30.7%). All pts underwent pre−treatment dental exams, mandible imaging and scheduled dental evaluations during treatment.

**Conclusions:** Combined therapy with anti−angiogenic agents R and A, plus T and P is associated with high response rates, 94.7% in PSA and 76.9% in measurable disease in pt with mCRPC, with manageable toxicities. Further evaluation is underway to explore the high incidence of ONJ. These data suggests this regimen is likely to provide improved disease control in mCRPC.
Poster Session I

Poster #21
CANCER DETECTION RATES ON MR / ULTRASOUND (US) FUSED IMAGE GUIDED PROSTATE BIOPSIES DIRECTLY CORRELATES WITH MULTI-PARAMETRIC MRI

Ardeshir Rastinehad¹, Compton Benjamin², Paul Chung², Jochen Kruecker³, Sheng Xu³, Pingkun Yan³, Samuel Kadoury³, Julia Locklin⁴, Baris Turkbey⁵, Gennady Bratslavsky², Marston Linehan², Peter Choyke⁵, Bradford Wood⁴ and Peter Pinto²

¹NIH/NCI, Bethesda MD; ²NIH/NCI, Urologic Oncology Branch; ³Philips Research North America, Briarcliff Manor, NY; ⁴NIH/CC, Center for Interventional Oncology, Bethesda, MD; ⁵Molecular Imaging Program, National Cancer Institute, National Institutes of Health, Bethesda, MD

(Presented By: Ardeshir Rastinehad)

Objective: The current standard for diagnosing prostate cancer is based on random biopsies utilizing gray scale ultrasound which has an inherent sampling error. Our platform combines the benefits of MR imaging and the ease of TRUS guided biopsies to perform fusion directed biopsies. We sought to determine the cancer detection rates for MR/US fusion biopsy platform.

Methods: One hundred and fifty consecutive patients with suspicion or diagnosis of prostate cancer entered our research protocol. Two radiologists (PC, BT) reviewed multi-parametric MR images which included T2, dynamic contrast enhanced (DCE), diffusion weighted images (DWI), and spectroscopy images of the prostate. All lesions were then identified and graded by number of modalities positive: low (<2), moderate (3) and high (4) suspicion.

For MR/US fusion biopsies, an EM field generator (Northern Digital Inc., Canada) was placed above the pelvis which allowed for real-time tracking of a custom made biopsy probe with an embedded miniature electromagnetic tracking sensor (Traxtal Inc., A Philips Healthcare Company, Canada) incorporated into the needle guide (Civco Inc, Kalona IA, USA). The protocol included a standard 12 core biopsy followed by a MRI/US fusion biopsy of the suspicious MR targeted lesions utilizing EM tracking.

Results: The mean age was 62.2 + 8.1 years with a median PSA 5.7, and 91.3% (91/101) had a negative DRE. Chi−squared analysis comparing degree of MR suspicion and incidence of cancer detected per patient (p<0.0001), and per lesion was performed (p<0.0001), (Table 1). There was a direct correlation between degree of suspicion and the yield of biopsied lesions, 14.4% (36/250), 30.4%(35/115), and 68.2% (30/44) for low, moderate, and high suspicion respectively (Table 1).

Conclusion: By incorporating MR imaging into our diagnostic platform we are able to successfully stratify the incidence of prostate cancer into three distinct groups using MR suspicion. In this screening population patients with a high suspicion determined by MR, 19/22 (86.4%) patients were found to have cancer, compared to the historical series of TRUS guided biopsies with a 27 –40% yield.

Table 1
Cancer Detected

<table>
<thead>
<tr>
<th>MR suspicion</th>
<th>Negative</th>
<th>Positive</th>
<th>Total</th>
<th>Percent Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Patients</td>
<td>45</td>
<td>24</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td>MR Lesions</td>
<td>214</td>
<td>36</td>
<td>250</td>
</tr>
<tr>
<td>Moderate</td>
<td>Patients</td>
<td>23</td>
<td>36</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>MR Lesions</td>
<td>80</td>
<td>35</td>
<td>115</td>
</tr>
<tr>
<td>High</td>
<td>Patients</td>
<td>3</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>MR Lesions</td>
<td>14</td>
<td>30</td>
<td>44</td>
</tr>
</tbody>
</table>
Poster #22

SIPULEUCEL-T IMMUNOTHERAPY FOR ADVANCED PROSTATE CANCER; INTEGRATED RESULTS FROM RANDOMIZED, DOUBLE-BLIND, CONTROLLED TRIALS

Allan Pantuck¹, Simon Hall², Celestia Higano³, Eric Small⁴, Philip Kantoff⁵, Yi Xu⁶, Robert Sims⁶, Mark Frohlich⁶ and Paul Schellhammer⁷
¹University of California Los Angeles, Los Angeles, CA; ²Mount Sinai School of Medicine, New York, NY; ³University of Washington, Seattle, WA; ⁴University of California San Francisco, San Francisco, CA; ⁵Harvard Medical School, Boston, MA; ⁶Dendreon Corporation, Seattle, WA; ⁷Eastern Virginia Medical School, Norfolk, VA
(Presented By: Allan Pantuck)

Introduction and Objectives: Sipuleucel−T is an autologous cellular immunotherapy. Results of three integrated studies in asymptomatic or minimally symptomatic metastatic castrate resistant prostate cancer (CRPC) provided evidence of survival prolongation, and a randomized trial explored sipuleucel−T in androgen dependent prostate cancer (ADPC). We now report an analysis of the homogeneity of the sipuleucel−T treatment effect across the 3 CRPC studies and within subgroups, and the safety profile of sipuleucel−T across all 4 studies.

Methods: Patients (pts) were randomized (2:1) to receive 3 intravenous doses of sipuleucel T or control (ctrl) in the outpatient setting at 2−week intervals. Pts on the ADPC trial were eligible for a single booster infusion following PSA≥3.0 ng/mL. Cox regression models were used to analyze overall survival (OS) in 737 randomized CRPC pts (488 sipuleucel−T: 249 ctrl) with median follow−up of 36 months. The safety population included 904 CRPC and ADPC pts (601 sipuleucel−T: 303 ctrl) who underwent at least one leukapheresis.

Results: There was a significant sipuleucel−T treatment effect (HR=0.735, 95% CI:0.613, 0.882, P<0.001), which was found to be homogeneous across the 3 CRPC studies and within subgroups, and the safety profile of sipuleucel−T across all 4 studies. Adverse events (AEs) seen more commonly in sipuleucel−T pts were chills (53.1%), pyrexia (31.3%), headache (18.1%), myalgia (11.8%), influenza like illness (9.7%), and hyperhidrosis (5.0%). The majority of these AEs occurred ≤1 day following infusion, were mild or moderate, and resolved ≤2 days. AEs following booster infusion were comparable to the initial infusions. Grade 3 acute infusion reactions (AIRs), including chills, pyrexia, fatigue, asthenia, dyspnea, hypoxia, bronchospasm, dizziness, headache, hypertension, myalgia, nausea, and vomiting, occurred in 3.5% of sipuleucel−T pts. No Grade 4 or 5 AIRs were observed. The incidence of cerebrovascular events was 3.5% in the sipuleucel−T group and 2.6% in ctrl. There was no evidence of an increased incidence of autoimmune events.

Conclusions: Sipuleucel−T has consistent OS results across trials and within subgroups, and has a favorable AE profile in both the CRPC and ADPC settings. AIRs can be managed in the outpatient setting.

Studies funded by Dendreon Corporation.

Poster #23

DELAYED TREATMENT OF MEN WITH INTERMEDIATE RISK PROSTATE CANCER IS ASSOCIATED WITH INCREASED RISK OF BIOCHEMICAL RECURRENCE IN A LARGE COMMUNITY COHORT

Jonathan Silberstein¹, Natalia Sadetsky², Peter Carroll² and Christopher Kane³
¹Memorial Sloan-Kettering Cancer Center, NYC, NY; ²University of California at San Francisco, San Francisco, CA; ³University of California at San Diego, San Diego, CA
(Presented By: Jonathan Silberstein)

Objective: In a large community cohort of men undergoing radical prostatectomy (RP) for prostate cancer (PCa), we aim to characterize the impact that interval from diagnosis to RP has on biochemical recurrence (BR) and overall survival in men with low, intermediate and high risk PCa.

Methods: We utilized a longitudinal observational database, CaPSURE (Cancer of the Prostate Strategic Urologic Research Endeavor) to identify all patients who had undergone a RP between 1990 and 2009. Patients were stratified into clinical risk categories; low (PSA≤10 ng/mL and ≤T2a and Gleason score ≤6), intermediate (PSA 10−20 ng/mL or T2b−T2c or Gleason score 7) or high (PSA>20ng/mL or ≥T3a or Gleason score ≥ 8). Interval between diagnosis and treatment, was defined as <3months, 3−6 months, or greater than 6 months. Survival analysis was implemented to evaluate association between time to treatment and both BR and overall survival within each clinical risk category. Multivariate cox proportional hazard models were analyzed to determine the impact that delay to treatment has on BR and overall survival after adjusting for other known predictors.
Results: We identified 4848 patients who met inclusion criteria however because of missing clinical data final analysis was performed on 3705 patients. In univariate analysis time to treatment was significantly associated with race/ethnicity ($p<0.01$) and comorbidities ($p=0.05$). Age, education, clinical risk, income, and relationship status did not significantly correlate with time interval from diagnosis to treatment. In survival analysis time to treatment was associated with both BR ($p=0.005$) and overall survival ($p=0.028$) in intermediate, but not low or high clinical risk groups. Multivariate analysis, in the intermediate risk group, demonstrated that longer time to treatment (>6 months) compared with shorter time to treatment (<3 months) was an independent predictor for increased risk of BR (HR 2.68 95% CI 1.35–5.34; $p=0.02$) but not decreased overall survival (HR 2.32 95%CI 1.01–5.32; $p=0.12$).

Conclusions: In patients with intermediate risk prostate cancer an interval of greater than 6 months between diagnosis and treatment is an independent predictor of biochemical recurrence.

Poster #24

IN VIVO IMAGING OF INTRAPROSTATIC-SPECIFIC GENE TRANSCRIPTION BY POSITRON EMISSION TOMOGRAPHY

Frederic Pouliot¹, Breanne Karanikolas², Mai Johnson³, Makoto Sato³, Saul Priceman³, David Stout³, Joanne Sohn⁴, Nagichettiar Satyamurthy³, Jean DeKernion⁵ and Lily Wu³

¹Department of Urology, Laval University; ²UCLA Department of Molecular and Medical Pharmacology; ³UCLA Department of Molecular and Medical Pharmacology; ⁴Division of Laboratory Animal Medicine at UCLA; ⁵UCLA Department of Urology

(Presented By: Frederic Pouliot)

Purpose: Better intraprostatic cancer imaging techniques are needed to guide clinicians in prostate cancer treatment decisions. Because many genes are specifically overexpressed in cancer cells, one strategy to improve prostate cancer detection is to image intraprostatic cancer-specific transcriptional activity. Due to the obstacles of weak cancer- or tissue-specific promoter activity and bladder clearance of many positron emission tomography (PET) tracers, intraprostatic PET imaging of gene transcriptional activity has not been previously reported.

Experimental Design: The Two-Step Transcriptional Amplification (TSTA) system that amplifies the Prostate Specific Antigen (PSA) promoter activity was used for PET imaging of the reporter gene HSV1–sr39tk. The TSTA–sr39tk system was injected directly into prostates or prostatic tumors as a replication incompetent adenovirus (AdTSTA–sr39tk) and imaged using PET scans.

Results: AdTSTA–sr39tk was able to image PSA promoter transcriptional activity by 18F–FHBG PET, in both mouse and canine prostates in vivo (Figure 1). Ex vivo microPET images, scintigraphic counts, and sr39tk expression analysis confirmed the specificity of the observed signal. Moreover, two intraprostatic adenoviral injections generated PET signal in 3.8 cc of the prostate, thus increasing the sensitivity of traditional biopsies.

Conclusions: Here, by combining the TSTA–amplified signal with a novel protocol for tracer administration, we show for the first time that in vivo PET detection of transcriptional activity is possible in both mouse and immunocompetent canine prostates. These results suggest that new imaging applications using transcription–based tumor–specific promoters should be pursued to better visualize cancer foci that escape detection by conventional biopsies.
Poster #25

TREATMENT PATTERNS AND OUTCOME IN PATIENTS THAT REFUSE SURGERY FOR PROSTATE CANCER
Naveen Pokala, Ali Dabaja, Jesse Sammon, Emil Kheterpal, James Peabody and Mani Menon
Henry Ford Hospital, Detroit, MI
(Presented By: Naveen Pokala)

Objective: Surgery has been shown to offer a survival advantage to patients with locoregional prostate cancer when compared to other modalities of treatment. However, a significant number of patients refuse surgery and request other treatment options. This population based study analyses the treatment patterns and the outcome in patients that were offered but refuse surgery.

Methods: Patients that were offered surgery for locoregional prostatic adenocarcinoma but refused surgery were identified from the SEER 17 database (1973–2006). Patients were analyzed for demographics, tumor characteristics including grade and stage. Treatment patterns and the overall (OS) and the cancer specific survival (CSS) were analyzed. Exclusions included men ≥ 75 years, incomplete data, histology other than adenocarcinoma and diagnosed at autopsy. Appropriate statistical methods were used.

Results: Of 17241 patients that refused surgery, 9704 patients met inclusion criteria and the mean age was 64.4 years. 29.4% chose no treatment and 70.6% chose radiation. The 10–yr OS after NDT or RT was 51% and 68% and the CSS was 78% and 89% respectively. The 10–yr OS was 78%, 79%, 63% after brachytherapy, combination RT and EBRT. The corresponding CSS was 92%, 96%, 87%. radiation improved survival in all grades of cancer.

On multivariate analysis age over 65 years, black race, year of diagnosis, moderately and poorly differentiated cancer, higher T stage and NDT were associated with a worse prognosis while the marital status, geographical location, age less than 50 years did not adversely affect survival.

Conclusions: 70% of the patients that refuse surgery receive radiation. Patients that refuse any treatment have a significantly worse 10–yr survival when compared to patients that receive RT.

Poster #26

ERG EXPRESSION REFLECTS FUNCTIONAL STATUS OF THE ANDROGEN RECEPTOR IN PROSTATE CANCER
Gyorgy Petrovics¹, George L. Lee², Timothy Nydam², Bungo Furusato², Yongmei Chen², Isabell A. Sesterhenn³, David G. McLeod², Albert Dobi² and Shiv Srivastava²
¹Center for Prostate Disease Research, Department of Surgery, USUHS; ²CPDR/Rockville, MD; ³AFIP/Washington, DC
(Presented By: Gyorgy Petrovics)

Introduction and Objectives: Expression of the ERG proto-oncogene is activated in 50–70% of prostate tumors by androgen receptor (AR) mediated signals due to the fusion of AR regulated promoters to ERG oncoprotein coding sequences. Our previous studies of quantitative expression levels of ERG or TMPRSS2–ERG fusion transcripts have noted that relatively low or no ERG expression in prostate tumors significantly associated with progressive disease. Here, we have tested the hypothesis that ERG expression levels in prostate tumor cells reflect AR transcriptional regulatory function, thus, tumors with lower ERG may represent a subset with attenuated AR signaling.

Methods: Expression of ERG and other AR regulated genes were evaluated in a GeneChip dataset obtained from a panel of laser capture micro-dissected well/moderately differentiated (WD) or poorly differentiated (PD) tumor cells derived from primary tumors of patients, who had no prior androgen ablation treatment.

Results: Overall, ERG expression pattern was similar to that of other AR regulated genes. Strikingly low frequency of ERG expression was noted in PD tumor cells (30%) in comparison to WD tumor cells (80%), suggesting for subdued AR function in a significant fraction of tumors with genomic alterations of ERG.

Conclusions: By integrating ERG into a panel of defined AR target genes, we developed a cumulative AR Function Index (ARFI), which if validated may have future potential in stratifying patients for targeted therapy on the basis of overall AR functional status in primary tumors.

Funding: NIH Grant RO1 DK065977 and Center for Prostate Disease Research Program HU001–04–C–1502
Poster #27

BLADDER CANCER AFTER RADIOTHERAPY FOR PROSTATE CANCER
Michael Abern¹, Annie Dude² and Christopher Coogan¹
¹Rush University Medical Center, Chicago, IL; ²University of Chicago, Chicago, IL
(Presented By: Michael Abern)

Introduction and Objectives: The risk of bladder cancer (CaB) after radiotherapy (RT) for prostate cancer (CaP) has been studied with conflicting results. Some reports show an increased risk of CaB after external beam radiation (XBRT), others suggest that brachytherapy (BT) may confer a lower risk than XBRT but with only 1 year of follow-up. To our knowledge no reports correlate the risk of secondary CaB with survival. We stratify the risk of CaB and survival by CaP treatment type.

Methods: We examined 342,937 cases of clinical stage I prostatic adenocarcinoma reported to The Surveillance, Epidemiology and End Results (SEER) database between 1988–2007. Patients who were not treated for CaP were excluded. Staging for cases prior to 2003 were converted to the current AJCC definitions. A multivariate model was created controlling for race, tumor grade, age at CaP diagnosis, year of diagnosis, and treatment type. The primary outcome measure was diagnosis of CaB at least 1 year after CaP diagnosis. Secondary outcomes were CaB and CaP specific survival (CSS), and overall survival (OS). Logistic regression was performed to calculate odds ratios (OR). Survival analyses were reported as Cox proportional hazard ratios (HR).

Results Obtained: CaB developed in 0.58% of men (1,987 cases). The interval between CaP and CaB diagnosis was shortest in patients treated with BT (mean 48.4 months, SD 39.8 months) and longest in patients with radical prostatectomy (RP) + RT (mean 76.2 months, SD 47.7 months). Patients treated with any RT were twice as likely to be diagnosed with CaB (OR 1.98, p<0.001) compared to RP. Subgroup analyses revealed XBRT+BT as the strongest predictor (OR 2.24, p<0.001) and BT alone the weakest (OR 1.63, p<0.001). This relationship did not apply to survival, however, as XBRT+BT patients had improved CSS (HR 0.84, p<0.001).

Conclusions: Patients with stage I CaP treated with RT are twice as likely to develop CaB. The risk varies according to RT modality. As stage I CaP patients typically have treatment options these risks should be part of the decision making process, and clinicians should have an increased index of suspicion for CaB during surveillance after RT.

Poster #28

OMISSION OF PELvic LYMPHAdENECTOMY IN LOW-RISK PROSTATE CANCER PATIENTS IS NOT ASSOCIATED WITH HIGHER RATES OF BIOCHEMICAL RECURRENCE AT FIVE YEARS
Joshua Logan, Michael Fabrizio, Robert Given, Stephen Riggs and Raymond Lance
Eastern Virginia Medical School, Norfolk, VA
(Presented By: Joshua Logan)

Introduction: Several studies have reported a very low incidence of lymph node metastasis in D'Amico low-risk prostate cancer. Omission of the pelvic lymphadenectomy (PLND) has increased in this group. We evaluated whether omission of a PLND in these patients was associated with increased rates of biochemical recurrence (BCR) with long follow-up.

Materials and Methods: The study population included 211 patients with prostate cancer clinical stage T1−2, Gleason 3+3, and PSA <10ng/ml. Patients were divided into two groups, those with PLND (+PL) at the time of prostatectomy (n = 88) and those without (−PL) (n = 123). BCR was defined as PSA >0.2ng/ml within five years of surgery. Cox proportional hazards analysis was applied to evaluate the association between omission of PLND and BCR.

Results: Median follow-up was 74.4 months. On Cox proportional hazards analysis omission of PLND was not a predictor of biochemical recurrence in −PL when compared to +PL (p = 0.30). Other variables assessed and found not to be predictive of biochemical recurrence were: year of surgery (p = 0.44); age at surgery (p = 0.23); African–American race (p = 0.10); cT2 stage (p = 0.16); number of biopsy cores (p = 0.52); number of positive biopsy cores (p = 0.39); and percent positive cores (p = 0.62). PSA was the only pre-operative clinical variable found to predict BCR (p = 0.004).

Conclusions: With long-term follow-up, D'Amico low-risk prostate cancers are no more likely to develop BCR when PLND is omitted than those who undergo PLND.
THE IMPACT OF OBESITY AS A COMPETING RISK FACTOR IN PROSTATE CANCER

Joshua Langston, J. Patrick Selph, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Joshua Langston)

**Purpose:** For many patients, obesity may be a competing risk factor to death from prostate cancer, yet it remains unclear as to how obesity should influence such treatment decisions. This study analyzed existing data on the impact of obesity on life expectancy and compared such estimates to the expected mortality from prostate cancer in untreated patients.

**Methods:** Using data from Fontaine et al JAMA (2003) and US Life Tables (2003), we calculated the probability of death in 15 years for men in each BMI category at integer-defined age intervals over 5-yr age intervals. Estimates of 15-year disease-specific mortality by Gleason grade for men with localized prostate cancer and who received only conservative management were then derived from data published by Albertsen et al JAMA (1998; 2005). A comparison of the two data sets was then completed to estimate whether BMI or untreated prostate cancer offered the greatest 15-year mortality risk.

**Results:** The graph demonstrates the 15-year mortality rates based on BMI (25, 30, 35, 40, and 45+), with increasing mortality observed at higher BMI values. The graph also demonstrates the super-imposed 15-year disease-specific mortality rates based on prostate cancer Gleason grade (<=6, 7, 8–10) with increasing mortality rates observed with increasing grade. All Gleason 6 patients had lower prostate cancer mortality rates than other causes at each BMI level. Conversely, patients with Gleason 8–10 cancers had higher prostate cancer mortality at most ages and BMI levels except for the oldest and most obese patients.

**Conclusion:** For men with Gleason 6 or 8–10 prostate cancer, BMI should have little if any impact on treatment decision, except for the oldest and most obese men. For men with Gleason 7 disease, the 15-year mortality associated with significant obesity can exceed the disease-specific mortality with prostate cancer. Accordingly, one should consider the possible impact of obesity when considering treatment options in men with prostate cancer.
Poster #30

OBESITY, PROSTATE VOLUME AND THE RISK OF PROSTATE CANCER AFTER INITIAL NEGATIVE PROSTATE NEEDLE BIOPSY
Luis Ramos, Ravi Kacker¹, Erin Wei² and Kevin Loughlin³
¹Brigham and Women’s Hospital; ²Harvard Medical School; ³Brigham and Women’s Hospital, Department of Urology
(Presented By: Luis Ramos)

Introduction and Objective: There is a need to identify high-risk patients after an initial negative biopsy. Obese patients and patients with large prostate volume pose particular challenges for prostate cancer screening. Some reports suggest an association between body mass index (BMI) and the risk of developing prostate cancer. Adequate sampling of prostate tissue may not be achieved on initial biopsy for patients with a large prostate volume. The objective of this study is to determine if prostate volume and BMI relate to the risk of finding prostate cancer after initial negative prostate needle biopsy.

Materials and Methods: 760 men were identified after initial negative prostate needle biopsy between July 1988 and December 2003 at Brigham and Women’s Hospital. A retrospective institutional review board approved chart review determined age at biopsy, BMI, lean body mass (LBM), abnormal DRE, PSA, PSA velocity, prostate volume, number of cores at biopsy, and presence of atypical glandular acinar proliferation (ASAP) or high grade prostatic intraepithelial neoplasia (HGPIN). A multivariable logistic regression analysis was performed to determine risk factors for the development of prostate cancer on subsequent biopsies.

Results: A total of 2297 biopsies were performed (mean 3.14 biopsies per patient) with an average of 14.05 cores performed per patient session. A multivariate logistic regression model demonstrated an association with the risk of developing prostate cancer and prostate volume (p=.0386), average number of cores (p=.0056) and presence of ASAP or HGPIN on initial pathology report (p=.0021). Notable BMI and LBM were not significantly associated with risk of developing prostate cancer (P VALUE). BMI was not related to prostate volume on a multivariate regression model. Using the logistic model, we developed a risk factor score for all patients using the 3 significant clinical parameters in order to develop a predictive model. If the patient’s individual risk score was less than 11% then the specificity of the test was 96%, while if the patient’s risk score was more than 40% then the sensitivity of test was 94%.

Conclusion: Prostate volume and number of cores are related to the risk of identifying prostate cancer after initial negative biopsy. BMI is not related to either prostate volume or the risk of developing prostate cancer. These results emphasize the importance of adequate sampling of the prostate during prostate needle biopsy.

Poster #31

LONG-TERM SURVIVAL AFTER SURGERY VERSUS EXTERNAL BEAM RADIOTHERAPY WITH AND WITHOUT ANDROGEN DEPRIVATION FOR HIGH-RISK PROSTATE CANCER
Stephen Boorjian¹, R. Jeffrey Karnes², Rosalia Viterbo³, Laureano Rangel², Eric Bergstrahl⁷, Eric Horwitz³, Michael Blute² and Mark Buuyounouski³
¹Mayo Clinic; ²Mayo Clinic, Rochester, MN; ³Fox Chase Cancer Center, Philadelphia, PA
(Presented By: Stephen Boorjian)

Introduction and Objectives: The management of patients with high-risk disease represents one of the most significant current challenges in prostate cancer treatment, as the optimal therapeutic strategy for these men remains to be established. Here, we compared the long-term survival of patients with high-risk prostate cancer following radical prostatectomy (RRP) and external beam radiation therapy (EBRT) with and without adjuvant androgen deprivation treatment (ADT).

Methods: We identified 1,238 patients who underwent RRP and 609 patients treated with EBRT (344 with EBRT + ADT and 265 with EBRT alone) between 1988–2004 who were classified as having high-risk disease by: pretreatment prostate-specific antigen (PSA) ≥ 20 ng/mL, biopsy Gleason score 8–10, or clinical stage ≥ T3. The median RT dose received in patients treated with radiation was 72 Gy (range 5040–7900), while the median duration of adjuvant ADT in the cohort treated with EBRT + ADT was 22.8 months (range 1–108). A total of 503 patients (40.6%) received adjuvant therapy after RRP, of whom 367 (29.6%) were treated with ADT, 85 (6.9%) with EBRT, and 51 (4.1%) with both. Median follow-up was 10.2, 6.0, and 7.2 years after RRP, EBRT + ADT, and EBRT alone, respectively. The impact of treatment modality on systemic progression, cancer-specific, and overall survival was evaluated using multivariable Cox proportional hazard regression analysis and a competing risk-regression model.
Poster Session I

Results: Ten-year cancer-specific survival was 92%, 92%, and 88% following RRP, EBRT + ADT, and EBRT alone (p=0.06), while the 10-year overall survival was 77%, 67%, and 52%, respectively (p<0.001). After adjustment for patient age, pretreatment PSA, clinical T-classification, and biopsy Gleason score, no significant differences in the risks of systemic progression (hazard ratio, 0.71; 95% CI, 0.47 to 1.08; p=0.11) or prostate cancer death (hazard ratio 1.02; 95% CI, 0.62 to 1.69; p=0.93) were seen between patients treated with EBRT + ADT and patients who underwent RRP. The risk of all-cause mortality was, however, greater after EBRT + ADT than RRP (hazard ratio, 1.51; 95% CI, 1.19 to 1.93; p=0.0008).

Conclusions: RRP and EBRT + ADT provide similar long-term cancer control for patients with high-risk disease. Continued investigation into the differing impact of treatments on quality-of-life and non-cancer mortality are necessary to determine the optimal management approach for these patients.

Poster #32

COMPARATIVE EFFECTIVENESS OF PERINEAL VERSUS RETROPUBIC AND MINIMALLY INVASIVE RADICAL PROSTATECTOMY

Sandip Prasad¹, Xiangmei Gu², Rebecca Lavelle³, Stuart Lipsitz² and Jim Hu³
¹University of Chicago, Chicago, IL; ²Center for Surgery and Public Health, Harvard Medical School, Boston, MA; ³Division of Urology, Brigham and Women’s Hospital, Boston, MA

(Presented By: Sandip Prasad)

Introduction and Objectives: While perineal radical prostatectomy (PRP) has been largely supplanted by retropubic (RRP) and minimally invasive radical prostatectomy (MIRP), it was the predominant surgical approach for prostate cancer for many years. Our population-based study objective was to compare utilization and outcomes for PRP vs. RRP and MIRP.

Materials and Methods: We identified men diagnosed with prostate cancer from 2003–2005 who underwent PRP (n=452), MIRP (n=1,938), and RRP (n=6,899) from Surveillance, Epidemiology, and End Results (SEER)–Medicare linked data through 2007. We compared postoperative 30-day and anastomotic stricture complications, incontinence and erectile dysfunction (ED), and use of adjuvant cancer therapy (hormonal therapy and/or radiotherapy).

Results: PRP comprised 4.9% of radical prostatectomies (RP) during our study period, with decreasing utilization over time (Figure 1). In propensity-score adjusted analyses, men undergoing PRP vs. RRP experienced shorter hospitalizations (median 2 vs. 3 days, p<0.001), fewer heterologous transfusions (7.2% vs. 20.8%, p<0.001), and required less additional cancer therapy (4.9% vs. 6.9%, p=0.020). When comparing PRP vs. MIRP, men undergoing PRP required more heterologous transfusions (7.2% vs. 2.7%, p=0.018), but experienced fewer miscellaneous medical complications (5.3% vs. 10.0%, p=0.045) and procedures for ED (1.4 vs. 2.3 per 100 person-years, p=0.008). The mean and median expenditures for PRP in the first six months post-operatively were $1,500 less than either RRP or MIRP (p<0.001).

Conclusions: Men undergoing PRP vs. RRP and MIRP experienced favorable outcomes associated with lower expenditures. Urologists may be abandoning an under-utilized, yet cost-effective surgical approach that compares favorably with its successors.
Poster #33

EVALUATION OF THE CLINICAL PRESENTATION OF MEN UNDERGOING RADICAL PROSTATECTOMY FOR HIGH-RISK PROSTATE CANCER
Phillip Pierorazio, Ashley Ross, Misop Han, Jonathan Epstein, Patrick Walsh, Alan Partin and Edward Schaeffer
Brady Urological Institute, Johns Hopkins Medical Institutions, Baltimore, MD
(Presented By: Phillip Pierorazio)

Introduction and Objectives: Men with high-risk prostate cancer (HRCaP) present with at least one of the following criteria: advanced clinical stage (>T2b), Gleason grade 8–10, or PSA > 20ng/ml. We hypothesize that when compared to men of earlier eras, men in the era of PSA screening would present with different HR features and potentially have improved outcomes.

Methods: The IRB–approved, Johns Hopkins Radical Prostatectomy (RP) Database was queried from 1992–2010 for men with HRCaP based on D'Amico criteria. Year of surgery was divided into two cohorts: the Early (EPE, 1992–2000) and Contemporary PSA–Era (CPE, 2001–2010). Presenting features and pathological outcomes were evaluated among eras with appropriate comparative tests. Kaplan-Meier method with log-rank test was used to determine biochemical-free (BFS), metastases-free (MFS) and cancer-specific survival (CSS).

Results Obtained: 1,084 men who underwent RP were identified with HRCaP from 1992–2010; 428 (39.5%) in the EPE, 656 (60.5%) in the CPE. In the EPE, 364 (85.1%) presented with a single HR feature; of those, 210 (57.7%) had an elevated PSA and 152 (41.8%) had Gleason 8–10 on biopsy. In the CPE, 606 (92.5%) presented with a single HR feature (p<0.001); of those, 144 (23.8%) presented with an elevated PSA and 460 (75.9%) presented with Gleason 8–10 (p<0.001). For men with HRCaP, 10−year BFS was 35.1% and 32.7% in the EPE and CPE respectively (p=0.4); 10−year MFS was 71.5% and 91.4% (p=0.07); 10−year CSS was 79.8% and 80.6% (p=0.6). In the EPE, 10−year BFS was 38.2% vs 18.9% for men with 1 (n=364) and >1 (n=64) HR feature respectively (p<0.001); 10−year MFS was 74.7% and 54.2% (p=0.03); 10−year CSS was 81.7% and 70.3% (p=0.004). In the CPE, 10−year BFS was 36.1% for men with 1 HR feature (n=606); all men with >1 HR feature (n=49) experienced biochemical recurrence prior to 7 years (p=0.002). 10−year MFS in the CPE was 94.0% and 66.5% for men with 1 and >1 HR feature respectively (p=0.002); 10−year CSS was 94.4% and 34.4% (p=0.008).

Conclusions: Over the PSA−era, an increasing percentage of men with HRCaP were categorized as HR based on biopsy Gleason sum 8−10, possibly reflecting the earlier detection high−grade lesions or changes in prostate cancer grading. BFS, MFS, and CSS are stable over the PSA−era for men with HRCaP. The accumulation of multiple HR features increases the risk of biochemical recurrence, development of metastases and death from prostate cancer.

Poster #34

METABOLOMICS AND HISTOLOGY ON THE EXACT SAME TISSUE SAMPLE
Dean Troyer¹, Klaus-Peter Adam², Jeffrey Shuster², Danny Alesander² and Raymond Lance¹
¹Eastern VA Medical School, Norfolk, VA; ²Metabolon, Inc. Research Triangle Park, NC
(Presented By: Dean Troyer)

Background: The implementation of personalized medicine will require quantitative, high throughput methods for discovery and implementation of biomarkers. Tissue biomarker analysis is a chokepoint for the implementation of personalized medicine. Microscopic examination of tissue biopsies remains the gold standard for tissue diagnosis. This process, unchanged for nearly 100 years, produces invaluable information that is nevertheless qualitative and is performed manually.

Method Description: Molecular preservation by extraction and fixation (mPREF) allows histopathological and metabolomic analysis of the exact same portion of tissue. M PREF substitutes alcohol for formalin as the tissue fixative. This extracts small molecules while preserving DNA, RNA, and proteins along with histological integrity. This greatly expands the amount of information that is extracted from a tissue biopsy.

Technical Description: Following alcohol fixation, tissue is removed from the alcohol, the alcohol is retained for metabolomic analysis, and the tissue is processed by standard histological methods. Metabolomics is a method by which low molecular weight (<2kD) biochemical compounds (e.g. metabolites) are extracted, detected, and measured. Metabolomic analysis of tissue currently involves extraction by physical disruption of the sample, eliminating the option for performing histology. Immersion in alcohol simultaneously extracts small molecules and fixes tissue, enabling us to both quantitate metabolites and perform histology on the exact same piece of tissue. mPREF is illustrated in the appendix figure.
**Preliminary Data and Conclusion:** Histology is comparable to that seen using formalin fixation. Past literature and our experience indicate that alcohol fixed tissue retains large molecules such as proteins, DNA, and RNA. We describe the novel observation that known low molecular weight (<2kD) biochemical compounds (e.g. metabolites) are quantifiable in the alcohol. For an 18 gauge needle biopsy of prostate tissue (approximately 5 mg) we can quantitate hundreds of metabolites. mPREF is applicable to cancers and non-neoplastic diseases, and quantitates metabolites and histology on the same exact portion of tissue.

---

**Poster #35**

THE EFFECT OF RACE AND METABOLIC SYNDROME ON DETECTION AND INITIATION OF PROSTATE CANCER TREATMENT

Jeffrey Scherrer¹, Brad Lake², Timothy Chrusciel¹, Robert L. Grubb, III¹ and M'Liss Hudson¹

¹John Cochran VAMC, Saint Louis, MO; ²Washington University School of Medicine, Saint Louis, MO

(Presented By: Brad Lake)

**Introduction:** African American (AA) men have a higher mortality rate from prostate cancer (PC) than whites. AA are also known to have a higher incidence of diabetes type II, hypertension, dyslipidemia, and obesity = metabolic syndrome [MetS]). MetS has recently been suggested as a risk factor for PC in AA men, with a variable association in whites.

**Objective:** To determine if AA as compared to whites differ in regard to time to incident prostate specific antigen (PSA), elevated PSA, biopsy and PC treatment in a design that accounts for MetS and age.

**Methods:** From a national cohort of 491,631 veterans seen 1999−2006, we sampled 40−70 year old men with at least one visit in 1999 and 2000 to determine if race and MetS were significantly associated with PSA testing, elevated PSA levels, prostate biopsy, diagnosis and treatment of PC. To be eligible, subjects must have been free of an elevated PSA or PC Jan 1, 2001. This resulted in 87,063 men between 40−49 years, 127,423 men between 50−59 years, and 68,214 men between 60−70 years. Cox−porprotional hazard models were computed with MetS and total clinic utilization modeled as time dependent covariates.

**Results:** AA were more likely to have undergone PSA testing in the youngest age cohort (HR=1.15; 95% CI :1.11−1.18) AA were less likely than whites 50−59 years (OR=0.94; 95% CI:0.91−0.98) to have undergone PSA testing during follow−up (2001−06). MetS was markedly associated with increased likelihood of undergoing PSA testing in both AA and whites. AA were significantly more likely to have an elevated PSA (>4.0 ng/ dl) across all age groups (HR range=1.60−1.72). Among those with an elevated PSA, AA had a shorter time to prostate biopsy cf. whites (HR range=1.15−1.23) and had a shorter time to PC diagnosis (HR=1.65−1.85). AA men were over twice as likely to undergo treatment (as opposed to active surveillance) following diagnosis of PC as compared to whites.

**Conclusions:** AA veterans are more likely to be screened and among those with an elevated PSA level, AA are more likely than whites to undergo a prostate biopsy, be diagnosed with PC and start treatment. Results suggest a marked association between race and PC care and between MetS and PC care. These analyses suggest VA providers are aggressively testing for, detecting, and treating PC in AA patients. Our results suggest that racial differences in PC survival are not due to inequalities in PC care, but may be due to other clinical characteristics of the subject.
**Poster #36**

**A META-ANALYSIS OF 110,016 PATIENTS COMPARING POSITIVE SURGICAL MARGIN AND COMPLICATION RATES FOR RETROPUBIC, LAPAROSCOPIC AND ROBOTIC RADICAL PROSTATECTOMY**

Prasanna Sooriakumaran, Daniel Bloch¹, Usha Seshadri-Kreaden², April Hebert², Peter Wiklund³ and Ashutosh Tewari⁴

¹Stanford University School of Medicine, Stanford; ²Intuitive Surgical, Sunnyvale; ³Karolinska Institute, Stockholm, Sweden; ⁴Weill Cornell Medical College, NY

(Presented By: Prasanna Sooriakumaran)

**Objective:** To review the literature available between 2002 and 2008 to compare positive surgical margin and complication rates for open retropubic, laparoscopic, and robotic radical prostatectomy.

**Design:** A total of 110,016 patients formed the basis of this meta-analysis. Summary data were abstracted on year of publication, pre-operative patient characteristics, positive surgical margins, estimated blood loss, blood transfusions, conversions, length of hospital stay, and total intra- and peri-operative complications, with a further 21 individual perioperative complications selected a priori for abstraction and analysis.

**Results:** The open and laparoscopic surgical groups had similar overall positive surgical margin rates, with the robotic group having lower rates. Both minimally invasive approaches showed significantly lower estimated blood loss and rate of blood transfusions, and a shorter length of hospital stay when compared to an open approach. A further decrease in these parameters was seen when robotic assistance was used. Total complication rates were highest for the open approach, intermediate for the laparoscopic cohort, and lowest for the robotic group. For the individual complication analysis, the rates for death, readmission, reoperation, ureteral, bladder, and rectal injury, ileus, pneumonia, fistula, and wound infection showed significant differences between groups.

**Conclusions:** Robotic assisted laparoscopic radical prostatectomy has overall lower perioperative morbidity and improved early oncologic outcomes compared to conventional laparoscopic or open approaches. Further studies comparing longer term oncologic and functional outcomes, as well as cost-benefit comparisons are needed before making recommendations for or against a specific type of surgery.

---

**Poster #37**

**RADICAL PROSTATECTOMY HAS SUPERIOR SURVIVAL OUTCOMES COMPARED TO RADIOTHERAPY OR WATCHFUL WAITING IN 16,508 MEN WITH LOCALIZED PROSTATE CANCER REGARDLESS OF ETHNICITY**

Prasanna Sooriakumaran, Majnu John¹, Robert Leung¹, Terry Field² and Ashutosh Tewari¹

¹Weill Cornell Medical College, NY; ²University of Massachusetts, Worcester

(Presented By: Prasanna Sooriakumaran)

**Purpose:** To report the long−term survival probability, based on race, in 16,508 men with localized prostate cancer treated either conservatively or by definitive treatment (radiotherapy or radical prostatectomy).

**Materials and Methods:** We extracted survival data (prostate cancer specific and overall) from tumor registries of six nonprofit, integrated health care delivery systems affiliated with the Cancer Research Network in the United States. Co−morbid disease was measured using the Charlson score. Patients were stratified into four racial groups: Caucasians, African-Americans, Hispanics, and Asians. The Cox proportional−hazards regression model was used to compare long−term survival in patients who were managed conservatively versus survival in patients who were treated with either radiotherapy or radical prostatectomy. Competing risk analysis was performed for prostate cancer specific survival.

**Results:** Survival was improved for patients who underwent radical prostatectomy compared to radiotherapy or watchful waiting. This was true for all patients combined as well as for all races individually. Radiotherapy had at least equivalent survival outcomes as watchful waiting in all groups. The differences between treatments were greater for overall survival than for prostate cancer specific survival in all groups, though the extent of the differences varied by race.

**Conclusions:** Radical prostatectomy increases survival in men of all represented races with localized prostate cancer compared to both radiotherapy and watchful waiting. Radiotherapy was at least equivalent to watchful waiting for all races.
ANATOMIC RETRO-APICAL TECHNIQUE: A NOVEL APPROACH FOR REDUCING APICAL POSITIVE SURGICAL MARGIN RATES DURING ROBOTIC ASSISTED RADICAL PROSTATECTOMY

Abhishek Srivastava, Prasanna Sooriakumaran, Sonal Grover, Youssef El-Douaihy, Sivaram Rajan, Robert Leung, Maria Shevchuk and Ashutosh Tewari
Weill Cornell Medical College, New York, NY
(Presented By: Abhishek Srivastava)

Introduction: Positive surgical margins (PSM) result in increased rates of biochemical failure and need for adjuvant/ salvage radiotherapy post-radical prostatectomy. PSM are most common at the apex (>50%). We describe a novel synchronous approach to apical dissection during robotic-assisted radical prostatectomy (RARP) which improves visualization of the relevant anatomy, and assess its effect on apical PSM.

Patients and Methods: A synchronous urethral transection commenced via a retro-apical approach was adopted in 709 consecutive patients undergoing RARP by one surgeon (AT) from April 2009 to July 2010. The apical PSM rates for this group were compared with those of 709 consecutive previous patients who received conventional urethral transection via an anterior approach after DVC ligation.

Results: Patients receiving synchronous urethral transection had significantly lower apical PSM rates than the control group (2.4% vs 4.2%, P<0.05). The 6-month continence and potency rates were not significantly different between the two groups; 94.2% vs. 90%; p=NS and 83.3% vs. 80.4%; p=NS, respectively.

Conclusion: Improved circumferential visualization of the prostatic apex, membranous urethra and their anatomical intersection facilitates precise dissection of the apex and its surrounding neural scaffold, and optimizes membranous urethral preservation. This has significantly ameliorated apical PSM rates in patients undergoing RARP without adversely affecting early functional outcomes.
**Poster Session I**

**Poster #39**

**RISK OF DEVELOPMENT OF PROTEINURIA WITH ANDROGEN DEPRIVATION THERAPY FOR PROSTATE CANCER**

Reza Mehrazin, Jamin Brahmbhatt¹, Michael Aleman¹, Ithaar Derweesh², Anthony Patterson¹, Christopher Ledbetter¹ and Robert Wake¹

¹University of Tennessee Health Sciences Center, Memphis; ²UCSD, San Diego

(Presented By: Reza Mehrazin)

**Introduction and Objective:** Androgen deprivation therapy (ADT) remains an important treatment option for both primary and salvage therapy in select men with localized or advanced prostate cancer (CaP). Although risks of development of hypertension (HTN), diabetes mellitus (DM), and cardiovascular adverse effects have been published, there is a paucity of data describing the effect of ADT on renal function and development of proteinuria.

**Methods:** We retrospectively reviewed charts of patients receiving ADT for CaP. Men receiving only neoadjuvant ADT or with incomplete information were excluded. Variables included were: age at ADT initiation, race, pre-ADT PSA, length of follow-up, pre- and post-treatment estimated GFR (using MDRD equation), and presence of preoperative and postoperative HTN, DM, and proteinuria. The data were then analyzed by chi-square test and by logistic regression analysis.

**Results:** A total of 765 men (60.1% African-America and 39.9% Caucasian) were included in the cohort. Mean age at CaP diagnosis and ADT initiation were 69.8 (36.9−89.1) and 71.2 years (47.4−95.1), respectively. Mean pre−ADT PSA was 114 ng/ml (median 16.4; 0.42−6031). During a mean follow−up of 87.7 months, 59.8%, 17.9%, 17.1%, and 7.3% developed HTN, DM, proteinuria, and chronic renal failure, respectively. Upon multivariable analysis, length of follow−up (p<0.0001) and BMI>30 (p=0.0063) were the only factors associated with development of de novo HTN and DM respectively. Comparably, age (p=0.0024) and African American race (p=0.0008) were found to be significant the variables associated with the development of proteinuria. On multivariable analyses, no analyzed variables were found to be associated with decline in GFR in the cohort; interestingly, a small overall mean increase in GFR of 0.30 mL/min/1.73m² was noted among the entire cohort after ADT treatment.

**Conclusion:** In our experience, African American race and age were found to be risk factors for development of de novo proteinuria in patients who receive ADT for CaP. Overall patients in our cohort showed improvement of GFR based on the MDRD equation, but a significant minority of these patients showed development of proteinuria. These contradictory findings may reflect a loss of muscle mass in these patients causing serum creatinine to remain stable despite renal deterioration, and suggests that other means of estimating GFR not primarily based on serum creatinine and age may be needed in these patients.

**Poster #40**

**THE ASSOCIATION BETWEEN DIFFUSION OF THE SURGICAL ROBOT AND RADICAL PROSTATECTOMY RATES**

Danil Makarov¹, James Yu², Rani Desai², David Penson³ and Cary Gross²

¹New York University School of Medicine; ²Yale University School of Medicine; ³Vanderbilt University Medical Center

(Presented By: Danil Makarov)

**Background:** Despite its expense and controversy surrounding its benefit, the surgical robot has been widely adopted for the treatment of prostate cancer. We sought to determine the relationship between surgical robot acquisition and changes in volume of radical prostatectomy (RP) at the regional and hospital levels.

**Methods:** In this retrospective cohort study, we examined men undergoing RP for prostate cancer at non−federal, community hospitals located in the states of AZ, FL, MD, NC, NY, NJ, and WA. We measured the change in number of RPs at the regional and hospital levels before (2001) and after (2005) dissemination of the surgical robot.

**Results:** Combining data from the Healthcare Cost and Utilization Project State Inpatient Databases 2001 and 2005 with the 2005 American Hospital Association Survey and publicly available data on robot acquisition, we identified 554 hospitals in 71 hospital referral regions (HRR). The total RPs decreased from 14,801 to 14,420 during the study period. Thirty six (51%) HRRs had at least one hospital with a surgical robot by 2005; 67 (12%) hospitals acquired surgical robots. Adjusted, clustered Generalized Estimating Equations (GEE) analysis demonstrated HRRs with greater numbers of hospitals acquiring robots had higher increases in RPs than HRRs acquiring none (mean changes in RPs for HRRs with 9,4,3,2,1,0 are 414 .9,189.6,106.6,14.7,−11.3,−41.2, p<0.0001). Hospitals acquiring surgical robots increased RPs by a mean of 29.1/year while those without robots experienced a mean change of −4.8, p<0.0001.
**Poster Session I**

**Conclusions:** Surgical robot acquisition is associated with increased numbers of RPs at the regional and hospital levels. Policy makers must recognize the intimate between technology diffusion and procedure utilization when approving costly new medical devices with unproven benefit.

---

**Poster #41**

**MITOCHONDRIAL LARGE-SCALE DELETION AS AN AID FOR NEGATIVE PROSTATE BIOPSY UNCERTAINTY**

Ryan Parr  
Mitomics Inc, Thunder Bay, ON, Canada  
(Presented By: Ryan Parr)

**Introduction:** Numerous biological characteristics of the mitochondrial genome (mtgenome) highlight this molecule as a clinically useful “biosensor” which can discriminate between normal and malignant tissues. These characteristics include: 1) In comparison to two copies of each nuclear genome, there are 100s to 1000s of mtgenomes within a cell, increasing recoverable biomarker signal; 2) the mtgenome has an accelerated somatic mutation rate over that of the nucleus allowing early detection of alterations indicative of malignant transformation; 3) mutations are associated with a “cancerization field effect”; 4) these mutations are often easy to screen large-scale deletions. These qualities were used to develop an assay for accurate prediction of the outcome of a relatively rapid follow-up biopsy, after an initial negative biopsy. Using the initial biopsy cores the assay indicated the result of the second procedure with a sensitivity (sen) of 84% and a negative predictive value (npv) of 91%.

**Objectives:** Determine the potential clinical utility of a large-scale mtgenome deletion (3.4kb) for predicting the presence/absence of tumor foci in men with an initial negative biopsy. A nested case control study was designed to mimic an actual clinical cohort, for the purposes of determining clinically significant performance metrics.

**Methods:** Overall, 1000 cores from 352 men were used in the cumulative studies. For this nested case controlled study a total of 101 patients with a negative, original biopsy, which had a follow-up biopsy within 1 year of the negative procedure, were recruited. Of these, 20 were malignant and the remaining 81 were negative, based on the second biopsy pathology reports. 20um sections of fixed and embedded needle cores, representing the 6 anatomical regions of the prostate, were obtained from the archived blocks of the first biopsy. A quantitative real-time PCR assay was used to determine the cycle threshold value (Ct) which provides optimum clinical information.

**Results:** A Ct cutoff of 31 returned a sen of 84% and a npv of 91%.

**Conclusions:** An npv of 91% highlights those patients who may not require a follow-up biopsy, while a sen of 84% indicates those who may benefit from a secondary biopsy.

**Funding:** All funding sources are Canadian: Industrial Research Assistance Program, FedNor, Northern Ontario Heritage Foundation, Mitomics.
**Poster #42**

**UTILIZATION TRENDS OF A MULTIDISCIPLINARY PROSTATE CANCER CLINIC: INITIAL 5-YEAR EXPERIENCE FROM THE DUKE PROSTATE CENTER**

Suzanne Biehn Stewart¹, Lionel Banez¹, Donghua Xie¹, Stephen Freedland¹, Cary Robertson¹, Thomas Polascik¹, Phillip Walther¹, Bridget Koontz², Zelijko Vujaskovic², Robert Lee², Andrew Armstrong³, Phillip Febbo³, Daniel George³ and Judd Moul¹

¹Division of Urology, Department of Surgery, Duke University Medical Center, Durham, NC; ²Department of Radiation Oncology, Duke University Medical Center, Durham, NC; ³Division of Medical Oncology, Department of Medicine, Duke University Medical Center, Durham, NC

(Presented By: Suzanne Biehn Stewart)

**Introduction:** The multidisciplinary (MD) approach is becoming increasingly utilized in urologic oncology. For prostate cancer (PC) patients, the goal is to provide evaluations from urologists, medical and radiation oncologists during a single visit. Although additional institutional resources are needed, this comprehensive strategy may prove financially favorable when patients pursue treatment in the hospital providing MD services. However, little is known about MD utilization patterns and effectiveness.

**Objectives:** We sought to characterize and compare determinants of utilization between MD clinic (MDC) and urology PC clinic (UPCC) at Duke University Medical Center (DUMC) and identify factors associated with pursuing treatment at DUMC for MDC patients.

**Methods:** We retrospectively analyzed data on patients referred for primary PC treatment evaluation at DUMC from 2005 to 2009. Comparisons between MDC (n=701) and UPCC (n=1318) were examined with X² tests. Predictive factors for pursuing treatment at DUMC were assessed using logistic regression adjusting for demographic, clinical and pathological parameters.

**Results:** Compared to UPCC patients, men evaluated in the MDC were more likely to be younger (63 yrs vs. 65 yrs, p <0.001), white (88.3% vs. 75.4%, p <0.001), have a higher income ($40,963 vs. $39,013, p <0.001), and travel a longer distance for evaluation (79.6 mi vs. 58.8 mi, p <0.001). From 2005 to 2009, 58.1% of patients seen in the MDC pursued primary treatment at DUMC. Following MDC evaluation, patients who pursued treatment at DUMC were more likely to be younger (62 yrs vs. 64 yrs, p=0.026), black (12.6% vs. 6.8%, p=0.014), physician referred (65.4% vs. 53.2%, p=0.001), have a lower income ($39,837 vs. $41,928, p=0.003) and reside closer to DUMC (59.9 mi vs. 121.9 mi, p <0.001). Predictive factors of pursuing treatment at DUMC included high-risk disease (Cancer of the Prostate Risk Assessment criteria) (OR 2.1, 95%CI 1.01−4.19) and physician referral (OR 2.28, 95%CI 1.39−3.76). Factors predictive of not receiving care at DUMC were income >$40,000 (OR 0.05, 95%CI 0.006−0.39) and distance traveled >100mi (OR 0.36, 95%CI 0.19−0.68).

**Conclusion:** A different patient demographic is utilizing the MD approach. Majority of patients evaluated in the MDC do pursue treatment at the institution providing MD services and higher-risk disease, physician referral, lower income and shorter distance traveled were all significant predisposing factors.

**Poster #43**

**SOCIAL SUPPORT AND ITS IMPACT ON TREATMENT CHOICE IN PATIENTS WITH PROSTATE CANCER: AN OFTEN OMITTED VARIABLE**

Karim Chamie, Lorna Kwan and Mark S. Litwin

UCLA, Los Angeles, CA

(Presented By: Karim Chamie)

**Introduction and Objective:** The decision to pursue radical prostatectomy as a treatment option for patients with prostate cancer is often times more influenced by factors outside the realm of tumor risk. The support system at home can often impact treatment decision beyond severity of disease. We sought to determine whether social support impacted treatment type.

**Methods:** We performed a retrospective cohort study of 418 low-income men enrolled in California’s IMPACT program who were diagnosed with non-metastatic prostate cancer and underwent definitive treatment with either surgery (radical prostatectomy) or radiotherapy (brachytherapy, or external beam radiotherapy (EBRT)). Social support members were included if the patients voluntarily informed IMPACT staff the names of individuals they had permission to contact and facilitate care AND must have facilitated care on at least two or more substantive occasions. We collected the following variables: age, race, number in the social network, relationship status, level of formal education, monthly income, body mass index, number of comorbidities, D’Amico risk stratification, and treatment type. We performed univariate and non-linear mixed effects regression analysis with the outcome variable being treatment type. Confidence intervals for the predicted probabilities, predictive margins and relative risks were derived using bias-corrected bootstrapping with 1000 repetitions.
**Results:** Subjects with two or more members in their support system were more likely to be older, of Hispanic origin, have less than a high school education, earn more than $1500 monthly, and to be in a relationship. In non-linear mixed effects analysis, a higher probability of undergoing EBRT was found among those who were high school graduates (RR 1.33; 95% CI 1.03–.77), morbidly obese (RR 2.15; 95% CI 1.06–.96), high D’Amico risk (RR 1.79; 95% CI 1.16–.21), and a lower probability among those in a relationship with less than two in their social network (RR 0.74; 95% CI 0.48–.96), while adjusting for other covariates.

**Conclusions:** In this cohort, married subjects with less than two members in their social network were more likely to have undergone surgery. While social support is a familiar variable that every surgeon considers in treatment choice, this often-omitted variable may confound significant findings.

---

**Poster #44**

**NERVE SPARING CAN PRESERVE ORGASMIC FUNCTION IN THE MAJORITY OF MEN FOLLOWING ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY**

Sonal Grover, Abhishek Srivastava, Prasanna Sooriakumaran, Sandhya Rao, Robert Leung and Ashutosh Tewari
Weill Cornell Medical College, New York, NY
(Presented By: Sonal Grover)

**Introduction and Objectives:** Erectile dysfunction is a common complication of prostate cancer surgery; the literature regarding orgasmic function is less well established, even though orgasm is of significant importance to overall sexual satisfaction for the majority of men. We sought to investigate orgasmic outcomes in patients undergoing robotic assisted laparoscopic radical prostatectomy (RALP) and the effects of age and nerve sparing on these outcomes.

**Patients and Methods:** Between January 2005 and June 2007, 708 patients underwent RALP at our institution. We analyzed postoperative potency and orgasmic outcomes on 408/708 men who were potent, able to achieve orgasm preoperatively and available for follow-up.

**Results:** 88.4% (198/224) of men aged ≤ 60 were able to achieve orgasm postoperatively in comparison to 82.6% (152/184%) of older men (p <0.001). 273/301 (90.7%) patients who received bilateral nerve sparing (BNS) during surgery were able to achieve orgasm postoperatively compared to 46/56 (82.1%) patients who received unilateral and 31/51 (60.8%) men who received non-nerve sparing surgery (p <0.001). In men ≤60 who also underwent BNS, dysorgasmia was present in 3.2% of men, and postoperative orgasmic rates were significantly better than men ≤60 who underwent unilateral or no nerve sparing (92.9% vs. 83.3% vs. 65.4%, respectively; p<0.001). Potency rates were also significantly higher in men ≤60 and in those who underwent BNS.

**Conclusion:** Age and nerve sparing influence orgasmic recovery and erectile function after RALP. Men ≤60 and those who undergo BNS are most likely to maintain normal sexual function.
**Poster #45**

**UTILIZING METFORMIN TO ENHANCE THE EFFICACY OF ANDROGEN DEPRIVATION THERAPY IN THE TREATMENT OF PROSTATE CANCER**
Alexandra Colquhoun¹, Natalie Venier¹, Avi Vandersluis¹, Rickvinder Besla¹, Neil Fleshner², Michael Pollak³, Laurence Klotz¹ and Vasundara Venkateswaran¹
¹Sunnybrook Health Sciences Centre, Toronto, ON, Canada; ²Princess Margaret Hospital, Toronto, ON, Canada; ³McGill University, Montreal, QC, Canada
(Presented By: Alexandra Colquhoun)

**Introduction and Objectives:** Prostate cancer (PCa) incidence varies dramatically by geographic location, with developed countries exhibiting significantly higher levels of disease. Some attribute this to the ‘Westernized lifestyle’ of high energy diets and limited physical activity with consequent obesity. Obesity and obesity–related diseases like diabetes, cause hyperinsulinemia, which upregulates pro-survival insulin/insulin-like growth factor signalling. Our previous work shows diet-induced hyperinsulinemia enhances PCa tumor growth in vivo. Metformin, a treatment for diabetes, reduces hyperinsulinemia, and has recently been shown to exhibit anti-neoplastic properties. We assessed the potential additive benefit of combining a standard PCa treatment (androgen ablation therapy with bicalutamide) with metformin in vitro and in vivo.

**Methods:** Using clonogenic assays we assessed the effect of bicalutamide and/or metformin on colony formation rates in LNCaP, PC3, DU145 and PC3AR2 PCa cell lines. Western blot and cell cycle analyses were used to elucidate any mechanism of interaction between the drugs in androgen receptor (AR) positive (LNCaP) and AR negative PC3 cell lines. The combination treatment regimen was then assessed in vivo using a LNCaP murine xenograft model.

**Results:** Micromolar bicalutamide or millimolar metformin caused significant dose-dependent reduction in colony formation rates (p<0.001). Combination treatment further significantly reduced colony formation rates (p<0.005). The effect was more marked in androgen receptor (AR) positive cells. Western blot and cell cycle analyses suggested differing mechanisms of interaction in AR positive and negative cell lines. Following combination treatment LNCaP cells exhibited altered cell proliferation (decreased PCNA) and perturbed cell cycle kinetics (G1/S arrest). Conversely, PC3 cells showed evidence of enhanced apoptosis (increased BAX, decreased caspase 3, phospho–Akt). Preliminary in vivo results show significantly diminished tumor growth in response to combination treatment (p<0.0001).

**Conclusion:** Combining bicalutamide and metformin significantly reduces PCa cell colony formation rates further than either monotherapy. In AR positive cells this effect is mediated by reducing cellular proliferation rates, whereas in AR negative cells the combination treatment regimen promotes apoptosis. This combination drug regimen may potentially improve prostate-cancer specific survival via the direct anti-neoplastic properties outlined.

**Poster #46**

**COMPARISON OF RISK CALCULATORS FROM THE PROSTATE CANCER PREVENTION TRIAL AND THE EUROPEAN RANDOMIZED STUDY OF SCREENING FOR PROSTATE CANCER IN A CONTEMPORARY CANADIAN COHORT**
Greg Trottier¹, Nathan Lawrentschuk¹, Peter J. Bostrom¹, Kimberly A. Fernandes¹, Monique J. Roobol², Antonio Finelli¹, Karen Chadwick¹, Andrew Evans³, Theodorus H. van der Kwast³, Ants Toi¹, Alexandre R. Zlotta and Neil E. Fleshner¹
¹Princess Margaret Hospital, University of Toronto, Toronto, ON, Canada; ²Erasmus MC, Erasmus University, Rotterdam, Netherlands; ³University of Toronto, Toronto, ON, Canada; ⁴Mt. Sinai Hospital, University of Toronto, Toronto, ON, Canada
(Presented By: Greg Trottier)

**Background:** The Prostate Cancer Prevention Trial Risk Calculator (PCPT–RC) and European Randomized Study of Screening for Prostate Cancer risk calculators (ERSPC–RC) are well known tools used to predict prostate cancer (PCa).

**Objectives:** To compare the PCPT–RC and ERSPC–RC in a single-institution Canadian cohort.

**Methods:** At Princess Margaret Hospital 981 consecutive patients with all PCPT–RC and ERSPC–RC co-variables were prospectively identified prior to prostate biopsy for suspicion of PCa. Receiver operating characteristic curves (ROC) were generated for each calculator and PSA. Comparisons by area under the curve (AUC) and calibration plots were performed. Predictors of PCa were identified by univariate and multivariate logistic regression.
Results: PCa was detected in 46% of men and high grade (HG) PCa (Gleason≥4) in 23% of subjects with a median PSA of 6.02 ng/ml for the total cohort. In multivariable analysis, transrectal ultrasound (TRUS) nodule, prostate volume and prostate specific antigen (PSA) were the most important predictors of PCa and HG PCa. ROC curve analysis showed that the ERSPC−RC (AUC=0.71) outperformed the PCPT−RC (AUC=0.63) and PSA (AUC=0.55), for PCa prediction, p<0.001. The PCPT−RC was slightly better calibrated over a narrow range compared to the ERSPC−RC, but the ERSPC−RC functioned over a wider prediction range. Discriminative superiority of the ERSPC−RC over the PCPT−RC was maintained even when the cohort was stratified by different clinical variables.

Conclusions: The ERSPC−RC had better utility to predict PCa over the PCPT−RC in our Canadian cohort suggesting that the ERSPC−RC should be the nomogram of choice in current Canadian urologic practices.

Poster #47

TUMOR VOLUME AS A PREDICTOR OF ADVERSE PATHOLOGIC FEATURES AND BIOCHEMICAL RECURRENCE IN RADICAL PROSTATECTOMY SPECIMENS; A TALE OF TWO METHODS
Ian Thompson III¹, Shady Salem¹, Sam Chang¹, Peter Clark¹, Rodney Davis¹, S. Duke Herrell¹, Yakup Kordan¹, Roxelyn Baumgartner¹, Sharon Phillipms², Joseph Smith, Jr.¹, Michael Cookson¹ and Daniel Barocas¹
¹Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN; ²Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN

Purpose: The prognostic value of tumor volume in predicting biochemical recurrence (BCR) after prostatectomy has been debated. Our aim in this study was to a) evaluate tumor volume as an independent predictor of adverse pathologic outcomes and BCR and b) determine the effect of two different methods of tumor volume (TV) estimation.

Methods: We reviewed the charts of 3087 patients who underwent radical prostatectomy at Vanderbilt University Medical Center between 2000 and 2008, of which 1747 patients had at least 6 months of follow-up and complete data for analysis. Prostate specimens were processed as whole mount (WM) between 2000 and 2003 and then via systematic sampling (SS) from 2003 to 2008, with tumor volume directly measured by planimetry in the WM group and tumor volume estimated as a percent of the evaluated tissue that was involved with tumor in the SS group. The association between tumor volume and BCR was assessed with Kaplan-Meier curves and log-rank statistics, as well as by Cox proportional hazards models, stratified by pathologic method.

Results: Tumor volume estimates were higher in SS (median 4.2cc, IQR 2.4–7.2) than WM (median 1.67cc, IQR 0.7–3.5) p<0.001. There were significant associations between larger tumor volume and adverse pathological outcomes on univariate analysis, regardless of pathologic method (all with p<0.001). Controlling for other pathologic parameters, tumor volume was an independent predictor of pathologic Gleason score, extra-prostatic extension, and positive surgical margins in logistic regression models (p<0.001 for TV in all models). Tumor volume was demonstrated to be an independent predictor of BCR in the WM group (HR 1.06, 95% CI 1.01–1.11, p=0.013), though tumor volume was not a significant predictor of BCR in the SS group (HR 1.00, 95% CI [0.97–1.03], p=0.755).

Conclusions: Though the prognostic value of tumor volume is debated, our results demonstrate that tumor volume, when calculated via planimetry on whole mount pathologic sectioning, is a significant predictor of biochemical recurrence after prostatectomy.
**Objective:** Historically, repeat standard TRUS guided biopsies in patients that had a previously negative biopsy have yielded cancer in as low as 13% of men. Saturation biopsies have increased the yield at a repeat biopsy technique to 34%. We reviewed the cancer detection rates utilizing our platform that registers and fuses real-time TRUS images with previously obtained MR images to perform prostate biopsies in patients with a previous negative biopsy.

**Materials and Methods:** Of the 150 patients that entered our research protocol, 44 patients were referred because of a previous negative TRUS guided biopsy and an elevated PSA. Two radiologists (PC, BT) reviewed MP−MR images from these patients. The MRI of the prostate incorporated T2, DCE, DWI, and spectroscopy images for risk stratification. All lesions were then identified and graded by number of modalities positive: low(<2), moderate(3) and high(4) suspicion.

A 12core TRUS guided prostate biopsy was performed followed by MR/US fusion biopsy. The biopsies of the MR targeted lesions were performed using a custom probe with spatial tracking by an electromagnetic field (A Phillips Healthcare Corporation). These patients were then evaluated as to outcomes on their protocol biopsy.

**Results:** The mean age was 62.4 + 8.9 years with a median PSA 7.5, and 95.5% (42/44) had a negative DRE. Of those that were previously negative, 20/44 (45%) were diagnosed with prostate cancer by our methods. When stratifying the patients by degree of suspicion of the MR visible lesion 87.5% (7/8) were positive for cancer, if all four MRI sequences were positive.

<table>
<thead>
<tr>
<th>Protocol Biopsy Total</th>
<th>Negative</th>
<th>Positive # of Biopsies</th>
<th>Percent Yield</th>
</tr>
</thead>
<tbody>
<tr>
<td>MR Suspicion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>15</td>
<td>2</td>
<td>11.8%</td>
</tr>
<tr>
<td>Moderate</td>
<td>8</td>
<td>11</td>
<td>57.9%</td>
</tr>
<tr>
<td>High</td>
<td>1</td>
<td>7</td>
<td>87.5%</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>20</td>
<td>45.5%</td>
</tr>
</tbody>
</table>

**Conclusion:** MR/US fusion platform resulted in an increased yield of prostate cancer detection in patients with a previously negative biopsy. This increased yield of 45% vs. historic detection of 34% in repeat saturation biopsy patients that may potentially have a delay in prostate cancer detection. We were also able to stratify the patient’s risk of having cancer by MR suspicion of imageable prostate lesions and demonstrate that patients with high suspicion may have a markedly elevated rate of detection of prostate cancer.
PROSTATE CANCER SPECIFIC AND OVERALL SURVIVAL IN MEN TREATED WITH EARLY ANDROGEN DEPRIVATION THERAPY FOR PSA-ONLY RECURRENCE AFTER RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE

Christopher Keto¹, Lionel Bañez¹, William Aronson², Martha Terris³, Joseph Presti⁴, Christopher Amling⁵, Christopher Kane⁶ and Stephen Freedland¹

¹Duke University School of Medicine, Durham, NC; ²University of California at Los Angeles Medical Center, Los Angeles, CA; ³Medical College of Georgia, Augusta, GA; ⁴Stanford University Medical Center, Palo Alto, CA; ⁵Oregon Health and Science University, Portland OR; ⁶University of California at San Diego, San Diego, CA

(Presented By: Christopher Keto)

Introduction and Objectives: To investigate the predictors of prostate cancer specific mortality (PCSM) and all-cause mortality (ACM) in men treated with early androgen deprivation therapy (ADT) for PSA-only recurrence after radical prostatectomy (RP) within the Shared Equal Access Regional Cancer Hospital (SEARCH) cohort.

Methods: We retrospectively reviewed data from 2852 men treated with RP between 1988 and 2010 within the SEARCH Database to identify men treated for PSA-only recurrence with early continuous ADT, defined as no evidence of metastatic disease at the time of ADT. PSA at the start of ADT was logarithmically transformed for analyses. PSA nadir during ADT was defined as the lowest PSA level achieved during ADT. Predictors of PCSM and ACM were analyzed using a Cox proportional hazards model with the time of ADT as time zero.

Results Obtained: During a mean follow-up of 65 months after RP, 357 men (12.5%) were treated with early ADT. Among these men, the mean follow-up after ADT was 68 months. The prostate-cancer specific 5- and 10-year survival rates were 95% and 82%. The 5- and 10-year overall survival rates were 82% and 56%. Among 189 men with complete data, the independent predictors of PCSM were pre-ADT PSA (HR=3.56, P<0.001), positive margins (HR=5.26, P=0.021), extra-capsular extension (HR=4.33, P=0.027) and undetectable PSA nadir after ADT (HR=0.03, P<0.001), while the independent predictors of ACM were undetectable PSA nadir after ADT (HR=0.313, P=0.001), pre-ADT PSA (HR=1.49, P<0.001) and positive surgical margins (HR=2.24, P=0.023).

Conclusions: Men treated with early ADT have excellent 5- and 10-year prostate cancer specific survival rates. Indeed, death from competing causes is dramatically more likely. Among men treated with early ADT, higher PSA at the start of ADT, positive margins and undetectable PSA nadir after ADT were independent predictors of PCSM and all-cause mortality. In addition, extra-capsular extension was predictive of PCSM. In men treated with early ADT, PSA at the start of ADT, PSA nadir after ADT, extra-capsular extension and surgical margin status play an important role in risk-stratification and can be used in selection of high-risk men for clinical trials.
A PHASE I STUDY OF TRC105 (ANTI-CD105 [ENDOGLIN] ANTIBODY) IN METASTATIC CASTRATION-RESISTANT PROSTATE CANCER (MCRPC)

David Adelberg, Andrea Apolo, Madan Ravi, Gulley James, Arlen Philip, Barnes Howard, Pierpoint Ann, Kohler David, Trepel Jane, Steinberg Seth, Price Douglas, Figg William and Dahut William
National Cancer Institute, Bethesda, MD
(Presented By: David Adelberg)

Introduction: TRC105 is a human/murine chimeric IgG1 monoclonal antibody targeted against CD105 (endoglin) that inhibits angiogenesis and tumor growth through inhibition of endothelial cell proliferation, antibody–dependent cellular cytotoxicity and induction of apoptosis. CD105 is an angiogenic transmembrane protein that is highly expressed on proliferating vascular endothelial cells. Pre–clinical and clinical evidence demonstrates an important role for angiogenesis in mCRPC biology.

Methods: The primary objective is to define the maximum tolerable dose (MTD) of TRC105. Secondary objectives include assessment of TRC105 pharmacokinetics, PSA response rate and overall response rate. Eligibility requires ECOG performance status ≤ 2 and progressive metastatic prostate cancer despite castrate levels of testosterone. Evaluations are being conducted in cohorts of 3–6 patients. TRC105 is administered at doses of 1, 3 and 10 mg/kg IV over 1–4 hours (Cohorts 1–3) every 2 weeks of a 4 week cycle. Patients are premedicated with dexamethasone, acetaminophen, famotidine, and diphenhydramine. PSA is evaluated prior to each treatment and response is assessed every 2 cycles with imaging studies.

Results: Eight out of a maximum of 30 patients have been enrolled as part of cohorts 1–3. Patient characteristics include a median age of 65 (range 47–84), ECOG PS 1 (1–2) Gleason score 8 (6–10), on-study PSA 201 (0.10 –), and number of prior therapies excluding GnRH agonist or anti-androgen therapy 2.5 (0−6). Median time on study is currently 11 weeks. No dose-limiting toxicities have been observed in any of the dosing cohorts to date. One patient experienced a grade 3 fever, possibly related to TRC105. Grade 1 to 2 infusion reactions have been noted in four patients. PSA declines occurred in two patients in cohort 3 (26 and 50% from baseline). Each of these two patients had progressed on docetaxel and at least one subsequent second–line agent. Three out of five patients with measurable disease had stable disease; two patients in cohort 1 and one patient in cohort 2.

Conclusion: TRC105 is tolerated at doses up to 10 mg/kg every 2 weeks with evidence of clinical activity in patients with mCRPC. Accrual is ongoing to evaluate higher dose levels, progression–free survival, overall response rate, and overall survival.

COMPARISON OF LOW TEMPERATURE-SENSITIVE LIPOSOMES ENCAPSULATED DOCETAXEL AND DOXORUBICIN IN A MURINE MODEL OF PROSTATE CANCER

Saurin Chokshi¹, Ashish Ranjan², Compton Benjamin¹, Paul Chung¹, Ardeshir Rastinehad¹, Matthew Dreher³, Bradford Wood² and Peter Pinto¹
¹Urologic Oncology Branch, National Cancer Institute, National Institutes of Health Clinical Center, Bethesda, MD; ²Center for Interventional Oncology, Department of Radiology and Imaging Sciences, National Institutes of Health Clinical Center, Bethesda, MD; ³Center for Interventional Oncology, Department of Radiology and Imaging Sciences, National Institutes of Health Clinical Center, Bethesda, MD
(Presented By: Compton Benjamin)

Background: Low-temperature sensitive liposomes (LTSLs) release their encapsulated drug into targeted tissue when activated by a source of hyperthermia. The efficacy of an LTSL formulation of docetaxel (DOC) or doxorubicin (DOX) was compared against prostate cancer in a xenograft mouse model.

Materials and Methods: Under an approved IACUC protocol, Luciferase transfected human prostate PC–3M–luciferase cells were inoculated (3x106 cells) subcutaneously in the right hind leg of 8 wk old female athymic nude mice. When tumors reached a volume of 200–300 mm3, mice were randomized to receive one intravenous injection of saline, Stealth liposomal DOX (5 mg/kg), LTSL DOX (5 mg/kg), or LTSL DOC (15 mg/kg), with or without hyperthermia treatment (LTSL DOX and LTSL DOC supplied by Celsion).

Mice undergoing hyperthermia treatment were anesthetized and stabilized in a holder that allowed for only the leg with tumor to be heated to 41–42oC that triggered LTSL drug release.
Mice were monitored daily for tumor volume and body weight. Study end-points included growth of tumor to 5x the initial treatment volume and monitoring of survival for 60 days.

**Results:** The LTSL DOC delayed tumor growth longer (> 40 days) than DOX (−1 day), or LTSL DOX (3 day) with hyperthermia (P<0.05). Mice treated with LTSL DOC and hyperthermia survived longest (>49 days) compared to all other mice (range 6–14 days, P<0.05). LTSL in the setting of hyperthermia demonstrated complete regression of tumor in 57% of mice.

**Conclusions:** LTSL DOC with hyperthermia delayed tumor growth more than all other treatments. Survival studies suggest LTSL DOC is a more effective temperature sensitive delivery system against PC−3M prostate tumors.

**Poster #52**

**LYMPH NODE DISSECTION TECHNIQUE IS MORE IMPORTANT THAN LYMPH NODE COUNT IN IDENTIFYING NODAL METASTASES IN RADICAL CYSTECTOMY PATIENTS**

Ryan Dorin¹, Siamak Daneshmand², Manuel Eisenberg³, Jie Cai², Gus Miranda² and Eila Skinner²

¹USC Institute of Urology, Keck School of Medicine, University of Southern California, Los Angeles, CA; ²Kenneth Norris Jr. Comprehensive Cancer Center, USC Institute of Urology, Keck School of Medicine, Los Angeles, CA

(Presented By: Ryan Dorin)

**Introduction and Objectives:** The diagnostic and therapeutic value of lymph node dissection (LND) in the treatment of bladder cancer is well established. However, standards for measuring the quality of LND remain controversial. We mapped the locations of lymph node (LN) metastases in a multi-institutional cohort of patients undergoing radical cystectomy (RC) utilizing a uniformly applied extended LND technique.

**Methods:** Patients undergoing cystectomy with curative intent for bladder cancer at the USC Institute of Urology and at Oregon Health Sciences University (OHSU) from May 2002–Dec. 2009 were included if they met the following criteria: 1) No prior pelvic radiotherapy or pelvic LND, 2) Lymphatic tissue submitted from all 9 pre-designated regions constituting an extended LND at both institutions, including para-aortic and paracaval LNs to the level of the IMA takeoff, 3) Bladder primary tumor, 4) M0 disease at time of surgery. LN maps were constructed for each patient and correlated with primary tumor stage.

**Results Obtained:** 646 patients met inclusion criteria (439 USC, 207 OHSU), and 151 (23%) had LN metastases at time of cystectomy (23% USC, 24% OHSU). Median LN count was 40 at OHSU and 72 at USC. There were no statistically significant differences in the distribution of positive LNs between institutions. LN metastases were found in 11% (11% USC, 12% OHSU) of patients with ≤pT2b and 44% (44.6% USC, 44.1% OHSU) with ≥pT3a tumors. Among LN positive patients, the highest extent of LN metastases was above the aortic bifurcation in 28% of patients (30% USC, 24% OHSU), in the common iliac or presacral regions in 13% (14% USC, 12% OHSU), and in regions below the common iliac bifurcation in 59% (56% USC, 64% OHSU, p=0.67). “Skip” lesions were rare at both institutions, with only 7 patients (3 USC, 4 OHSU) harboring metastases in regions above the iliac bifurcation without a synchronous positive LN in regions below the iliac bifurcation.

**Conclusions:** There is a high incidence of LN metastases in regions outside the boundaries of a standard LND in patients undergoing RC for bladder cancer. Employment of a uniform extended LND technique resulted in a nearly identical incidence and distribution of LN metastases in patients treated at two different institutions despite significantly different median LN counts. Dissection technique with adherence to an extended LND template is likely more predictive of the quality of LND than removal of a minimum number of LNs.

**Poster #53**

WITHDRAWN
QUALITY OF CARE IN PATIENTS WITH BLADDER CANCER: IS LESS MORE?
Karim Chamie¹, Christopher S. Saigal¹, Julie Lai², Jan M. Hanley², Badrinath R. Konety³, Mark S. Litwin¹ and the Urologic Diseases in America
¹UCLA, Los Angeles, CA; ²RAND, Santa Monica, CA; ³University of Minnesota, Minneapolis, MN
(Presented By: Karim Chamie)

**Introduction:** While utilization of intravesical chemotherapy has been demonstrated to minimize recurrence and progression in patients with non-muscle-invasive bladder cancer, the standard surveillance strategies including cystoscopy, cytology and radiographic imaging are primarily based on expert opinion. Hence, we sought to explore the association between comprehensive surveillance and treatment strategies and survival.

**Patients and Methods:** Using linked SEER-Medicare data, we identified 4,790 patients with a diagnosis of high-grade non-muscle-invasive bladder cancer from 1992 who survived at least two years and did not undergo definitive treatment during that time. We determined the compliance rate with surveillance (cystoscopy, cytology and upper tract imaging) and intravesical treatment strategies (instillation of mitomycin C and Bacillus Calmette-Guérin (BCG)). A non-linear mixed effects model was used to generate post-estimation propensity scores corresponding with five separate comparisons of surveillance and treatment intensity. Cox proportional hazards models were generated with propensity-weighted adjustment to assess survival outcomes beyond the initial two-year period.

**Results:** A statistically significant survival advantage was limited to patients nested within providers who on at least one occasion have been compliant with all surveillance (≥8 cystoscopy, ≥2 cytology and ≥1 upper tract image) and treatment (≥6 instillations of BCG) strategies (HR 0.74; 95% CI 0.64–.90) or more than 50% compliant with the surveillance services (4–7 cystoscopy, 4–7 cytology, ≥1 upper tract image) and attempted intravesical therapy (1–5 instillations of BCG) (HR 0.84; 95% CI 0.70–.99). Less frequent surveillance and treatment strategies were not associated with a lower hazard of mortality when compared with the referentwho do not utilize intravesical therapy (0 BCG) and are less than 50% compliant with surveillance services (1–cytostomy and 0 cytology).

**Conclusion:** A survival advantage is limited to patients nested within providers who have performed at least 50% of the surveillance strategies AND attempted postoperative instillation of BCG. It is unknown whether these measures are proxies for quality providers or in fact are beneficial in minimizing cancer recurrence, progression and mortality.

---

EFFICACY OF IMMEDIATE POST-TUR MITOMYCIN C (MMC) INSTILLATION IN HIGH RISK NON-MUSCLE INVASIVE BLADDER CANCER TREATED WITH BACILLUS CALMETTE-GUERIN (BCG)
Jong-wook Park, Kanghyon Song and Moon-ki Jo
Korea Cancer Center Hospital, Korea Institute of Radiological and Medical Sciences, Seoul, Korea
(Presented By: Jong-wook Park)

**Objective:** To evaluate the efficacy of immediate post-TUR MMC instillation in high risk non-muscle invasive bladder cancer treated with BCG.

**Methods:** From January 2000 to December 2007, 162 high risk non-muscle invasive bladder cancer patients underwent TUR and BCG instillation at our institution. Among them 76 patients received additional immediate immediate post-TUR MMC instillation (Group A), and remaining 86 patients underwent TUR and BCG instillation only (Group B). 60mg of MMC was mixed with 50ml of normal saline and was instilled in bladder within 2 hours after TUR. Tice strain BCG 12.5mg was used with 6-week induction course followed by 3-week maintenance every 3 months. The recurrence rate, time to recurrence, and stage and grade at recurrence were investigated. The mean follow-up was 33.4 months.

**Results:** There were no significant differences in the characteristics of both groups, including age, sex, stage, and grade. Group A showed significantly lower recurrence rate than Group B (26.3% vs 48.8%, p=0.003). Group A showed somewhat longer time to recurrence but it was not statistically different (24.9 months vs 21.8 months, p=0.293). The change in stage and grade at recurrence were not different between 2 groups (Table). The 5 year recurrence free survival rate was significantly higher in Group A (72% vs 42%, p=0.003).

**Conclusion:** The immediate post-TUR MMC instillation significantly reduced recurrence in high risk non-muscle invasive bladder cancer patients treated by BCG. But it did not influence the stage and grade at recurrence.
PROGNOSTIC IMPACT OF URINARY BLADDER CARCINOMA INSITU ON CLINICAL OUTCOME OF SUBSEQUENT UPPER TRACT UROTHELIAL CARCINOMA

Ramy Youssef¹, Shahrokh Shariat², Yair Lotan¹, Nicholas Cost¹, Christopher Wood³, Arthur Sagalowsky⁴, Richard Zigeuner⁴, Cord Langner⁵, Francesco Montorsi⁶, Christian Bolenz⁶ and Vitaly Margulis¹
¹UT Southwestern Medical Center, Dallas, TX; ²Cornell University, New York, NY; ³UT MD Anderson Cancer Center, Houston, TX; ⁴Medical University of Graz, Graz, Austria; ⁵Vita-Salute University, Milan, Italy; ⁶Universitätsklinikum Mannheim, Mannheim, Germany

(Presented By: Ramy Youssef)

Introduction and Objectives: Urinary bladder carcinoma insitu (CIS) was previously reported among the independent risk factors for development of upper tract urothelial carcinoma (UTUC). The aim of our study was to evaluate the impact of previous history of bladder CIS on relapse and survival after surgical management of metachronous UTUC.

Methods: Utilizing a multi-institutional database of patients treated with radical nephroureterectomy (RNU) for UTUC, we compared the clinicopathological parameters as well as clinical outcomes of patients with and without history of bladder CIS. Multivariate Cox Regression analysis was performed to determine the independent predictors of disease recurrence and cancer specific mortality after RNU.

Results: The study included 1316 patients, 884 men and 432 women with 36 months median follow up after RNU. Patients with history of bladder CIS (n=91) were more likely to harbor high grade, and sessile UTUC (p < 0.05). The 5 year DFS and CSS rates were 53% and 59% in those with history of bladder CIS versus 71% and 75% in those without history of bladder CIS (P=0.031 and P=0.045, respectively). In multivariate Cox Regression analysis, history of bladder CIS was an independent predictor of disease recurrence and cancer specific mortality after RNU (p=0.006 and p=0.045, respectively).

Conclusions: Patients with history of bladder carcinoma in-situ develop aggressive UTUCs and demonstrate higher risk of recurrence and death from cancer after RNU. Our findings suggest the need for aggressive surveillance regimens and multimodal management strategies in patients who develop UTUC in the setting of previous bladder CIS.
**Poster #57**

**MOLECULAR CONTRAST AGENTS FOR OPTICAL IMAGING OF BLADDER CANCER**

Ying Pan¹, Jen-Jane Liu², Jens-Peter Volkmer³, Katherine Wu¹, Kathleen Mach¹, Irving Weissman³ and Joseph Liao¹

¹Department of Urology, Stanford University, Stanford, CA; ²Stanford University, Stanford, CA; ³Department of Pathology, Stem Cell Institute, Stanford University, Stanford, CA;

(Presented By: Jen-Jane Liu)

**Introduction:** Differentiating nonpapillary urothelial carcinoma from inflammatory lesions remains challenging with white light cystoscopy. Probe-based confocal laser endomicroscopy (pCLE) is an emerging technology for dynamic in vivo imaging of the urinary tract with micron-scale resolution. We have demonstrated the clinical feasibility of pCLE and developed a confocal imaging atlas for in vivo identification of urothelial carcinoma, however, real-time analysis remains challenging as micro-architectural differences between inflammation and neoplasia can be subtle. Fluorescently labeled, cancer-specific molecular contrast agents (e.g. peptides, antibodies) may enhance the specificity of pCLE for in vivo imaging of bladder tumors. We report our efforts to identify bladder cancer-specific peptides using phage display technology, and utilization of a known cancer-specific antibody as molecular contrast with pCLE.

**Methods:** With IRB approval, fresh cystectomy specimens from 2 patients with bladder cancer were used as targets for phage selection. An M13 phage library displaying linear random heptapeptides was used. Selected phage were validated for affinity with bladder cancer cell line-based ELISA, flow cytometry, and immunofluorescence. Cell-bound phage was detected with M13 phage antibody. Normal and tumor areas were imaged with pCLE using a known tumor-specific antibody in cystectomy specimens from 4 patients. Imaged tissue was harvested for histopathology.

**Results:** After 2 rounds of selection, 148 phage were identified, of which 77 showed at least 2-fold greater signal compared to controls by ELISA in two bladder cancer cell lines (T24 & HT–1376). Seven phage with the highest ELISA signal were further validated with flow cytometry and immunofluorescence. T24 cells stained by all 7 candidate phage showed higher fluorescence intensity compared to controls. Ex vivo staining with fluorescently labeled, tumor-specific antibody showed greater signal in tumor compared to normal urothelium, where virtually no fluorescence was observed, in all 4 bladders. All bladders had histopathologically confirmed high-grade urothelial carcinoma.

**Conclusions:** Using tissue from cystectomy specimens, we have identified bladder cancer-specific peptides which could serve as molecular contrast agents for pCLE. We have also demonstrated the feasibility of tumor-specific molecular contrast agents for optical imaging of bladder cancer using a known tumor-specific antibody.

**Poster #58**

**URINARY MET LEVEL AS A NOVEL BIOMARKER FOR UROTHELIAL CARCINOMA OF THE BLADDER**

Maximiliano Sorbellini¹, Brian K. McNeil¹, Gagani Athauda¹, Benjamin Cohen¹, Alessio Giubellino¹, Haley Simpson¹, Jonathan Coleman², Robert H. Getzenberg³, George J. Netto³, W. Marston Linehan¹, Peter A. Pinto¹ and Donald P. Bottaro¹

¹UOB/NCI/NIH, Bethesda, MD; ²MSKCC, New York, NY; ³The Johns Hopkins University, Baltimore, MD

(Presented By: Maximiliano Sorbellini)

**Introduction and Objective:** To determine whether urinary soluble Met (sMet) can differentiate between benign conditions and bladder cancer (CaB), and in cases of bladder cancer, between different stages of transitional cell carcinoma (TCC).

**Methods:** Urinary samples from patients with (Total: 63, pTa: 12, pTis: 22, pT1: 13, >=pT2: 16) and without (Total: 27) CaB from three different institutions were prospectively collected prior to cystoscopy, TURBT or cystectomy. sMet levels were determined by electrochemiluminescence immunoassay and normalized to urinary creatinine values. Normalized sMet values were compared to final pathologic stage. AUC values were obtained comparing patients with and without TCC.

**Results:** Urinary sMet levels accurately differentiated between patients with and without CaB (AUC: 78%, sensitivity, specificity and negative predictive value were: 68%, 78% and 95%, respectively), patients with no CaB and those with lamina propria invasion (AUC: 79%, sensitivity, specificity and negative predictive value were: 65%, 81% and 95%, respectively) and patients with no CaB and those with muscle invasive CaB (AUC: 85%, sensitivity, specificity and negative predictive value were: 75%, 83% and 97%, respectively).

**Conclusions:** Urinary sMet levels accurately distinguish patients with CaB from those without, and between patients with different CaB stages. These results suggest that urinary sMet may have utility as a bladder cancer marker for screening, treatment follow-up and clinical trial design.
**EXTENDED PELVIC LYMPH NODE DISSECTION AND ADJUVANT CHEMOTHERAPY OFFER SURVIVAL ADVANTAGE IN MUSCLE-INVASIVE UROTHELIAL BLADDER CANCER**

Peter J. Bostrom¹, Bas W.G. van Rhijn¹, Tuomas Mirtti², Matti Nurmi³, Matti Laato³, Neil E. Flesher¹, Antonio Finelli¹, Michael A.S. Jewett¹ and Alexandre R. Zlotta¹

¹Princess Margaret Hospital, UHN, Toronto, ON, Canada; ²Helsinki University Hospital, Helsinki, Finland; ³Turku University Hospital, Turku, Finland

(Presented By: Peter J. Bostrom)

**Introduction and Objectives:** With limited data from randomized trials, the role of pelvic lymph node dissection (ePLND) and adjuvant chemotherapy on the survival of muscle-invasive bladder cancer (BC) remains unclear. Therefore we analyzed the outcome of radical cystectomy (RC) patients treated in two centers with significantly different policies of node dissection and perioperative chemotherapy.

**Material and Methods:** Two ethics approved RC databases including 563 BC patients operated in UHN, Toronto, Canada (1992–2008) and University of Turku, Turku, Finland (1986–2005) were studied. We analyzed basic clinicopathological variables, the rate and extent of PLND and the rate of adjuvant cisplatin-based chemotherapy using the χ²-test. Kaplan–Meier method and multivariate Cox regression analysis were used to analyze survival.

**Results:** In the Toronto cohort, patients were older (mean age 68 vs. 63y, p<0.001), had more extensive PLNDs (>15 nodes removed, 34% vs. 2%; >8 nodes removed, 66% vs. 13%, p<0.001), had more Npos patients (26% vs. 7%, p<0.001), and received more adjuvant chemotherapy (21% vs. 1%, p<0.001). Positive margin rate was very similar (6% vs. 3% for entire Toronto and Turku cohorts (p=0.12), and 4% in both centers for pT2−3 tumors). No BC specific survival differences could be seen in <pT1, PT1 or pT2a tumors (5−y survival in Toronto and Turku cohorts 89/91%, 75/80%, and 69/66%, respectively, p−values >0.5) or in pT4a tumors (5−y DSS 41% vs. 23%, p=0.40). In contrast, there was a trend for improved survival in pT2b tumors (65%/42%, p=0.23) and significant difference favouring Toronto cohort in pT3a (55%/31%, p=0.025 and pT3b tumors (43%/28% p=0.06). The T2/T3 cohort was used in multivariate Cox regression analysis. In addition to pT−stage (HR 1.8, 95% CI 1.2–2.8; p<0.005) and N−stage (HR 2.5, 95% CI 1.5–4.1; p<0.001), study center was significant factor affecting outcome (HR 1.9, 95% CI 1.1–3.4; p<0.027) favouring Toronto cohort. Neither ePLND or adjuvant chemotherapy alone were significant factors affecting outcome.

**Conclusions:** As our study cohorts have received different planned treatment in terms of ePLND and perioperative chemotherapy, the setting is unique and avoid many biases typical for non–randomized studies. The almost identical outcome of ≤pT1 cases and positive margin rates serve as an internal control of quality of surgery. Our results show that ePLND and adjuvant chemotherapy offer survival advantage in T2 and T3 BCs treated with RC.

**UNDERUTILIZATION OF RESTAGING BLADDER TUMOR RESECTION FOR BLADDER CANCER**

Ted Skolarus, Bruce Jacobs, Zaojun Ye, David Miller, James Montie, David Wood, Cheryl Lee, Khaled Hafez, Jeffrey Montgomery, Alon Weizer and Brent Hollenbeck
Department of Urology, University of Michigan
(Presented By: Ted Skolarus)

**Purpose:** Restaging bladder tumor resection improves staging accuracy, yet the extent to which it influences further management or impacts survival is largely unknown. Because its value has primarily been demonstrated in tertiary care settings, we evaluated the use and clinical effectiveness of restaging bladder tumor resection using population based data.

**Patients and Methods:** We identified 62,016 patients diagnosed with bladder cancer between 1992 and 2005 using SEER–Medicare data. Restaging bladder tumor resection was defined as ≥2 transurethral resection episodes 60 days after diagnosis. We assessed relationships between restaging resection, major treatment interventions (radical cystectomy, radiation therapy, systemic chemotherapy) and survival outcomes using propensity score and Cox proportional hazard methods.
**Results:** Restaging resection was performed in 4.9% of newly diagnosed bladder cancer patients. Restaging was more common among patients who were younger (16.5% vs. 14.6% less than 70 years, p<0.001), of higher socioeconomic status (35.3% vs. 33.3%, p=0.02), with higher grade (65.8% vs. 41.0% high grade, p<0.001) and stage (58.9% vs. 33.9% stage T1 or T2, p<0.001) disease. Patients with a restaging resection were more likely to undergo radical cystectomy (p<0.001). All restaged patients with T2 disease benefited in terms of cancer−specific survival.

**Conclusions:** Restaging transurethral resection for bladder cancer was increasingly common for higher grade and stage disease, although infrequent overall. While its benefits appear to include improved survival for selected patients, the dramatic underuse raises quality of care concerns. Increased use of restaging may be a relatively simple means to improve outcomes for patients with newly diagnosed bladder cancer.

**Poster #61**

**GENETIC VARIANTS IN THE VITAMIN D PATHWAY GENES PREDICT RECURRENCE RISK FOR NON-MUSCLE INVASIVE BLADDER CANCER**

Yuanqing Ye, Neema Navai, Xifeng Wu and Colin Dinney
MD Anderson Cancer Center, Houston, TX
(Presented By: Neema Navai)

**Introduction and Objectives:** Vitamin D has received much press and research in oncology circles as a promising cancer therapy. Studies have shown decreases in the risk of developing of many cancers, including colon, with the daily supplementation of Vitamin D. Despite this promising research little attention has focused on the utility of Vitamin D pathway genes to prognosticate both disease progression and response to therapy. In this study, we examined the effect of 76 genetic variants in 4 Vitamin D pathway genes to prognosticate response to therapy in patients with an initial diagnosis of non−muscle invasive bladder cancer (NMIBC).

**Methods:** From a cohort of 803 patients with bladder cancer who underwent treatment at the MD Anderson Cancer Center and Baylor College of Medicine, we identified 421 patients with non-muscle invasive bladder cancer. Patients were analyzed for established single nucleotide polymorphisms (SNPs) in the Vitamin D pathway genes. Multivariate Cox proportional hazard analysis was carried out to examine recurrence rates after treatment.

**Results:** Salient patient characteristics are shown in Table 1a. Fifteen SNPs were found to be independently associated (8 decreased risk, 7 increased risk) with recurrence in NMIBC patients who underwent trans urethral resection (TUR) as their only treatment modality (Table 1b). Carriers of specific genetic variants in the Vitamin D pathway genes had as high as 44% risk reduction when examining recurrence. Additionally specific SNPs had a high as 2.66 fold increase in recurrences. We also examined those patients who underwent BCG therapy, either induction or maintenance. We found that 26 SNPs were significantly associated with recurrence after BCG therapy (Table 1b). Of these 11 SNPs were associated with a decrease in the risk of recurrence (up to 60% reduction) and 15 were associated with an increase risk of recurrence (as high as 1.91 fold).

**Conclusion:** Vitamin D pathway gene variants can be utilized to predict risk of recurrence in patients with NMIBC. These genetic variants can be utilized to identify patients who benefit from BCG therapy in addition to TUR.
PRIVATE VS. PUBLIC INSURANCE: IS THERE A DIFFERENCE IN SURVIVAL IN PATIENTS WITH BLADDER UROTHELIAL CARCINOMA?
Mohummad M. Siddiqui, Niall Heney, W. Scott McDougal and Adam S. Feldman
Massachusetts General Hospital, Boston MA
(Presented By: Mohummad M. Siddiqui)

Background: Disparities in overall mortality with bladder urothelial carcinoma (UC) have been described for different socioeconomic status (SES) but no study has examined disease specific mortality. We present here disparities in bladder UC specific mortality in public and private insurance cohorts.

Methods: We performed an IRB approved, retrospective review of patients newly diagnosed with bladder UC in the years 2004−05 at the Massachusetts General Hospital. Data were collected from January 2004 to March 2010 regarding insurance, demographics, operations, surgical pathology, and follow-up care. Public insurance was defined as sponsored programs in which there are income assessments for enrollment.

Results: A total of 225 patients were examined with a mean follow-up of 47 months. Publicly insured patients were 29.8% of the total and privately insured comprised 70.2%. The publicly insured group presented with similar disease stage (33% T2+ public vs. 25% private, p=0.25) and grade (54% high grade public vs. 55% private, p=0.88). In univariate analysis evaluating gender, age, race, smoking history, presence of CIS, stage, or grade of disease, we found that higher stage (p<0.0001), high grade (p<0.0001), and lower SES (p=0.02) were all associated with increased mortality from UC. None of the variables investigated were associated with SES. Upon multivariate analysis, the association of grade (RR=5.6, p<0.001), stage (RR=2.2, p=0.01), and SES (RR=2.3, p=0.006) with disease specific mortality remained significant. All-cause 5-year mortality was 46% for the publicly vs. 26% for privately insured, (p=0.005). Disease-specific 5-year mortality was 30% for publicly vs. 16.5% for the privately insured (p=0.03). Kaplan–Meier analysis showed a lower overall survival (p=0.003) and UC specific survival (p=0.01) in the publicly vs. the privately insured group (Fig. 1).

Conclusions: We found disparities in publicly and privately insured patients with bladder cancer as to all-cause and disease-specific mortality. This association persisted upon multivariate analysis as an independent risk factor for death from bladder UC. This is the first study to demonstrate different disease specific mortality with differing SES.
Poster #63

TOBACCO USE PATTERNS IN BLADDER CANCER SURVIVORS
Jeffrey Bassett¹, John Gore², Karim Chamie¹ and Christopher Saigal¹
¹University of California, Los Angeles, CA; ²University of Washington, Seattle, WA
(Presented By: Jeffrey Bassett)

Background: Bladder cancer is the 2nd most common tobacco−related malignancy. Smoking after diagnosis may result in decreased recurrence and progression−free survival. Little is known about the impact of a bladder cancer diagnosis on tobacco use patterns and success with quitting among patients with incident bladder cancer.

Methods: A random sample of non−invasive bladder cancer survivors was obtained from the California Cancer Registry. Subjects were surveyed regarding tobacco history, beliefs as to risk factors, and physician influence on smoking. Four cohorts were created: never smokers, former smokers, and active smokers (smoking at time of diagnosis). Active smokers were classified as continued smokers (still smoking at time of survey) or recent ex−smokers (quit after diagnosis). Cohorts were compared using contingency tables and multivariate analysis. Our active smokers' were matched and compared to a statewide sample of active smokers without bladder cancer.

Results: Of 492 eligible participants, 344 (70%) completed the survey. Mean age was 68.3 years. Tumor stage was Ta in 63%, T1 in 29%, and Tis in 8%. 74% of respondents had a history of cigarette use. 26% were never smokers, 57% former smokers, and 17% were active smokers at diagnosis. 52% of active smokers continued to smoke after diagnosis. Active smokers with bladder cancer had a higher attempted quit rate (68% vs. 47%, p = 0.03) and a higher successful cessation rate (48% vs 10%, p < 0.001) compared to smokers without bladder cancer. 76% of recent ex−smokers indicated that the diagnosis of bladder cancer was responsible for their cessation; 55% cited the advice of the urologist as the reason for quitting. Active smokers were more likely than never or former smokers to endorse tobacco as a risk factor for bladder cancer (92% vs. 57% vs. 60%, p<0.001). The urologist improved health literacy; 98% of active smokers indicated tobacco was a risk factor when urologist a source vs. 67% when the urologist was not (p = 0.01).

Conclusions: The incident diagnosis of bladder cancer is an opportunity for smoking cessation. Urologists play an important role in educating their patients with bladder cancer. Patient education and cessation efforts aimed at newly diagnosed bladder cancer patients could improve overall and disease−specific survival. More work is needed to understand whether more intensive tobacco cessation programs will impact those active smokers who persist in smoking after counseling by a urologist.

Poster #64

THE IMPACT OF RADICAL CYSTECTOMY ON RENAL FUNCTION: AN ANALYSIS OF VARIANCE BASED ON AGE, GENDER, RACE AND DIVERSION TECHNIQUE
Sean Sawh, James Ferguson, Joshua Langston, J. Patrick Selph, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Sean Sawh)

Introduction: In recent years there has been an increased appreciation of the detrimental impact (e.g. cardiovascular) of chronic kidney disease. While the impact of partial or radical nephrectomy on renal function is well documented, the effect of cystectomy on renal function has yet to be explored. We evaluated the impact of treatment variables in patients undergoing radical cystectomy for bladder cancer on post−operative renal function.

Methods: A retrospective chart review of 460 patients (2001−2008) who underwent radical cystectomy was performed. Only those who had pre-operative creatinine (Cr) values as well as at least 12 months of clinical follow−up at our institution were included in this study providing a study sample of 247 patients. Patients were evaluated with regard to impact of age, race, gender, BMI, diversion type, and use of peri−operative chemotherapy. Statistical analysis was performed using both t-tests and generalized linear models with repeated measures with SAS version 9.2 (Cary, NC).
Poster Session I

Results: Table shows the Cr values (mg/dl) based on diversion, gender, and race. For the entire cohort, post-operative 6 and 12 mo Cr was significantly greater than the pre-operative value (1.10 vs. 1.23 vs. 1.34) with the 12-mo value significantly higher than the 6 mo as well. With regard to comparison of pre-operative values, no differences were observed with regard to diversion, obesity, age, or race, but males were higher than females (1.19 vs. 1.08; p = 0.001). We also evaluated the degree of change (or impairment) in a multivariate analysis. Multivariate results revealed no significant difference in postoperative Cr change based on diversion (F = 0.32, p=0.5716) or race (F=0.61, p=0.6088) but did reveal a statistical difference in postoperative Cr based on age (F=21.27, p<0.0001) and sex (F=2.40, p=0.0076) with older and male patients having a larger increase postoperatively compared to their counterparts.

Conclusions: Radical cystectomy for bladder cancer results in a significant increase in serum creatinine measurements at 6 and 12 months post-operatively suggesting a potential detrimental effect on post-operative renal function — particularly in male and older patients.

Poster #65

NEO-ADJUVANT GEMCITABINE-CISPLATIN CHEMOTHERAPY FOR LOCALLY ADVANCED UROTHELIAL CANCER OF THE BLADDER
Edward M Messing, Emil Scosyrev, Edwin van Wijngaarden, Derick R Peterson, Deepak Sahasrabudhe, Dragan Golijanin and Susan G Fisher
University of Rochester Medical Center, Rochester, NY
(Presented By: Edward M Messing)

Objective: To investigate the effect of neo−adjuvant chemotherapy with gemcitabine and cisplatin (GC) on pathological down−staging of patients with locally advanced urothelial cancer (UC) of the bladder.

Methods: This is a retrospective cohort study of patients treated with radical cystectomy (RC) for clinical stage cT2−T4, N any, M0 bladder UC at Strong Memorial Hospital between 2000−2009. Patients treated with other neo−adjuvant therapy, with clinical stage <cT2, by partial cystectomy, or with non UCs were not included. The primary exposure variable was use of neo−adjuvant chemotherapy (GC vs. none). The primary outcome was stage pT0 at RC. Secondary outcomes included other down−staging end−points in the bladder (<pT1, <pT2, <pT3), nodal status, and surgical margins. Additive probability models were used to estimate the effect of neo−adjuvant GC on tumor down−staging with adjustment for clinical staging variables. Funding for this work was provided by the Ashley Family Foundation.

Results: We identified 160 eligible patients, of whom 25 were treated with neo−adjuvant GC before RC (GC+RC) and 135 without neo−adjuvant chemotherapy (RC−only). The mean and median numbers of GC cycles were 3.44 and 4, respectively (range 2 to 4). Compared to the RC−only patients, those in the GC+RC group had more extensive disease based on the proportion of clinical stage T3/T4 cases (76% GC+RC vs. 21% RC−only, p<0.001) and adenopathy (36% GC+RC vs. 11% RC−only, p=0.004). There was evidence of tumor down−staging in the bladder following chemotherapy (Table 1, end−points pT0, <pT1, <pT2, <pT3). However, the use of GC was not associated with lower risk of nodal metastases in this series. Of note, positive nodes were seen primarily in patients with pT3+ disease at cystectomy. Reduction in the risk of surgical margins after GC did not reach statistical significance (Table 1).

Conclusion: Neo−adjuvant GC is capable of down−staging UC in the bladder. However, GC’s effect on disease in nodes could not be demonstrated in this study.

<table>
<thead>
<tr>
<th>Table 1: Tumor down-staging</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators</strong></td>
</tr>
<tr>
<td>pT0</td>
</tr>
<tr>
<td>&lt;pT1</td>
</tr>
<tr>
<td>&lt;pT2</td>
</tr>
<tr>
<td>&lt;pT3</td>
</tr>
<tr>
<td>Margins</td>
</tr>
<tr>
<td>pM0</td>
</tr>
</tbody>
</table>

**Note:** p values indicate the difference between GC+RC and RC−only patients. **Adjusted for clinical T stage, ** adjusted for clinical T stage, regional adenopathy, and the number of nodes examined.
Introduction and Objectives: The aim of this study was to evaluate the association of p53, p21, p27, Cyclin E, and Ki−67 expression with pathologic features and clinical outcomes of patients with squamous cell carcinoma (SCC) of the urinary bladder.

Methods: p53, p27, p21, Cyclin E, and Ki−67 immunohistochemical staining was performed on radical cystectomy (RC) specimens with pure SCC from 1997–2003. Bright field microscopy imaging coupled with advanced color detection software was used. The relationship between these markers and pathological parameters as well as clinical outcome was assessed.

Results: The study included 152 SCC patients (80.9% with bilharziasis); 99 males and 53 females; with median age 51 years (range, 36–74). The presenting stage was ≥T2 and the presenting grade was ≤ GII in 93.4% of patients. Altered Cyclin E expression was associated with stage (p=0.02) and altered p21 with grade (p=0.02) and altered p27 with lymphovascular invasion (LVI) (p=0.01). In multivariable analyses, altered p53 expression was the only marker associated with an increased risk of disease recurrence and bladder cancer-specific mortality ( p<0.05).

Conclusions: Cell cycle−related molecular markers are commonly altered and associated with aggressive pathological characteristics of SCC of the urinary bladder. Only p53 had a prognostic role in patients treated with RC for SCC. Our findings support the need for further evaluation of molecular markers and their signaling pathways in SCC.
Poster Session I

Poster #67

DELIVERY OF RADICAL CYSTECTOMY AFTER NEOADJUVANT CHEMOTHERAPY FOR MUSCLE INVASIVE BLADDER CANCER: A MULTIDISCIPLINARY APPROACH

AJJAI ALVA, Christopher Tallman, Chang He, Maha Hussain, James Montie, David Smith, Alon Weizer, David Wood and Cheryl Lee
University of Michigan, Ann Arbor, MI
(Presented By: AJJAI ALVA)

Background: Cystectomy delay greater than 90 days from the diagnosis of muscle invasive bladder cancer (MIBC) adversely affects survival outcomes in patients treated with primary surgery. The impact of the timing of cystectomy delivery after neoadjuvant chemotherapy (NAC) is uncertain. We hypothesized that a delay in cystectomy delivery after NAC is associated with adverse survival outcomes.

Methods: An eligible cohort of 153 patients with MIBC was treated with NAC and cystectomy from 1990 to 2007. Our genitourinary team strives to schedule patients for surgery at the time of evaluation or after the first chemotherapy cycle. Clinical and pathological characteristics including timing of cystectomy (from last day and first day of chemotherapy), chemotherapy delivery, vital status and reasons for excessive delay were analyzed retrospectively using an institutional database. The Wilcoxon rank sum test and log rank test were used to identify associations between relevant variables, the timing of cystectomy delivery, and overall survival.

Results: Mean age was 64 years, 73% were men and 75% received NAC at the University of Michigan. NAC treatment included paclitaxel−carboplatin−gemcitabine (64%), gemcitabine-cisplatin (13%), and methotrexate–vinblastine–adriamycin–cisplatin (8%). Median follow−up was 3.6 years. Median time to cystectomy from NAC end was 7 weeks (17 weeks from start of NAC). At cystectomy, 51% had extravesical disease, while 23% achieved a pT0. Lymphovascular invasion (LVI) and nodal disease were present in 27% and 23%, respectively; pure urothelial histology was noted in 73%. Pathologic stage and LVI were significantly associated with overall survival in univariate and multivariate analysis while time-to-cystectomy (both from start and end of NAC) was not. Time-to-cystectomy was not altered by age, type or site of NAC, LVI, clinical stage prior to NAC or pathological stage. Overall survival was not compromised by cystectomy delivery between 4 and 14 weeks from the end of NAC by log rank analysis. The most common reason for cystectomy delivery beyond 10 weeks from NAC end (28 patients) was scheduling delay (38%).

Conclusions: A multidisciplinary genitourinary oncology program can efficiently deliver cystectomy following NAC, and this should be the goal. In consideration of unexpected surgical delay, within this single institution cohort, cystectomy delivery within 14 weeks of NAC completion did not compromise patient survival.

Poster #68

EFFECTS OF A SMALL ORALLY AVAILABLE MET INHIBITOR IN A PRE-CLINICAL MODEL OF BLADDER CANCER

Maximiliano Sorbellini¹, Alessio Giubellino¹, Tung-Chin Hsieh², Carole Soubrier¹, Gaurav Srivastava¹, Peter A. Pinto¹, W. Marston Linehan¹ and Donald P. Bottaro¹
¹UOB/NCI/NIH, Bethesda, MD; ²George Washington University, Washington, DC
(Presented By: Maximiliano Sorbellini)

Introduction and Objectives: Met over−expression has been reported to occur in bladder cancer (CaB). However, to date, the effects of Met inhibition in CaB have not been investigated. We used a small, orally available, highly specific Met-inhibitor currently on Phase 2 clinical trials, to assess its effects in a pre−clinical model of bladder transitional cell carcinoma (TCC).

Methods: Bladder TCC cell lines were treated with a selective Met inhibitor (PF−2341066) to determine its effects on Met phosphorylation, Met pathway activation, cellular proliferation and migration. Highly sensitive electrochemiluminescence immunoassays were used for analysis of intact cellular soluble Met (sMet), phosphorylated−Met (p−Met) and Hepatocyte Growth Factor (HGF).

Results Obtained: sMet content and the overall level of HGF−stimulated p−Met were found to correlate directly with the stage and grade of the tumors from which TCC cell lines used were derived. Cell lines studied did not produce HGF, excluding autocrine loop formation as an oncogenic mechanism of Met pathway activation in TCC. PF−2341066 was found to inhibit TCC invasiveness with IC50s in the low nanomolar range. The latter was associated with inhibition of the AKT and ERK 1,2 pathways.

Conclusions: This study is the first to test a small orally available Met−selective inhibitor in pre−clinical models of bladder cancer. Our results demonstrate that Met−inhibition by PF−2341066 blocks TCC invasiveness, supporting its potential use in patients with bladder cancer.
Poster #68
WITHDRAWN

Poster #70

BLADDER TUMOR LOCATION AT TURBT PREDICTS LIKELIHOOD OF LYMPH NODE METASTASES AT CYSTECTOMY

Clark Wilson¹, Vipal Durkal¹, Stephen Culp², H. Barton Grossman³, Ashish Kamat³, Colin Dinney³ and Jay Shah²
¹UT-Houston Medical School, Houston, TX; ²MD Anderson Cancer Center, Houston, TX
(Presented By: Clark Wilson)

Introduction: Outcomes after radical cystectomy for patients with invasive bladder cancer are highly variable. Known prognostic factors include tumor stage, grade, lymphovascular invasion, hydronephrosis, and presence of variant histology. The significance of intravesical tumor location at TURBT in predicting pathologic outcomes at cystectomy remains undefined. We hypothesized that variations in detrusor muscle thickness throughout the bladder may predispose patients to higher or lower likelihood of perivesical extension and lymph node metastases based on tumor location.

Methods: We retrospectively reviewed the MDACC Bladder Cancer database and we identified 681 patients who had undergone cystectomy and bilateral extended pelvic lymphadenectomy for invasive bladder cancer between 2000 and 2008. Patients were excluded if they did not have complete medical records available (19), had concurrent upper tract urothelial carcinoma (17) or if they did not undergo cystectomy at MDACC (63). For 583 evaluable patients, tumor location was determined preferentially from TURBT operative reports and from cystectomy pathology reports only if necessary. Tumors were classified into seven locations: left lateral wall, right lateral wall, posterior wall, anterior wall, trigone, dome, and bladder neck. In a model including tumor location in addition to known prognostic factors, univariate and multivariate logistic regression analyses were used to identify predictors of perivesical extension and lymph node metastasis.

Results: Of 583 patients, 185 had ≥ T3 stage disease and 94 were found to have lymph node metastases at cystectomy. Univariate analysis showed that patients with tumor in the trigone have a 2.34−fold increased risk of lymph node metastasis compared to those patients with tumors in other locations (95% confidence interval 1.12−4.91, p = 0.024). On multivariate analysis, trigone location remained a statistically significant predictor of lymph node metastasis. Interestingly, race was also found to be a significant predictor with patients of white race having a 70 percent decreased risk of lymph node metastasis.

Conclusion: Patients found to have invasive bladder tumor in the trigone at TURBT have a significantly greater risk of lymph node metastasis at cystectomy. This suggests that tumor location may be a useful prognostic factor when selecting patients for neoadjuvant chemotherapy.

Poster #71

DIMINISHED EFFICACY OF BCG AMONG ELDERLY PATIENTS WITH HIGH RISK NON-MUSCLE INVASIVE BLADDER CANCER

David Margel¹, Sultan Alkhateeb¹, Antonio Finelli² and Neil Fleshner²
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada
(Presented By: David Margel)

Purpose: BCG is currently recommended as adjunctive therapy among patients with high risk non muscle invasive bladder cancer (BC). BCG response is felt to be immune mediated. Given that immune response is attenuated with advanced age, we set out to determine the impact of age on response to BCG therapy.

Patients and Methods: We searched our prospective bladder information system (Blis) database and limited our search to patients with incident bladder tumours completely resected at TUR who completed a full induction course of BCG. We then analysed the impact of age on outcome. Age was analyzed both dichotomously (greater or less than 75 yrs) as well as by 10−year increments. The main outcomes were recurrence or progression free survival. Kaplan−Meier and multivariate Cox regression analyses, adjusting for various clinical and pathological features (gender, tumor size, multifocality, pathological stage, grade and associated carcinoma in situ) were utilized.
Results: This cohort included 238 patients. Baseline parameters of examined cohorts were similar aside from tumor number. Progression free survival differed between age groups when examined either dichotomously or via 10 year increments. The 2 year progression free survival was 87% among patients <75 years vs. 65% in patients > 75 years (log rank p<0.001). Furthermore, an age dependent trend was noted when analysed by 10-year increment (log rank for trend p=0.011). On multivariate analysis age was an independent risk factor for progression with an OR of 2.9 (95%CI 1.7−4.9). Recurrence–free survival was similar among all age strata.

Conclusions: We demonstrated that advanced age is associated with a higher progression rate despite BCG immunotherapy. Adverse biology or diminished immune response is the hypothesized mechanisms. These data should be taken into account when counselling patients about response to BCG.

Poster #72

THE ORALLY AVAILABLE MET INHIBITOR PF-2341066 REDUCES TUMOR BURDEN AND METASTASIS IN AN ORTHOTOPIC XENOGRAFT MODEL OF BLADDER CANCER
Maximiliano Sorbellini¹, Alessio Giubellino², Carole Sourbier², Gaurav Srivastava³, Peter A. Pinto², W. Marston Linehan and Donald P. Bottaro
UOB/NCI/NIH, Bethesda, MD
(Presented By: Maximiliano Sorbellini)

Introduction and Objectives: Met over-expression has been found in bladder cancer (CaB). However, to date, the effects of Met inhibition in CaB have not been reported. We used a small, orally available, highly specific Met-inhibitor currently on Phase 2 clinical trials, to assess its effects in an orthotopic xenograft model of bladder transitional cell carcinoma (TCC).

Methods: An orthotopic xenograft murine model of TCC of the bladder was developed with T24-Luciferase positive bladder cancer cells. NIH 3T3 cells producing human Hepatocyte Growth Factor (hHGF) were implanted subcutaneously in mice to provide a source of hHGF. Animals were treated with the selective Met inhibitor (PF-2341066) intra-peritoneally after positive detection of bladder tumor primary and/or metastatic disease. Fluorescence imaging (Xenogen IVIS) of mice was performed weekly. Mice were euthanized 4 weeks after the start of treatment and their tissues studied histologically.

Results Obtained: PF-2341066 was found to reduce tumor burden to below detectable levels in both primary and metastatic sites in all mice treated. No noticeable side effects were detected in treated mice secondary to drug administration.

Conclusions: This study is the first to test a small orally available Met-selective inhibitor in an orthotopic, HGF-driven model of human CaB. Our results demonstrate that Met-inhibition by PF-2341066 reduces TCC tumor burden supporting its potential use in patients with bladder cancer.

Poster #73

OUTCOME IN PATIENTS EXCLUSIVELY WITH CARCINOMA IN SITU (CIS) FOLLOWING RADICAL CYSTECTOMY
Pascal Zehnder, Siamak Daneshmand, Marya Leahy, Eila Skinner, Jie Cai, Gus Miranda, Anirban Mitra, Georg Bartsch and Inderbir Gill
University of Southern California, Los Angeles, CA
(Presented By: Pascal Zehnder)

Introduction and Objectives: Outcome data from clinical or pathological CIS-only cystectomy series comprise inhomogeneous cohorts with considerable stage shifts and hence different tumor characteristics. We report oncologic outcomes of patients with CIS only following radical cystectomy and no previous history of ≥T1 disease.

Methods: Patients undergoing radical cystectomy and lymph node dissection with intent to cure between 1971 and 2008 at the University of Southern California were included if they met the following criteria: 1) Pathological CIS-only disease at cystectomy, 2) preoperative clinical stage Cis and/or Ta, 3) no previous history of lamina propria invasion (≥T1). Survival and recurrence data were analyzed.

Results: Of the 1600 patients in our database, 53 patients met the inclusion criteria. 38 (72%) patients underwent intravesical instillations prior to cystectomy. Median follow-up was 8.5 years (range: 3d–34y). 15 (28%) patients had unifocal and 38 (72%) patients multifocal disease.
A median of 35 lymph nodes (range: 10−95) were removed per patient with no metastasis found. Estimated 5- and 10-year recurrence-free survival rates were 91% and 88%, respectively. Estimated 5- and 10-year overall survival rates were 83% and 64%, respectively. 5 (9%) patients recurred. 3 (6%) patients died from disease, 1 after early local and 1 after early systemic recurrence. 1 patient systemically progressed after stepwise, multifocal urothelial involvement. 1 patient with local recurrence is still alive. Finally, 1 patient with bilateral upper tract recurrence 7 years after radical cystectomy underwent unilateral nephrectomy and contralateral Mitomycin C instillations and is disease free since.

Conclusions: To the best of our knowledge, this is the first report on oncologic outcomes of patients with CIS only following radical cystectomy without previous history of ≥T1 disease. Lifelong follow-up is required as non-invasive urothelial recurrence or metachronous urothelial malignancy may be successfully treatable. However, fatal outcome due to local and systemic recurrence can still occur.

Poster #74

PROGNOSTIC SIGNIFICANCE OF THE MICRORNA 200 FAMILY IN BLADDER CANCER PROGRESSION
Michael Williams¹, Alexandru Floares², Woonyoung Choi¹, Lauren Marquis¹, Arlene Siefker-Radtke¹, David McConkey¹, Colin Dinney¹ and Liana Adam¹
¹MD Anderson Cancer Center, Houston, TX; ²Institute of Oncology, Cluj-Napoca, Romania
(Presented By: Michael Williams)

Introduction and Objectives: MicroRNAs (miRs) are 20−25 nucleotide non-coding RNAs involved in many biological functions including cancer progression. We recently demonstrated the miR-200 family can modulate the epithelial to mesenchymal transition (EMT) phenotype in vitro with important implications for cell migration/invasion. This study is a preliminary investigation into the miR200 family role in the progression of invasive bladder cancer.

Methods: After IRB approval, we performed a retrospective study on 35 patients cT1-T4 that had never received treatment prior to tumor tissue collection and investigated several EMT−related molecules by qRT-PCR: miR200 family (miRs-200b/c, -205, -429 & -141), direct miR-200 targets (ZEB1, ZEB2, ZNF532, ERRFI-1), p63, E-cadherin and TGF-α. Progression was defined as advancing stage, or development of nodal or visceral metastases or recurrence of same stage. Traditional statistical analyses were performed to determine progression free survival utilizing Cox Proportional Hazard Models with P<0.05 being significant. After traditional statistics identified possible interactions, we then identified data for inclusion in predictive models. To that end, we aimed to assess the role of these biological markers as predictors of clinical outcome, and tested the accuracy of predicting disease progression models by using various types of artificial intelligence agents (neural networks, support vector machines, and decision trees).

Results Obtained: The most important predictors for progression were: TGF-α, ZEB1, mir-200c, ZEB2, ZNF532, p63 and ERRFI-1. CART analyses were performed that could predict bladder cancer progression with 100% accuracy. Patients with bladder tumors reminiscent of an “epithelial phenotype” (higher mir-200, lower ZEB1, higher E-cadherin and p63) and express high levels of TGF-α were most likely to progress over time. Importantly, this particular “epithelial” phenotype is also be found in our in vitro cellular models of bladder cancer (253J-P and 253J-BV).

Conclusions: This preliminary clinical study suggests that miR-200 and TGF-α signaling are important phenotypic modulators of bladder cancer progression, which and hold promise as new molecular markers for predicting clinical outcomes. Ongoing clinical evaluation with a new subset of 100 patients that received radical cystectomy as their primary treatment is underway.
**TIME DELAY BETWEEN POSITIVE FLUORESCENCE IN SITU HYBRIDIZATION (FISH) AND DISEASE RECURRENCE DURING BLADDER CANCER SURVEILLANCE**

G. Joel DeCastro, Joseph Pariser, Sergey Shikanov, Cassandra Royce and Gary D. Steinberg  
University of Chicago, Chicago, IL  
(Presented By: G. Joel DeCastro)

**Introduction:** Routine bladder cancer surveillance consists of periodic cystoscopy, cytology, and, in some cases, fluorescent in situ hybridization (FISH). After a positive FISH result, subsequent cystoscopies may fail to identify a source of urothelial carcinoma (UC). In this study we sought to determine the length of time between a positive FISH result and subsequent development of a clinically visible tumor on cystoscopy.

**Methods:** Using our institutional bladder cancer database, we identified 148 patients with a history of non-muscle invasive bladder cancer (NMIBC) who underwent periodic surveillance with cystoscopy, cytology, and FISH analysis between 2002 and 2008. Fifty-six percent had low-grade UC, while at baseline 10% had CIS, 34% had a T1 lesion, and 56% had Ta disease. The majority of patients (62%) underwent BCG treatment at some point during the study period.

**Results:** Of the total 148 patients, 116 (78%) had a positive FISH during the surveillance period, of which 61 (53%) developed a cystoscopically confirmed tumor recurrence. Of these, 38 (62%) had a positive FISH and positive cystoscopy at the same time. Of those who did not have concurrently positive FISH and cystoscopy, median time to a positive cystoscopy was approximately 12 months (range 1–69 months). This diagnostic delay was longer -median 18 months -for patients with high grade disease, and shorter –7 months –for patients with T1 or CIS lesions. Of the 32 patients (22%) with negative FISH, 10 (31%) had a subsequent positive cystoscopy during follow-up. Of these, 18 (58%) had a positive cysto at their first visit, with the remaining 14 patients suffering a recurrence at a median time of 20 months during follow-up (range: 3–59 months).

A total of 117 patients (79%) had a positive or “atypical” cytology result during surveillance, 66 (56%) of whom also had a clinically visible tumor. Most of these tumors (65%) were identified synchronously at the time of cytology. Of those not identified at the same time, the median time to clinical recurrence was 11 months (range 2–46 months).

**Conclusions:** For patients undergoing surveillance for NMIBC, a positive FISH may predate a clinically visible lesion by a median time of one year, with a reduced delay of 7 months for patients with CIS or T1 disease. These results suggest that patients with a positive FISH should be closely monitored even if subsequent cystoscopies reveal no tumor.
**Poster #76**

**IMPACT OF TIME ON THE ABILITY OF UROVYSION FISH ANALYSIS TO PREDICT RECURRENCE OF UROTHELIAL CELL CARCINOMA**

Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

**Introduction and Objectives:** Urovysion’s (Abbott Laboratories Inc., Downers Grove, IL) fluorescent in-situ hybridization (FISH) assay has been promoted as a non-invasive screening method to detect recurrence of urothelial cell carcinoma of the bladder. We assessed the ability of barbotage FISH analysis to predict recurrence of urothelial carcinoma as a function of time since the test was performed.

**Methods:** Medical records were retrospectively reviewed for the last 241 consecutive patients with non-muscle invasive bladder cancer (NMIBC). Of these, 197 were identified with normal cystoscopy and cytology on follow-up. We then calculated the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of barbotage FISH analysis by comparing FISH analysis to future cystoscopic and cytologic examinations. Recurrence of disease was defined as pathologically confirmed tumor or high grade cytology.

**Results:**
- The sensitivity, specificity, PPV and NPV of our FISH analysis with up to 3 years follow-up is presented in Table 1.

**Conclusions:** Urovysion’s FISH analysis provides a stable ability to predict tumor recurrence up to 3 years from when the test is drawn. The high NPV may allow reduced surveillance protocols, especially in low risk patients and minimize the need for repeat FISH analyses.

**Table 1:**

<table>
<thead>
<tr>
<th>Time (months)</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>68</td>
<td>45</td>
<td>12</td>
<td>95</td>
</tr>
<tr>
<td>6</td>
<td>64</td>
<td>43</td>
<td>12</td>
<td>95</td>
</tr>
<tr>
<td>12</td>
<td>64</td>
<td>43</td>
<td>14</td>
<td>94</td>
</tr>
</tbody>
</table>

**Poster #77**

**THE IMPACT OF TARGETED MOLECULAR THERAPIES ON THE LEVEL OF RENAL CELL CARCINOMA (RCC) VENOUS TUMOR THROMBUS**

Nicholas G. Cost¹, Scott E. Delacroix², Paul Smith¹, Ramy F. Youssef³, Brian F. Chapin³, Jose A. Karam³, Stephen Culp³, E. Jason Abel³, James Brugarolas³, Ganesh V. Raj³, Arthur I. Sagalowsky³, Christopher G. Wood³ and Vitaly Margulis³
¹Department of Urology, University of Texas Southwestern Medical Center, Dallas, TX; ²Department of Urology, University of Texas MD Anderson Cancer Center, Houston, TX; ³Division of Hematology Oncology, University of Texas Southwestern Medical Center, Dallas, TX
(Presented By: Nicholas G. Cost)

**Introduction and Objective:** Tyrosine kinase inhibitors (TKIs) have demonstrated activity in RCC by reduction of the size of primary tumors and metastases. In this study, we assessed TKI activity on IVC tumor thrombi in a large patient cohort.

**Methods:** A multi-institutional database of patients treated with TKIs with in-situ primary RCC was reviewed, defining the thrombus level as: IVein, IIbelow hepatic veins, III–hepatic IVC below atrium, IV. The subset of patients with an IVC thrombus (≥Level II) was assessed for radiographic responses in thrombus size & location. We then described the pre & post–treatment characteristics of these patients.

**Results:** In 25 patients meeting inclusion criteria, biopsy showed clear cell RCC in 19, while a specific subtype was not determined in 6. Prior to TKI initiation, the thrombus level was II in 18(72%), III in 5(20%) and IV in 2(8%). The primary treatment was Sunitinib in 12 cases and a combination of Bevacizumab, Temsirolimus and Sorafenib in the remaining 13. Median duration of therapy was 2mo(range 1–9).
Following systemic therapy, 7(28%) had a measurable increase in the thrombus height above the renal vein, 7(28%) had no change and 11(44%) had a decrease. The mean change of the thrombus height and diameter was −0.6 cm, median 0(−0.5−5), and −0.3 cm, median −0.1(−1.6−0.9), respectively. In terms of thrombus level classification, 1 patient(4%) had an increase, 21(84%) had stable thrombi and in 3(12%) thrombus level was decreased. In only 1 case (4%) was the surgical approach potentially affected by thrombus regression(level IV to III).

Regression resulting in a change in the clinical level of the thrombus was only seen in patients treated with primary Sunitinib. Yet, the difference between Sunitinib and non−Sunitinib patient cohorts did not reach statistical significance(Table). No statistically significant predictors of tumor thrombus response to TKIs were found.

Conclusions: TKIs had minimal clinical effect on tumor thrombi and did not impact the surgical approach to thrombectomy. Only those treated with primary Sunitinib had reduction in thrombus level classification; however, this was not statistically significant and is of unclear clinical relevance.
SURVIVAL FOLLOWING PARTIAL AND RADICAL NEPHRECTOMY FOR THE TREATMENT OF STAGE IB RENAL CELL CARCINOMA: A PROPENSITY SCORING APPROACH
Max Kates¹, Gina Badalato¹, Juan Wisnivesky², Arindam RoyChoudhury¹ and James McKiernan¹
¹Columbia University Medical Center, New York, NY; ²Mount Sinai School of Medicine, New York, NY
(Presented By: Max Kates)

Background: Partial nephrectomy is becoming the gold standard for renal tumors less than 4 cm, however this operation is controversial for larger T1 tumors. The objective of this study was to compare survival after partial versus radical nephrectomy among patients with Stage IB Renal Cell Carcinoma (RCC) 4–7cm, and to stratify these survival outcomes by patient and tumor characteristics.

Methods: Using the Surveillance, Epidemiology, and End Results (SEER) registry, we identified 8,297 cases of RCC 4–7cm in size diagnosed between 1998 and 2005 that underwent partial (PN) or radical nephrectomy (RN). We used propensity score analysis to adjust for potential differences in baseline characteristics of patients in the two treatment groups. Overall and cancer-specific survival of patients undergoing PN vs RN were compared in stratified and adjusted analyses, controlling for propensity scores.

Results: Overall, 700 (8%) patients underwent PN. For the entire cohort, there was no significant difference in patients treated with PN vs RN, as demonstrated by the adjusted hazard ratio (HR) for overall survival (1.14; 95% confidence interval [CI]: 0.87–1.47) and cancer-specific survival (HR: 0.83; 95% CI: 0.51–1.33). Similarly, when the cohort was stratified by tumor size (p=0.53) and age (p=0.32), no difference in survival was observed between groups.

Conclusion: Even when stratified by tumor size and limited resection, PN and RN may lead to equivalent survival among patients with RCC 4–7cm in size. If confirmed in prospective studies, nephron-sparing surgery may be preferable for the treatment of medium sized tumors.
Poster #79

BILATERAL SYNCHRONOUS SPORADIC RENAL TUMORS: CLINICAL IMPLICATIONS OF BENIGN PATHOLOGY
Amit Patel¹, Byron Lee², Steven Campbell², Ming Zhou³ and Amr Fergany²
¹Section of Urology, University of Chicago, Chicago, IL; ²Glickman Urological & Kidney Institute, Cleveland Clinic, Cleveland, OH; ³Department of Anatomic Pathology, Cleveland Clinic, Cleveland, OH
(Presented By: Amit Patel)

Objectives: We sought to determine the pathologic concordance rates of patients with bilateral synchronous sporadic renal tumors (BSSRT) at our institution, with particular interest in bilateral oncocytoma due to its benign nature.

Methods: A retrospective chart review from 1985 to 2008 was completed at our institution with search criteria of all patients diagnosed with bilateral renal tumors, all patients who underwent multiple renal surgeries, and patients with more than one renal specimen in the pathology database. Inclusion criteria included patients who had image-documented BSSRTs or via reported history. We excluded patients with bilateral metachronous renal tumor presentation, acquired cystic kidney disease, cystic renal masses, familial RCC syndromes, urothelial cell carcinomas, and other variant histology.

Results: We identified 297 patients who were eligible for analysis. In all, 249 patients had RCC in one renal unit with 222 patients having RCC in both renal units (concordance rate 89%). Oncocytoma was found in 58 patients, including concordant pathology in 41 patients (71%). Factors such as age, sex, and tumor size on imaging did not have an association with concordance rates for bilateral RCC or bilateral oncocytoma.

Conclusions: We report our pathologic review of patients presenting with BSSRT at our institution. Given the high concordance rate for RCC, the data support a management approach consisting of bilateral nephron-sparing surgery when possible. However, given the high concordance rate of oncocytoma in this population, renal mass biopsy and surveillance of the contralateral kidney may be considered after histologic confirmation of one side.

Poster #80

PREDICTORS AND OUTCOMES FOR LATE RECURRENCE OF RENAL CELL CARCINOMA
Simon Kim¹, Bradley Leibovich², Christopher Weight², Houston Thompson², Christine Lohse³ and Stephen Boorjian²
¹Department of Urology, Mayo Clinic, Rochester, MN; ²Mayo Clinic, Department of Urology, Rochester, MN; ³Mayo Clinic, Department of Health Sciences Research, Rochester, MN
(Presented By: Simon Kim)

Introduction and Objectives: While the initial natural history after surgical resection for localized renal cell carcinoma (RCC) has been well-characterized, recurrence patterns for patients who experience late recurrence of disease continue to be defined. Here, we evaluated the clinical characteristics and survival of patients who experienced disease recurrence > 5 years following nephrectomy.

Methods: We identified 1,454 patients who were treated with radical nephrectomy (RN) or nephron-sparing surgery (NSS) for unilateral, sporadic pT1–4NxM0 RCC between 1970–2000 and who remained free of disease for 5 years after surgery. Subsequent recurrence was then recorded and was classified as renal (ipsilateral/contralateral kidney) or distant (all other sites). The recurrence-free survival was estimated using the Kaplan Meier method, and clinicopathological variables associated with subsequent disease relapse > 5 years after surgery were analyzed using Cox proportional hazard regression models.

Results: Median follow-up after nephrectomy was 13.9 years (range 5.1–38.9). In total, 63 patients experience a late recurrence in the ipsilateral/contralateral kidney at a median of 9.3 years (range 5.1–25.3) after surgery. 172 (11.8%) patients developed late distant metastases, at a median of 9.6 years (range: 5.1–26.6) following RN or NSS. Estimated recurrence-free survival at 10 and 15 years following nephrectomy was 97.3% and 95.2% for a relapse in the ipsilateral/contralateral kidney, and was 93.1% and 85.9% for the development of distant disease. On multivariate analysis, increased tumor size (HR 1.12; p<0.001) was associated with a higher rate of late renal recurrence, while increased tumor size (HR 1.07; p=0.018), clear cell or collecting duct histology (HR 3.76; p<0.001), and tumor stage pT1b (HR 2.81; p<0.001), pT2a (HR 4.45; p<0.001), pT2b (HR 3.38; p=0.007), and pT3/4 (HR 5.1; p<0.001) were predictive of late distant recurrence.
**Conclusions:** Patients undergoing surgery for localized RCC remain at life-long risk of disease recurrence, as even after a 5-year postoperative disease-free interval, approximately 5% experience renal recurrence and 15% demonstrate distant relapse, respectively, during the ensuing ten years. Continued investigation to identify potential site-specific predictors of late recurrence will be necessary to guide postoperative surveillance regimens.

**Poster #81**

**PREDICTORS OF LOCALLY-ADVANCED AND METASTATIC DISEASE IN RENAL CELL CARCINOMA ≤3CM IN SIZE: A POPULATION BASED ANALYSIS**

Max Kates, Ruslan Korets, Neda Sadeghi and James McKiernan
Columbia University Medical Center, New York, NY
(Presented By: Max Kates)

**Background:** It has been previously thought that patients with small renal masses (SRMs) have a negligible risk of metastases. However, recent data from Europe and Japan have shown there to be a significant burden of metastatic RCC (mRCC) even in masses ≤3cm. The aim of this study was to assess the prevalence and characteristics of mRCC in the US population with SRMs.

**Methods:** Using the Surveillance, Epidemiology, and End Results (SEER) registry we identified 11,016 patients diagnosed between 1988–2005 with renal cell carcinoma (RCC) ≤3cm in size. Patients were separated by stage into metastatic, locally advanced, and localized disease. Differences in baseline characteristics between patients in these 3 groups were assessed. After controlling for age, sex, grade, tumor size, and year of surgery, a logistic regression analysis was done to determine likelihood of having non–localized disease.

**Results:** In the SEER cohort, 9892 (89.8%) patients with RCC ≤3cm were diagnosed with localized disease, 771 (7.0%) had regional invasion, and 353 (3.2%) had distant metastasis. Patients with metastasis were older (65.0 years) compared to those with localized disease (59.4 years) (P<.001). The rate of metastatic disease was higher in patients with tumors 2.5–3.0cm (4.7%) compared with tumors <2.5cm (2.4%). Independent preoperative predictors of having more aggressive disease at diagnosis (locally advanced/metastatic) included older age, particularly age >70 (OR: 2.40; 95% CI: 1.97–2.92), male sex (OR: 1.56; 95% CI: 1.36–1.80), and larger tumor size (OR: 1.02; 95% CI: 1.01–1.03).

**Conclusion:** A small subset (3%) of patients in the US with RCC ≤3cm have distant metastasis. Older patients, males, and those with tumors 2.5–3cm are more likely to present with regionally advanced and metastatic disease. As incidence of SRMs is increasing and active surveillance protocols are becoming more commonplace, clinician’s should be aware of characteristics associated with advanced disease.
USE OF CONTRAST WASHOUT TO PREDICT RENAL TUMOR HISTOLOGY ON COMPUTERIZED TOMOGRAPHY

Ryan Kopp¹, Lejla Aganovic², Kerrin Palazzi-Churas¹ and Ithaar Derweesh¹
¹UCSD Division of Urology, San Diego, CA; ²UCSD Department of Radiology, San Diego, CA
(Presented By: Ryan Kopp)

Introduction and Objectives: Research in kidney tumor biology has identified distinct pathways between histologic types; these revelations may lead towards directed treatments. Diagnostic methods that differentiate tumor types will have an increasing role for targeted therapy. We investigated the use of 4–phase computerized tomography (CT) with intravenous contrast to predict renal tumor histology.

Methods: Two center retrospective cohort study of 121 patients with 4−phase CT for renal masses obtained between 10/02 to 6/14/10 and papillary (Pa−RCC; n=41) or clear cell (CC−RCC; n=80) renal cell carcinoma confirmed by pathology. Demographics, history of smoking, hypertension, and diabetes, and preoperative creatinine were recorded. Imaging was interpreted by a radiologist (LA) who recorded tumor size, density measurements in Hounsfield Units (HU), composition, collecting system entry, necrosis, and cystic components. Data were analyzed within subgroups based on histology. Washout was calculated by the formula (Mass Nephrographic HU − Mass Delayed HU ) / (Mass Nephrographic HU − Mass Noncontrast HU) and used to calculate sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV). Multivariate analysis (MVA) was conducted to identify factors predictive of Pa−RCC.

Results obtained: Significant differences existed in age (CC−RCC 64 y ± 10.4 vs. Pa−RCC 59 y ± 11.9, p=0.008), and history of diabetes (CC−RCC 38.2% vs. Pa−RCC 15.4%, p=0.018). Imaging demonstrated significant differences in tumor size [CC−RCC 4.7 cm (IQR 2.9−7) vs, Pa−RCC 2.5 cm (IQR 1.7−5.8), p=0.003], homogeneous composition (CC−RCC 5% vs. Pa−RCC 73.2%, p<0.001), collecting system abutment (CC−RCC 78.8% vs Pa−RCC 48.8%, p=0.002), and necrosis (CC−RCC 77.5% vs Pa−RCC 22%, p<0.001). Washout value < 0 had a specificity and PPV of 100%, sensitivity of 54%, and NPV 81% for Pa−RCC. Washout value ≥0 had sensitivity and NPV 100%, specificity 54%, and PPV 81% for CC−RCC. MVA demonstrated homogeneous composition was significantly associated with Pa−RCC (OR 0.007, 95% CI 0.001 –0.071, p<0.001).

Conclusions: Washout value < 0 is highly specific for Pa−RCC and washout value ≥0 is highly sensitive for CC−RCC. These findings may provide a further tool in clinical decision making regarding initiation of targeted therapy. Additional investigation and analysis of other histological subtypes is warranted.

LAPAROSCOPIC PARTIAL NEPHRECTOMY VERSUS RENAL CRYOABLATION: A MULTICENTER COMPARISON OF INTERMEDIATE ONCOLOGIC OUTCOMES

Sean Stroup¹, Carson Wong², Reza Mehrazin³, John Malcolm⁴, Kurt Strom⁵, Kerrin Palazzi-Churas¹, James L’Esperance⁴ and Ithaar Derweesh¹
¹University of California, San Diego, CA; ²University of Oklahoma Health Science Center; ³University of Tennessee Health Science Center, Memphis, TN; ⁴Eastern Virginia University School of Medicine, Norfolk,VA; ⁵Naval Medical Center, San Diego, CA
(Presented By: Sean Stroup)

Introduction and Objectives: Cryoablation of small renal masses has been suggested as a viable alternative to partial nephrectomy with a favorable morbidity profile and good efficacy. We compared intermediate oncologic and functional outcomes following laparoscopic partial nephrectomy (LPN) and renal cryoablation (RC) from a multi−center experience.

Methods: Multicenter review of LPN and RC experience between 9/1998 and 10/2009. LPN was performed via transperitoneal approach. RC was performed via percutaneous or transperitoneal laparoscopic approach. Persistent mass enhancement or interval tumor growth was considered a treatment failure following RC. Residual enhancing tumor was evidence of treatment failure following LPN. Fisher’s, chi−squared, and t−tests were used to analyze the data.

Results: Data on 385 (235 LPN, 150 RC) patients entered into the database. No significant differences with respect to gender, ethnicity, and BMI were noted. Mean follow−up was significantly longer in RC than LPN (38 vs. 33 months, p<0.013). Mean age (years) was 56.8 for LPN and 67 for RC (p<0.001). Diabetes and hypertension were found in 18% vs. 29% (p=0.024), and 60% vs. 77% (p=0.001) of LPN vs. RC patients,
respectively. Mean tumor size (cm) was 2.8 for LPN and 2.6 for RC (p=0.086). Preoperatively, 16.2% of LPN and 39% of RC had eGFR <60 mL/min/1.73M2 (p<0.001). Univariate analysis demonstrated that de novo eGFR<60 occurred in 9.8% of LPN and 26% of RC patients (p<0.001). Tumor persistence/recurrence was noted in 2.2% of LPN and 15% of RC (p<0.001), with a corresponding odds ratio of 8.3 and an overall survival difference of 97.9% in LPN vs. 89.1% in RC (p<0.001). On multivariate analysis, increased DFS was associated with LPN (p<0.001), smaller tumor size (p=0.016), and preoperative serum creatinine <2 (p=0.011).

**Conclusions:** In this multi-center study of LPN and RC with intermediate follow-up, RC had higher primary treatment failure rates than LPN. Disease free survival was significantly higher with LPN. RC did not provide superior renal preservation when compared to LPN. Our data suggests that caution should be exercised in offering cryoablation as a primary treatment modality to younger, healthy patients.

<table>
<thead>
<tr>
<th>Development of de novo eGFR &lt; 60</th>
<th>Odds Ratio</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Group (LPN vs. RC)</td>
<td>3.611</td>
<td>1.228 – 10.53</td>
<td>0.019</td>
</tr>
<tr>
<td>Diabetes (Y vs. N)</td>
<td>1.818</td>
<td>0.522 – 5.926</td>
<td>0.272</td>
</tr>
<tr>
<td>Age (continuous)</td>
<td>1.02</td>
<td>0.960 – 1.06</td>
<td>0.45</td>
</tr>
<tr>
<td>Preop Cr &gt; 2 mg/dl</td>
<td>1.091</td>
<td>0.383 – 3.113</td>
<td>0.87</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall Survival</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Group (LPN vs. RC)</td>
<td>4.35</td>
<td>1.40 – 13.51</td>
<td>0.011</td>
</tr>
<tr>
<td>Age (continuous)</td>
<td>1.08</td>
<td>1.12 – 1.13</td>
<td>0.003</td>
</tr>
<tr>
<td>Diabetes (Y vs. N)</td>
<td>1.49</td>
<td>0.54 – 4.04</td>
<td>0.430</td>
</tr>
<tr>
<td>HTN (Y vs. N)</td>
<td>0.45</td>
<td>0.18 – 1.3</td>
<td>0.142</td>
</tr>
<tr>
<td>Preop Cr &gt; 2 mg/dl</td>
<td>3.83</td>
<td>0.58 – 21.40</td>
<td>0.126</td>
</tr>
<tr>
<td>Tumor Size (continuous)</td>
<td>1.49</td>
<td>0.97 – 2.29</td>
<td>0.072</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Disease Free Survival</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgical Group (LPN vs. RC)</td>
<td>19.08</td>
<td>2.15 – 169.58</td>
<td>0.008</td>
</tr>
<tr>
<td>Age (continuous)</td>
<td>1.04</td>
<td>0.97 – 1.1</td>
<td>0.256</td>
</tr>
<tr>
<td>Diabetes (Y vs. N)</td>
<td>2.29</td>
<td>0.61 – 8.54</td>
<td>0.219</td>
</tr>
<tr>
<td>Race (Caucasian vs. Other)</td>
<td>0.26</td>
<td>0.17 – 0.99</td>
<td>0.049</td>
</tr>
<tr>
<td>Tumor Size (continuous)</td>
<td>2.00</td>
<td>1.37 – 3.72</td>
<td>0.029</td>
</tr>
</tbody>
</table>

---

**Poster #84**

**A NEPHROMETRY BASED COMPARATIVE ANALYSIS OF ROBOTIC AND OPEN PARTIAL NEPHRECTOMY FOR MODERATE AND HIGHLY COMPLEX RENAL TUMORS**

Jay Simhan, Robert Uzzo, Alexander Kutikov, Marc Smaldone, David Chen, Richard Greenberg, Kevin Tsai and Rosalia Viterbo

Division of Urologic Oncology, Department of Surgery, Fox Chase Cancer Center, Philadelphia, PA

(Presented By: Jay Simhan)

**Introduction and Objectives:** The R.E.N.A.L. Nephrometry Score (NS) is a standardized renal classification scoring system used to objectify salient renal tumor anatomy. We compared perioperative outcomes of robotic partial nephrectomy (RPN) and open partial nephrectomy (OPN) stratified by anatomic attributes for renal tumors with moderate or high nephrometric complexity.

**Methods:** All patients for whom NS was available who underwent partial nephrectomy were identified from our prospectively maintained institutional Kidney Cancer Database. Patients were categorized by anatomic features determined by NS into moderate (NS 7–9) and high (NS ≥10) complexity groups, while all masses with NS <7 were excluded from analysis. Demographic and perioperative data in patients undergoing OPN and RPN stratified by complexity were compared using descriptive statistics.

**Results:** A total of 281 patients (mean age 58.1±11.7, 63.4% male) undergoing partial nephrectomy (189 OPN, 92 RPN) from 2007–2010 for moderate and highly complex renal masses (mean tumor maximal diameter 4.25±2.6 cm, mean total NS 8.5±1.2 cm) met inclusion criteria. Of these, 217 (77%) were categorized as moderate (OPN 135, RPN 82) and 64 (23%) as highly complex (54 OPN, 10 RPN) tumors. 53 masses (18.9%) were classified as abutting the renal hilum (16.4% OPN, 23.9% RPN, p>0.05), and malignant pathology was present in the final pathologic specimen in 85.1% of cases (87.8% OPN vs. 79.3%, p>0.05). Comparison of perioperative variables between all OPN and RPN and OPN and RPN stratified by nephrometric complexity revealed no significant differences with respect to mean age, gender, estimated blood
loss, ischemia time, transfusion rate, positive margin rate, change in creatinine glomerular filtration rate, or complication rates. However, significant differences in hospital length of stay were observed when comparing all OPN and RPN (5.7±4.0 days vs. 3.6±1.6 days, p<0.001), as well as moderate (OPN 5.6±3.9 days vs. RPN 3.7±1.6 days, p<0.005) and highly complex (OPN 6.1±4.2 days vs. RPN 2.9±1.4 days, p=0.02) groups.

**Conclusions:** RPN appears to offer equivalent perioperative outcomes to OPN with the apparent added benefit of decreased hospital length of stay for moderate and highly complex renal tumors.

**Poster #85**


Kenneth Nepple and Seth Strope
Washington University, St. Louis, MO
(Presented By: Kenneth Nepple)

**Introduction and Objectives:** Multiple studies show an increasing incidence of renal cancer, possibly related to the rising use of cross sectional imaging. We explored if the increase in renal cancer incidence differs across age groups.

**Methods:** Using the Surveillance, Epidemiology, and End Results cancer registry data for the years 1975–2006, we ascertained incident cases of renal cancer. Urothelial histology was excluded. Yearly incidence rates of renal cancer were calculated, age–adjusted to the US 2000 standard adult population, and stratified by age group (20–39, 40–49, 50–59, 60–69, 70–79, 80+). Age–specific trends in renal cancer diagnosis over time were evaluated with Poisson regression.

**Results:** 63,843 incident renal cancer cases were identified in 544,684,745 person–years of observation. From 1975 to 2006, overall age–adjusted renal cancer incidence rose 238% from 7.4 to 17.6 per 100,000 adults. The mean age at diagnosis was 61.7 years in 1975, increased to 64.7 years in 1991, and then declined to 62.7 years by 2006. Using 1991 (the year of peak renal cancer age at diagnosis) as the dividing point, the average annual percentage increase in renal cancer incidence was 3.6% from 1976–1990 and 2.9% from 1991–2006. The age–specific incidence rates of renal cancer increased in all age groups from 1975 to 2006; however the age–specific incidence rates changed at different rates (p<0.0001). Younger age groups showed a more rapid increase in renal cancer incidence over the second half of the study than did the older age groups (Figure). The proportion of patients diagnosed younger than age 65 increased from 45.9% in 1991 to 55.3% in 2006.

**Conclusions:** The incidence of renal cancer has risen steadily since 1975 and continues to increase in all age groups. In the last 15 years, mean age at diagnosis of renal cancer has decreased driven by an increased incidence in younger patients with proportionally less increase in older patients.

![Annual Percent Change in Renal Cancer Incidence](image_url)
Poster #86

MANAGEMENT OF ADVANCED RENAL CELL CARCINOMA: COMPREHENSIVE ANALYSIS USING THE SEER DATABASE
Matthew Hayn, Nicholas Hellenthal, Rebecca O’Malley and Thomas Schwaab
Roswell Park Cancer Institute, Buffalo, NY
(Presented By: Matthew Hayn)

Purpose: Data regarding the utility of surgical management of patients with advanced kidney cancer are scarce. The goal of this study was to evaluate the outcomes of patients who had stage T4 renal cell carcinoma and identify factors associated with receipt of surgery.

Materials and Methods: Utilizing the Surveillance, Epidemiology, and End Results database, we identified 1867 patients between 1988 and 2007 who had T4 renal cell carcinoma. Chi−squared, multivariable logistic regression, and Kaplan−Meier analyses were used to determine differences amongst the cohorts in terms of surgical management and overall and cancer−specific survival.

Results: In total, 993 (56%) underwent either radical (n=980) or partial (n=13) nephrectomy. At a median follow−up of 11 months (range 0−222) in patients who underwent surgery and 3 months (range 0−179) in patients who did not undergo surgery, patients who underwent surgery were 58% less likely to die (HR 0.42, 95% CI 0.35−0.49, p<0.0001) and 58% less likely to die of RCC (HR 0.42, 95% CI 0.35−0.50, p<0.0001) than those who did not undergo surgery, when controlling for gender, lymph node status, metastases, grade, and histology. When stratified by year of diagnosis and controlling for patient age and nodal status, patients who were diagnosed between 2004−2007 had significantly lower odds (OR 0.34, 95% CI 0.27−0.41, p<0.0001) of receiving surgery than patients diagnosed between 1988 and 2003. When the year of diagnosis was restricted to 2000−2007, patients diagnosed between 2004−2007 still had significantly lower odds (OR 0.38, 95% CI 0.30−0.49, p<0.0001) of receiving surgery. In addition, older patients were less likely to undergo surgery (OR 0.96, 95% CI 0.95−0.97, p<0.0001).

Conclusions: Patients who undergo surgery for advanced renal cell carcinoma have improved overall and cancer−specific survival than those who do not undergo surgery. Despite these survival advantages, however, patients who were diagnosed and treated more recently were less likely to undergo surgery. This may be related to emerging therapies for advanced RCC, and merits further research.

Poster #87

HIGH VOLUME RENAL SURGEONS ARE MORE LIKELY TO OFFER ELECTIVE PARTIAL NEPHRECTOMY IN HIGH COMPLEXITY TUMORS AS CLASSIFIED BY THE NEPHROMETRY SCORING SYSTEM
Christopher Weight, Simon Kim, Paul Crispen, Rodney Breau, R. Houston Thompson, Stephen Boorjian and Bradley Leibovich
Mayo Clinic, Rochester, MN
(Presented By: Christopher Weight)

Introduction: Partial nephrectomy (PN) has demonstrated equivalent cancer control to radical nephrectomy (RN) and has been associated with lower rates of all-cause mortality. Nevertheless, there continues to be wide variability in practice pattern in the treatment of renal masses. Specifically, the decision to perform PN or RN often depends on patient, surgeon and renal mass characteristics. By quantifying the renal tumor using the R.E.N.A.L. nephrometry scoring system, collecting surgeon information, and providing defined clinical scenarios we attempt to evaluate factors important in surgeon decision-making.

Methods: In June 2009, all members of the American Urological Association with a listed email address were invited to participate in a survey evaluating the management of renal masses. Respondents were asked their preferred treatment for 8 clinical scenarios. Each of these renal masses was given a nephrometry score (NS). The propensity to offer PN was evaluated by NS and surgical volume. High volume was defined as > 50 renal cases per year and low volume was defined as ≤ 10 cases per year.

Results: 764 attending level urologic surgeons responded to each of the 8 scenarios providing 6112 evaluable clinical scenarios. NS ranged from 4−10; each unit increase was associated with 2−fold increased odds of a surgeon offering radical nephrectomy (OR 1.99, 95% CI: 1.93,2.06). PN was the preferred treatment for approximately 95% of patients with low complexity tumors (NS < 8) regardless of surgical volume. However, proposed treatment of high complexity tumors (NS ≥ 8) demonstrated considerable heterogeneity in treatment choice. Controlling for all patient characteristics, high surgical volume significantly predicted whether PN would be offered to patients with high complexity tumors (OR 3.04 95% CI: 2.34,9.95), but not those with low complexity tumors (OR 1.95 95% CI: 0.87,4.38) compared to low volume surgeons.

Conclusion: Increasing NS correlated with increased use of radical nephrectomy, particularly after a score of 8 among all surgeons. As renal surgical volume increased, surgeons were more willing to offer PN in high complexity tumors.
SIGNIFICANCE OF A POSITIVE TUMOR THROMBUS MARGIN IN PT3BN0M0 RENAL TUMORS
Nicholas Power¹, Seth Cohen², Paul Russo¹ and Jonathan Coleman¹
¹MSKCC, NY, NY; ²Lenox Hill Hospital, NY, NY
(Presented By: Nicholas Power)

Introduction: The significance of a positive renal tumor thrombus margin (PRTTM) has not been elucidated. PRTTM was limited to level 1 tumor thrombi and excluded positive renal vein wall and IVC wall margins to avoid heterogeneity. The objective of this study was to compare the results of positive and negative renal tumor thrombus margins in pT3bN0M0 patients.

Materials and Methods: 338 patients were identified from 1999–2010 who had pT3bN0M0 renal tumors receiving treatment at MSKCC. Exclusion criteria included patients who had neoadjuvant therapy, metastatic disease, or positive surgical margins other than tumor thrombus. 146 patients were included in the final analysis. There were 28 patients with PRTTM compared to the remaining 118 patients with negative margins (NM). Clinical and pathological features were compared using Chi squared analysis, Mann Whitney U and Fisher Exact tests. Survival analysis was completed using the Kaplan–Meier (KM) technique.

Results: Median age of the patient population was 64.0 yrs. Median follow up was 22.4 mos (NM 23.5 mos, PRTTM 20.4 mos). The PRTTM cohort differed significantly from the unmatched NM group in greater male incidence (82% vs 62%, p=0.042), larger tumor size (9.8 vs 7.8cm, p=0.006), right sided laterality (82% vs 58%, p=0.026), younger age (59.1 vs 64.5 yrs, p=0.026), and increased intraoperative blood loss (1332 vs 514, p=0.003). None of the patients received adjuvant therapy. There were no local venous recurrences in either group however there were 2 patients with evidence of portal vein thrombi associated with hepatic metastases and 1 patient with splenic vein thrombus associated with a pancreatic metastasis in follow up. Multivariate analysis revealed that right sided laterality was significantly associated with poorer overall survival (OS) (p=0.021) but PRTTM was not. The 5 year OS, recurrence free survival (RFS), and cancer specific survival (CSS) for the PRVM group was 68%, 77%, and 88% vs 56%, 71%, and 92% for the NM group. OS, RFS, and CSS for each group were not significant.

Conclusion: Analysis of this series suggests that thrombus vascular margins are not independently associated with adverse survival outcomes in pT3bN0 patients. No association with isolated local vascular recurrence was demonstrated either. Right sided tumor thrombi have greater risk of positive thrombus margins and a significantly lower overall survival than left sided tumors, possibly due to shorter right renal vein length.

THE R.E.N.A.L. NEPHROMETRY SCORING SYSTEM PREDICTS SURGEON OPERATIVE PREFERENCE FOR RENAL MASSES
Paul Gellhaus, Henry Rosevear, Andrew Lightfoot, Timothy Kresowik, Fadi Joudi and Chad Tracy
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Introduction: The RENAL scoring system was designed by Uzzo et al to allow comparisons of renal masses based on the radiological features of (R)adius, (E)xophytic/endophytic, (N)eartness to collecting system, (A)nterior/posterior and (L)ocation relative to polar lines. The utility of this system in guiding surgeon choice of operative approach and prediction of operative complications is unknown.

Objectives: To evaluate the utility of the RENAL scoring system in predicting operative approach and risk of complications.

Methods: We retrospectively reviewed all patients at a single institution undergoing radical (RN) or partial (PN) nephrectomy for a renal mass between July 2007 and May 2010. A preoperative RENAL score was calculated for each patient. Surgical approach and operative outcomes were then compared to the RENAL score.

Results: 249 patients underwent RN (158) or PN (91) with average RENAL scores of 8.9 and 6.3 respectively (p<0.001). RN patients were more likely to have hilar tumors (64% vs 10%, p<0.001) compared to PN patients, but were no more likely to have posteriorly located tumors (50% vs 50%). The overall complication rate was similar for RN vs PN (35 vs 29%, p=0.41). RENAL scores were higher (6.9 vs 6.0, p=.011) in PN patients who developed complications as compared to PN patients who did not develop complications, with no difference noted among RN patients developing complications (8.9 vs 8.9).

Conclusions: The RENAL system accurately predicted surgeon operative preference and risk of complications for patients undergoing partial nephrectomy.
Poster #90

INCREASED NODE COUNT AT LYMPHADENECTOMY IMPROVES SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA AND NODAL METASTASES
Jared Whitson, Catherine Harris, Adam Reese and Maxwell Meng
UCSF, San Francisco, CA
(Presented By: Jared Whitson)

Objectives: To determine in a population based cohort whether an increase in the number of lymph nodes removed was associated with improved survival in patients without distant metastases.

Methods: Patients within the Surveillance, Epidemiology, and End Results database with RCC and no evidence of distant metastases who underwent concomitant lymphadenectomy were identified. Cox regression analyses were performed to identify factors associated with disease–specific survival, including an interaction between node status and the number of lymph nodes removed.

Results: A total of 9,586 incident cases of RCC underwent lymphadenectomy at time of surgery between 1988 and 2006. Median follow–up was 3.9 (IQR 1.7–7.3) years in subjects with negative lymph nodes and 1.4 (IQR 0.6–3.3) years in those with positive lymph nodes. 2,382 (25%) patients died of RCC during follow-up: 1,646 (20%) node negative patients and 736 (58%) node positive patients. There was no effect of increasing the extent of lymphadenectomy on survival in patients with negative lymph nodes (HR 1.0, 95% CI 0.9–1.1, p=0.93). However, in patients with positive lymph nodes there was improved survival (per 10 node increase) with an increase in extent of lymphadenectomy (HR 0.8, 95% CI 0.7–1.0, p=0.04). An increase in 10 nodes at lymphadenectomy in a patient with one positive node was associated with a 10% absolute increase in disease specific survival at 5 years (p=0.004).

Conclusions: This study shows that in patients with node positive but non-metastatic renal cell carcinoma who undergo lymphadenectomy, there is an association between increased node yield and improved survival. Patients at high risk of nodal disease should be considered for extended lymphadenectomy.

Poster #91

COMPARING THE VALIDITY AND REPRODUCIBILITY OF THREE RENAL TUMOR SCORING SYSTEMS: C-INDEX VS P.A.D.U.A. VS R.E.N.A.L.
Zhamshid Okhunov, Soroush Rais-Bahrami, Arvin K. George, Nikhil Waingankar, Mostafa Sadek, Lee Richstone, Manish A. Vira and Louis R. Kavoussi
The Smith Institute for Urology, North Shore Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Zhamshid Okhunov)

Introduction: C, P.A.D.U.A., and R.E.N.A.L. Nephrometry were proposed as standardized scoring systems (SS) to quantify anatomical elements of kidney tumors. The objective of this study was to compare reproducibility and validity of these SS.

Patients and Methods: Interobserver reliability was assessed in 50 subjects by weighted kappa. Two residents and one fellow reviewed this subset of patients. Predictive validity was assessed in 100 patients reviewed by one fellow, using Spearman correlations to examine relationships between SS and variables of interest.

Results: The interobserver correlations for the C−Index was 0.84 and for P.A.D.U.A. was 0.81, for R.E.N.A.L. was 0.92 demonstrating excellent reliability. The correlations between the three tumor rating systems were: C−Index and P.A.D.U.A. p<0.0001; C−Index and R.E.N.A.L. p<0.0001; P.A.D.U.A. and R.E.N.A.L. p<0.0001. Correlations with actual tumor size were significant for each of the SS (C−Index p<0.0001; P.A.D.U.A. p=0.0002; R.E.N.A.L. p=0.006). There were no significant correlations with any of the SS and the presence of intraoperative and postoperative complications, operative time or blood loss. There were no significant correlations with length of hospitalization for P.A.D.U.A. or R.E.N.A.L. However, longer hospital stay was significantly associated with lower C−Index scores (p=0.04). All three SS were significantly correlated with duration of warm ischemia (C−Index p<0.0001; P.A.D.U.A. p=0.02; R.E.N.A.L. p=0.001) and % change in creatinine comparing preoperative to postoperative laboratory assessment (C−Index p=0.0009; P.A.D.U.A. p=0.0003; R.E.N.A.L. p<0.001).

Conclusions: All three scoring systems represent novel methods of quantitative describing renal tumors in a standardized manner with reproducible interobserver assessments. All SS analyzed were predictors of warm ischemia time, % change in creatinine, and tumor size. They did not, however, correlate with any other perioperative parameters investigated. At this time, these SS provide a common language for describing renal tumors but their prognostic value is yet to be fully elucidated.
PRE-OPERATIVE NUTRITIONAL STATUS IS AN IMPORTANT PREDICTOR OF SURVIVAL FOLLOWING SURGERY FOR RENAL CELL CARCINOMA
Todd M. Morgan, Dominic Tang, Daniel A. Barocas, Christopher B. Anderson, Kelly L. Stratton, Sam S. Chang, Michael S. Cookson, Joseph A. Smith, Jr. and Peter E. Clark
Vanderbilt University, Nashville, TN
(Presented By: Todd M. Morgan)

Introduction: The role of malnutrition has not been well studied in patients undergoing surgery for renal cell carcinoma (RCC). We sought to evaluate whether malnutrition is an important determinant of overall survival following radical or partial nephrectomy for RCC.

Methods: In this retrospective analysis of a prospective database, we identified 369 consecutive patients who underwent partial or radical nephrectomy for locoregional RCC from 2003 to 2008. There were 11 patients without complete information, leaving 358 patients for the final cohort. Malnutrition was defined as meeting one of the following criteria: BMI less than 18.5 kg/m2, albumin less than 3.5 g/dL, or pre-operative weight loss greater than 5% of total body weight. Primary outcomes were overall and disease-specific mortality. Covariates evaluated included age, Charlson Comorbidity Index (CCI), tumor stage, Fuhrman grade, and presence of positive lymph nodes. Multivariate analysis was performed using a Cox proportional hazards model. Mortality rates were estimated using the Kaplan−Meier product limit method.

Results: Total median follow-up was 22.3 months (IQR 14.3–37.1 months). Median follow-up for surviving patients was 23.6 months (IQR 15.6–38.3 months). Median age was 61.0 years. A total of 85 patients (23%) were categorized as malnourished. Three-year overall survival was 57.6% in the malnourished cohort and 85.4% in the control group (p<0.001). On multivariate analysis, after correcting for age, CCI, stage, grade, and lymph node status, malnutrition remained a significant and independent predictor of both overall (HR 2.86, 95%CI 1.67–4.90) and disease-specific mortality (HR 3.4, 95%CI 1.47–7.89).

Conclusion: Our data demonstrate that malnutrition is associated with a significant mortality risk in patients undergoing radical or partial nephrectomy for locoregional RCC, independent of key clinical and pathologic factors. Given this mortality risk, it may be important to address nutritional status pre-operatively and counsel patients appropriately.
Poster #93

PROGNOSTIC INDICATORS FOR UPPER TRACT UROTHELIAL CARCINOMA FOLLOWING RADICAL NEPHROURETERECTOMY: WHAT IS THE SIGNIFICANCE OF LYMPHOVASCULAR INVASION?
Mark Godfrey, Gina Badalato, Gregory Hruby, Mani Razmjoo and James McKiernan
Columbia University Medical Center, Department of Urology, New York, NY
(Presented By: Mark Godfrey)

Objective: The impact of lymphovascular invasion (LVI) on the prognosis of patients with upper urinary tract urothelial cell carcinoma (UTUC) treated with radical nephroureterectomy (RNU) was assessed.

Patients and Methods: The Columbia University Medical Center Urologic Oncology database was queried and identified 211 patients undergoing radical nephroureterectomy for UTUC between 1990 and 2010. These cases were retrospectively reviewed, and the prognostic significance of relevant clinical and pathologic variables was analyzed using log–rank tests and Cox proportional hazards regression models. Actuarial survival curves were calculated by the Kaplan–Meier method.

Results: LVI was observed in 68 patients (32.2%). The proportion of LVI increased with advancing stage, high grade, positive margin status, concomitant carcinoma-in-situ (CIS), and lymph node metastases. The five and 10-year overall survival was 74.7% and 53.1% in the absence of LVI, and 35.7% and 28.6% in the presence of LVI, respectively. In multivariate analysis, age, race, and LVI were independent predictors of overall survival.

Conclusions: The presence of LVI on pathological review of RNU specimens was associated with worse overall survival in patients with UTUC. LVI status should be included in the pathologic report for RNU specimens in order to help guide postoperative therapeutic options. With confirmation from large international studies, inclusion of LVI in the TNM staging system for UTUC should be considered.
Poster Session I

Poster #94

EFFICACY OF IMAGING IN SURVEILLANCE FOR T1 RCC AFTER LAPAROSCOPIC PARTIAL NEPHRECTOMY
Ornob Roy, Eric Ghiraldi, Helen Levey and Louis Kavoussi
Smith Institute for Urology, New Hyde Park, NY
(Presented By: Ornob Roy)

Introduction and Objectives: Nephron-sparing surgery (NSS) has become the preferred method for management of small renal masses suspicious for malignancy. Current NCCN guidelines for post-operative surveillance after complete resection with NSS include frequent intervals of imaging for at least the first 2 years. Frequent imaging during surveillance can impose a significant burden on the healthcare system, patient, and physician by way of high costs, frequent visits, and repeated exposure to radiation and nephrotoxic intravenous contrast. We examine the utility of frequent imaging after laparoscopic NSS for T1a renal cell carcinoma (RCC).

Methods: We retrospectively reviewed all patients undergoing laparoscopic NSS for T1a RCC at a single institution with at least 6 months follow-up. We examined multiple variables including patient demographics, tumor histology, and tumor quantity in evaluating how frequently surveillance imaging detected and led to intervention within the first 3 years after surgery.

Results: In a single institutional database, 302 patients with T1a RCC underwent laparoscopic NSS between November 2006 and January 2010. Average follow-up was 13 months (range 6 to 38 months). Ten patients (3.3%) had recurrent renal lesions suspicious for malignancy requiring intervention, with average time to recurrence at 19 months. Only 4 (40%) of these lesions were new (i.e. NOT present at initial diagnosis). Three out of four (75%) of these were papillary RCC. Of these four, only two new lesions were in the ipsilateral kidney (0.7%), one clear cell RCC and one papillary RCC. Time to recurrence of these lesions was 24 and 38 months, respectively. Both recurrences in the contralateral kidney were of papillary histology at 10 and 18 months. Recurrences were not associated with positive margins.

Conclusions: Frequent imaging after successful laparoscopic NSS for T1a RCC rarely yields new lesions requiring intervention, with papillary histology carrying a higher risk of recurrence. In patients with clear cell histology in solitary T1a RCC, one should consider delaying imaging surveillance until at least 2 years after complete resection.

Poster #95

PREVALENCE OF AND RISK FACTORS FOR DEVELOPMENT OF DIABETES MELLITUS FOLLOWING RADICAL OR PARTIAL NEPHRECTOMY
Ryan Kopp¹, Reza Mehrzadi², Wassim Bazzi¹, Anthony Patterson², Jim Wan³, Aditya Bagrodia¹, Sean Stroup¹ and Ithaar Derweesh¹
¹UCSD Division of Urology, San Diego, CA; ²Department of Urology, University of Tennessee Health Science Center, Memphis, TN; ³Department of Urology and Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, TN
(Presented By: Ryan Kopp)

Introduction and Objectives: OBJECTIVES: Nephron Sparing Surgery (NSS) may have multiple metabolic benefits over radical nephrectomy (RN). We examined prevalence and risk factors for development of Diabetes Mellitus (DM) in patients undergoing NSS and RN.

Methods: We performed a retrospective review of 905 patients (mean follow-up 6.4 years) who underwent NSS or RN at two institutions from 7/1987–6/2007. Demographics, renal function, metabolic parameters [Body mass index (BMI), glomerular filtration rate (eGFR), proteinuria, serum creatinine] and history of preoperative and postoperative DM were recorded and analyzed between RN and NSS. Multivariate analysis (MVA) was conducted to elucidate risk factors for development of DM following surgery.

Results Obtained: There were no significant differences with respect to mean follow-up, age, race, sex, or BMI. 610 patients underwent RN and 295 underwent NSS. Tumor size (cm) was significantly larger for RN (RN 7.0 vs. NSS 3.7, p<0.0001). Postoperatively, significantly more de Novo DM developed in the RN versus NSS cohort (RN 11.4 % vs. NSS 3.5%, p<0.0001). MVA demonstrated BMI >30kg/m2 (OR 21.28, p<0.0001), history of HTN (OR 2.13, p=0.0261), preoperative eGFR <60 ml/min/1.73m2, (OR 4.55, p=0.0189), preoperative proteinuria (OR 6.80, p=0.0221), postoperative eGFR <60 ml/min/1.73m2, (OR 8.82, p<0.0001), postoperative proteinuria (OR 6.90, p<0.0001) and RN (OR 2.93, p=0.0107) as significantly associated with DM development.

Conclusions: RN had significant association with de Novo DM compared to NSS. BMI >30kg/m2, hypertension, preoperative eGFR<60, preoperative proteinuria, postoperative eGFR<60, and postoperative proteinuria were significantly associated with development of DM. Further investigation on effects of nephron loss on glucose metabolism is requisite.
DETECTION OF CIRCULATING TUMOR CELLS (CTC) IN RCC BY IDENTIFICATION OF CANDIDATE CELL-SURFACE PROTEIN MARKERS: ANALYSIS OF THE PUBLISHED LITERATURE

Eric C. Kauffman¹, Brian Shuch¹, Min-Jung Lee², Sylvia V. Alarcon², Ramaprasad Srinivasan¹, W. Marston Linehan¹, Jane B. Trepel² and Gennady Brastlavsky¹

¹Urologic Oncology Branch of the National Cancer Institute, National Institutes of Health, Bethesda, MD; ²Medical Oncology Branch of the National Cancer Institute, National Institutes of Health, Bethesda, MD

(Presented By: Eric C. Kauffman)

**Introduction:** The ability to detect and characterize CTC in blood of RCC patients has promising potential as a novel biomarker for selection of appropriate therapy and monitoring response. Infrequent RCC expression of the EpCAM cell-surface protein detected by commercially available assays makes this platform impractical for RCC patients, and identification of novel RCC cell-surface proteins is thus paramount. Here we review the immunohistochemistry (IHC) and CTC literature to identify cell-surface proteins with potential utility for antibody-based isolation of CTC in RCC.

**Materials and Methods:** We identified 20 studies investigating CTC in RCC patients in the past 2 decades and >60 IHC articles evaluating protein markers in RCC histologic subtypes. Methods of CTC detection were examined, and protein subcellular localization and expression in leukocytes were determined.

**Results:** Rates of CTC detection in RCC patients varied greatly (range 19–75%), likely reflecting inconsistency in histologic subtype reporting and methods of CTC detection. Most studies employed RT–PCR methodology, preventing actual CTC isolation or direct visualization, with CA9 and cadherin–6 being the most commonly targeted transcripts. While this approach raises questions of specificity, a 0% rate of positivity among healthy control patients was uniformly reported. No studies employed antibodies targeting cell–surface proteins for CTC extraction, reflecting the relative lack of known cell–surface markers for RCC. Reviewing the IHC literature, we identified over 2 dozen protein markers with sensitivity in the >80% range for one or more RCC histologic subtypes. Many of these markers localize to the cell surface, with most lacking expression in resting leukocytes (Table).

**Conclusion:** Several cell–surface protein markers are described herein which may have utility in antibody–based isolation of CTCs in RCC patients. While no single marker is likely to be 100% sensitive, platforms targeting multiple cell surface markers in unison may achieve highest sensitivity and specificity for CTC detection.

<table>
<thead>
<tr>
<th>Cell-Surface Protein</th>
<th>Expression in RCC primary tumors</th>
<th>Expression in non-activated leukocytes</th>
<th>Expression in activated leukocytes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA-9</td>
<td>85-100%</td>
<td>11-63%</td>
<td>0%</td>
</tr>
<tr>
<td>GLUT1</td>
<td>85-60%</td>
<td>0-13%</td>
<td>0%</td>
</tr>
<tr>
<td>CD70</td>
<td>60-95%</td>
<td>0-7%</td>
<td>0-20%</td>
</tr>
<tr>
<td>MUC1 (Epithelial Membrane Antigen)</td>
<td>43-100%</td>
<td>40-79% (type D)</td>
<td>17-20% (type A1)</td>
</tr>
<tr>
<td>CD10</td>
<td>82-88%</td>
<td>59-100%</td>
<td>29-67%</td>
</tr>
<tr>
<td>MEL1</td>
<td>69-78%</td>
<td>67-93%</td>
<td>0-17%</td>
</tr>
<tr>
<td>H-cadherin</td>
<td>58-100%</td>
<td>100%</td>
<td>&lt;10%</td>
</tr>
<tr>
<td>Cadherin 6</td>
<td>75%</td>
<td>10%</td>
<td>-</td>
</tr>
<tr>
<td>E-cadherin</td>
<td>0-52%</td>
<td>15%</td>
<td>50-100%</td>
</tr>
<tr>
<td>Cadherin 16 (Kidney specific cadherin)</td>
<td>0-17%</td>
<td>2-27%</td>
<td>50-100%</td>
</tr>
<tr>
<td>CD12 (EAI)</td>
<td>2-3%</td>
<td>0%</td>
<td>75-87%</td>
</tr>
</tbody>
</table>
**Poster Session I**

**Poster #97**

**SALVAGE RADIOFREQUENCY ABLATION ACHIEVES EFFECTIVE LOCAL CONTROL OF RECURRENT RENAL CELL CARCINOMA**

Sarah Psutka¹, Ali Daha¹, Debra Gervais² and Adam Feldman¹

¹Massachusetts General Hospital, Dept of Urology, Boston, MA; ²Massachusetts General Hospital, Dept of Radiology, Boston, MA

(Presented By: Sarah Psutka)

**Introduction:** Radiofrequency ablation (RFA) has emerged as a safe and efficacious minimally invasive option to manage small renal tumors in patients for whom comorbidities preclude surgical treatment. Salvage surgical excision of ipsilateral disease recurrence after ablative therapy may be complicated in these patients due to post–RFA fibrosis. There are no reports in the literature reporting outcomes following salvage RFA (sRFA). The aim of this study was to describe our management of recurrent renal tumors after RFA, assessing overall efficacy, complications, and safety of sRFA.

**Methods:** Between 1998 and 2008, 313 patients underwent RFA for renal cell carcinoma. Recurrent disease (RD) was defined as detectable new enhancing tissue in the ipsilateral kidney in the prior RFA–cavitation site after a complete response was documented and differs from “residual disease,” which was defined as persistent enhancing tissue within the RFA site on post–ablation imaging. Separate ipsilateral tumors in and residual disease were excluded. We retrospectively compared patients who developed RD (RD+, N = 15, 5.1%) with patients who remained disease–free after achieving a complete response (RD−, N = 296, 95%), assessing tumor characteristics (size, location, pre–RFA biopsy pathology), RFA complications, and disease–free survival. Mean follow–up was 3 years (SD 2.1).

**Results:** RD+ and RD− groups did not differ significantly in age, gender, or tumor type. In tumors < 4cm, 3.3% were RD+ whereas for tumors >= 4cm, 9.6% were RD+ (p<0.0001). RD+ groups were more likely to have centrally located tumors (20% vs. 5.7%, p=0.04). Mean time to RD was 1.47 years (SD 0.75). Of the 15 patients with RD, 7 patients underwent sRFA, 6 patients elected observation, one patient received chemotherapy and one patient underwent salvage partial nephrectomy. There were no complications related to sRFA. Of those who underwent sRFA, local recurrences were successfully ablated in 100% of cases with a single salvage RFA treatment. None of these sRFA cases developed locally recurrent disease at an average of 3 years follow–up.

**Conclusions:** RD after RFA remains challenging to treat due to the significant comorbidities of the patients who are ultimately selected for ablative treatment of renal cell carcinoma. RD was more likely to occur in centrally located tumors, and in those > 4cm in size. Salvage RFA successfully can achieve local control in these patients without increased rates of complications.

**Poster #98**

**IMPACT OF NON-ISCHEMIC TECHNIQUE ON INTERMEDIATE RENAL FUNCTION AFTER OPEN PARTIAL NEPHRECTOMY**

Ryan Kopp¹, Wassim Bazzi¹, Sean Stroup¹, Jonathan Silberstein², Kerrin Palazzi-Churas¹, Reza Mehrazin³, Anthony Patterson³ and Ithaar Derweesh¹

¹UCSD Division of Urology, San Diego, CA; ²Memorial Sloan-Kettering Cancer Center, New York, NY; ³University of Tennesee Health Sciences Center, Department of Urology, Memphis, TN

(Presented By: Ryan Kopp)

**Introduction and Objective:** Emerging data demonstrates superiority of nephron sparing surgery (NSS) over radical nephrectomy (RN) for preservation of renal function and avoidance of resultant complications; however, concerns regarding effect of prolonged ischemic times continue to limit utilization and benefits of NSS. We compared our renal functional outcomes in patients who underwent non–ischemic open partial nephrectomy (NI–NSS), and those who underwent ischemic occlusion of the renal hilum during open partial nephrectomy (IO–NSS).

**Methods:** A cohort study of patients who underwent IO–NSS (n=179) and NI–NSS (n=74) from 3/2002 to 3/2009. IO–NSS involved tumor removal followed by renorrhaphy under cold or warm ischemic vessel occlusion. NI–NSS involved cold excision with a scalpel or utilization of focal radiofrequency coagulation (HABIB 4X) to facilitate hemostasis prior to dissection with the helix hydro—jet dissector (ERBE) for renal tumor removal followed by renorrhaphy. Perioperative, pathologic data and incidence of preoperative and postoperative chronic kidney disease (CKD, GFR<60 mL/min/1.73m2) were compared between the two groups. Univariate analysis was performed 2–tailed (p<0.05 significant).
Results Obtained: Mean follow up was 51.7 months. There were no significant differences in mean age, body mass index, sex, race. Tumor characteristics were similar in pathology, collecting system entry, proportion of central and endophytic tumors, and median tumor size (cm) (NI−NSS 4.0 vs. IO−NSS 3.4, p=0.356). Median estimated blood loss (mL) was less in the NI−NSS group (IO−NSS 300 vs. NI−NSS 250, p=0.022); percent of complications (IO−NSS 15% vs. NI−NSS 18%, p=0.987), or urine leaks (IO−NSS 7.8% vs. NI−NSS 4.1%, p=0.409). Warm ischemia time (min) was 24.6 ± 4.6 in the IO−NSS group. No significant difference was noted with respect to preoperative eGFR<60 (IO−NSS 14.1% vs. NI−NSS 12.5%. p=0.842); however, for patients with at least 6 months follow up significantly less CKD existed in the NI−NSS cohort (IO−NSS 24.4% vs. NI−NSS 12.5%, p=0.049).

Conclusions: NI−NSS limits ischemic insult to normal kidney parenchyma. In this well−matched cohort NI−NSS was associated with a significantly decreased proportion of CKD in patients with at least 6 months follow up. Further investigation and long term functional data are needed to confirm these findings.

Poster #99

RISK OF SPECIFIC SECONDARY MALIGNANCY IN TESTICULAR CANCER PATIENTS EXPOSED TO RADIATION
Dan Lewinshtein and Christopher Porter
Virginia Mason Medical Center
(Presented By: Dan Lewinshtein)

Introduction: Patients with testicular cancer can undergo intense chemo−therapeutic and radiotherapy treatment regimens. These chemotherapies are known to have deleterious long−term effects including increased rates of certain neoplasms. However, the association between radiotherapy and specific secondary malignancies is less clear. We hypothesized that radiotherapy may increase their risk of developing certain cancers. We explored specific rates of various malignancies in testicular cancer patients.

Methods: We searched the SEER−9 database for patients diagnosed with primary testicular cancer between 1973 and 2000 with follow−up until 2007. We calculated age−adjusted rates of secondary malignancies via ICD−O−3 codes. Malignancies were included if they were diagnosed after the testicular cancer, and we did not include a latency period. We calculated age−adjusted incidence rates, and stratified for radiation exposure. We performed identical analyses in a subset of stage I seminoma patients. Finally, we calculated incidence rates of various malignancies adjusting for latency time after testicular cancer diagnosis. We received no financial funding for this project.

Results: The cohort consisted of 15,362 patients. The majority were under 30 years old (39.1%), of Seminoma histology (52%) and clinical stage I (64.7%). Total follow up was 128,126 person−years. Of all patients, 43.1% received external beam radiation. In radiated patients, 764 secondary malignancies were diagnosed. Increased rates of thyroid (SIR: 2.39; 95% CI: 1.37−3.89), pancreas (SIR: 2.63; 95% CI: 1.80−3.71), upper tract urothelial (SIR: 3.64; 95%CI: 1.57−7.16), bladder (SIR:1.71; 95%CI: 1.29−2.21), leukemia (SIR: 1.68; 95%CI: 1.10−2.46) and Non−Hodgkins lymphoma (SIR:1.53; 95%CI: 1.10−2.46) were obsreved compared to the general population. When stratified for latency since time of testes cancer diagnosis, the risk of secondary malignancy persisted past 15 years after initial diagnosis (SIR: 1.32; 95%CI: 1.17−1.48). Similar results were seen in stage I seminoma patients.

Conclusion: Testes cancer patients exposed to radiotherapy had an increased risk of being diagnosed with a secondary malignancy, which included thyroid, pancreas, bladder, upper tract urothelial, leukemia, and Non−Hodgkins lymphoma. Patients with stage I seminoma had similar results. These findings suggest that clinicians be aware of these long-term sequelae of radiotherapy and counsel patients appropriately.
Poster Session I

Poster #100

THE ECONOMIC CONSEQUENCES OF KIDNEY, BLADDER, AND PROSTATE CANCER IN WASHINGTON STATE
Sandra Koo, Dan Lewinshtein, Paul Kozlowski and Christopher Porter
Virginia Mason Medical Center, Seattle WA
(Presented By: Sandra Koo)

Introduction and Objectives: We explored the financial cost of managing various urologic malignancies, and compared them to current expenditure on research. The adequate evaluation of the economic cost and length of hospital stay due to cancer burden was evaluated.

Methods: We retrospectively reviewed the Comprehensive Hospital Abstract Reporting System (CHARS) from the Washington State Department of Health. We searched for all patients that had presented to a Washington State hospital and were either admitted to the hospital, or seen in the emergency room (ER), with a primary diagnosis of kidney, bladder, or prostate cancer in both 2007 and 2008. Diagnoses and procedures were obtained from ICD9 codes. We quantified cost of stay and length of stay (LOS), and used the Kruskal−Wallis method to test for a difference between the median of each population. Total cost of care was then compared to published National Cancer Institute (NCI) values for urologic oncology funding.

Results: There were 6908 visits to hospitals during the study period. Of those, 1736, 787, and 4385, were for kidney, bladder, and prostate cancer, respectively. The median ages for patients with kidney, bladder, and prostate cancer were 61, 73, and 64 years respectively. The median LOS in the hospital (5 days, p<0.001) and in the ER (78 hours, p<0.001) were longest for those with bladder cancer and kidney cancer, respectively. The median number of procedures performed per visit was highest for bladder cancer patients (n=3, p<0.001). The median charge per visit was highest for those with kidney cancer ($30,045, p<0.001). Total cumulative cost of care during the two year study period was highest for prostate cancer with a sum of $126,000,000. According to NCI cancer data, kidney, bladder, and prostate cancer received $43,431,683, $24,053,694, and $285,400,863, respectively, in research funding in 2008. Thus kidney, bladder, and prostate received 0.69, 0.78, and 2.27 in research dollars per dollar of hospital cost.

Conclusions: Prostate cancer is a more common malignancy and accrued a higher total cost. However, individual patient management for kidney cancer is highest among the three malignancies. Given the higher costs of bladder cancer and kidney cancer per individual, it could be argued that research funding for these malignancies should be brought up to the level of prostate cancer funding.

Poster #101

CONSUMERISM AND ITS IMPACT ON ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY
Sultan Alkhateeb¹ and Nathan Lawrentschuk²
¹Riyadh, Saudi Arabia; ²Melbourne, Vic, Australia
(Presented By: Sultan Alkhateeb)

Introduction: Many experts believe media coverage, marketing and/or direct-to-consumer advertising, particularly internet−based, is fundamental to the widespread adoption of robotic−assisted laparoscopic prostatectomy (RALP). However, this has not been explored. Our primary objective is to delineate the role of media coverage and marketing of RALP on the Internet whilst our secondary goal focused on website quality presenting prostatectomy.

Methodology: Website content was evaluated for direct-to-consumer advertising after retrieval of the first 50 websites with Google and Yahoo for each of the terms: “robotic prostatectomy, laparoscopic prostatectomy (LP) and open prostatectomy (OP)”. A linear regression analysis was performed for the annual number of Internet news hits over the last decade for each procedure. Website quality assessment was performed using WHO HONcode principles.

Results: Of retrieved sites, the proportion containing direct-to-consumer advertising for RALP vs LP vs OP in Google were 64% vs 14% vs 0%, respectively (p< 0.001) and in Yahoo 80% vs 16% vs 0%, respectively (p<0.001). In a linear regression analysis, the r2 values for news hits for each year over the last ten years were 0.89, 0.74, and 0.76, for RALP, LP and OP, respectively. Website quality assessment found a minority of the websites being accredited with HONcode principles with no difference between procedure types (p>0.05).

Conclusion: Media coverage and marketing of RALP on the internet is more widespread compared to LP and OP. Disturbingly, the quality of websites using any technique for prostatectomy were of poor quality when using principles of honest information presenting and such findings need to be discussed as party of informed consent with patients.
Poster #102

EARLY FUNCTIONAL AND ONCOLOGIC OUTCOMES OF ROBOT-ASSISTED LAPAROSCOPIC PARTIAL ADRENALECTOMY FOR PHEOCHROMOCYTOMA

Kevin Asher, Gopal Gupta, Marston Linehan, Peter Pinto and Gennady Bratslavsky
Urologic Oncology Branch, National Institutes of Health, Bethesda, MD
(Presented By: Kevin Asher)

Introduction: Traditional treatment for pheochromocytoma included total adrenalectomy because of concerns for malignancy, local recurrence, and surgical challenges associated with its central location. Because of numerous pathologic processes or certain hereditary syndromes that may threaten the contralateral adrenal, partial adrenalectomy has recently been advocated. We aim to describe the early functional and oncologic outcomes of patients treated for pheochromocytoma with robotic assistance.

Methods and Materials: We identified 15 procedures performed in 12 consecutive patients with adrenal pheochromocytoma treated with robot-assisted partial adrenalectomy. Demedullation technique was performed in all patients by resecting the tumor and associated medulla from adjacent adrenal cortex. The functional outcomes were assessed by steroid requirements and oncologic outcomes were assessed by presence of local recurrence or development of metastatic disease.

Results: Among 15 procedures 4 were performed on a solitary adrenal gland. Additionally, 4 cases required resection of multiple tumors (up to six) with 2 performed in a solitary gland. The mean operative time was 163 minutes with the median EBL of 109mls. The median tumor size was 2.5cm (0.5−5.5).

There was one conversion to an open procedure on a patient requiring reoperation on a solitary adrenal gland due to severe adhesions. His course was complicated by a bile leak requiring temporary drainage. One other patient required postoperative steroid supplementation. At a median follow-up of 7 months, with 4 patients with greater than 1 year follow up, there were no recurrences or metastatic events.

Conclusion: Robotic-assisted laparoscopic partial adrenalectomy for the treatment of pheochromocytoma is feasible, safe, and provides encouraging functional and oncologic outcomes. Even in patients with solitary adrenals and multiple lesions the procedure may offer an alternative to life−long steroid dependence. Longer-term followup is necessary to better assess functional and oncologic outcomes.
TOPICAL TREATMENT OF UPPER TRACT UROTHELIAL CARCINOMA IN-SITU (CIS)
Andrew J. Lightfoot¹, Kenneth G. Nepple², Henry M. Rosevear² and Michael A. O’Donnell²
¹University of Iowa, Iowa City, IA; ²University of Iowa Department of Urology, Iowa City, IA
(Presented By: Andrew J. Lightfoot)

Introduction: Roughly 25% of patients with CIS of the bladder will eventually develop upper tract disease. Clinical experience with topical treatment of upper tract urothelial carcinoma is limited.

Objective: We reviewed our experience (2003–2009) with immunotherapy or chemotherapy topical treatment of high grade and radiologic negative UTUC.

Method: A retrospective review of 35 patients treated with topical immunotherapy or chemotherapy was undertaken. All patients either refused surgical management or were not adequate surgical candidates. Patients included were those with high grade upper tract cytology and no visible abnormality on retrograde nephrostogram. They received 6 weekly office treatments, either retrograde by externalized ureteral catheter or antegrade by nephrostomy tube. Treatment failure was based on positive upper tract cytology, biopsy or visible disease.

Results: 35 patients received 90 treatments to 52 renal units (10 right, 8 left, and 17 bilateral). Mean number of treatments per renal unit was 1.6 (range 1–6). 54 treatments involved immunotherapy and 36 chemotherapy. For all patients, complete response (CR), 1-year recurrence-free survival (RFS), and 2-year RFS was 64%, 42%, and 33%, respectively. In patients treated with chemotherapy the CR, 1-year RFS, and 2-year RFS was 58%, 31%, and 7%, respectively. In patients treated with immunotherapy the CR, 1-year RFS, and 2-year RFS was 67%, 52%, and 38%, respectively. In follow up, 11% (4/35) developed metastasis, and 11% (4/35) died from disease.

Conclusion: Topical treatment is not without significant risk. Those patients with high grade cytology and negative radiographic UTUC who are not surgical candidates or refuse surgery may benefit from topical therapy. Immunotherapy appears to be superior to chemotherapy for topical treatment of high grade disease.

STRESS PROTEINS AND CYTOKINES MAY SERVE AS URINARY BIOMARKERS FOR DIAGNOSIS AND STAGING OF BLADDER CANCER
David Margel¹, Meirav Pesvner-Fischer², Jack Baniel³, Ofer Yossepowitch³ and Irun Cohen²
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Department of Immunology, The Weizmann Institute of Science, Rehovot, Israel; ³Institute of Urology, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel
(Presented By: David Margel)

Background: The detection of bladder cancer (BC) usually requires cystoscopy, which is invasive and costly. Here we investigated whether BC might be marked by the presence in the urine of heat shock proteins (HSP60, HSP70, HSP90) or cytokines (IFNγ, TNFα, TGF β, IL−1β, IL−2, IL−4, IL−5, IL−6, IL−8, IL−10, or IL−13).

Methods: The study was performed in two phases: discovery and validation phase. In the discovery phase, we examined urine from 106 consecutive patients, 88 with hematuria undergoing workup for suspected BC, and 18 age–matched healthy controls. The concentrations of HSPs and cytokines were assessed by ELISA. Urinary concentrations were compared between: Group 1–healthy controls (n=18); Group 2–hematuria with no BC (n=20); Group 3–non–muscle invasive BC (non−MI−BC), stage= CIS, Ta or T1 (n=50); Group 4–muscle−invasive BC (MI−BC), stage ≥T2 (n=18). We used the area under curve (AUC) of a ROC analysis to determine the ability of HSP’s and cytokines to mark non−MI−BC and MI−BC, and applied a multivariate stepwise binary logistic regression to create a formula able to diagnose BC. In the validation phase, independent urine from 40 patients were analyzed. The cohort was divided into: Group 1(n=19) and Group 2−BC (n=21)–of which 14 had non MI−BC and 7 MI−BC. The formula from the regression model was then applied to the validation set without recalculation, and positive and negative predictive values were calculated.

Results-Discovery Phase: Urinary concentrations of IL−8, IL−10 and IL−13 were elevated in BC; IL−13 was the most prominent marker (AUC 0.93 95% CI 0.85−0.99). Furthermore, urine concentrations of the three HSPs, IL−6 and TGF−β differentiated MI−BC and non−MI−BC. The multivariate binary logistic regression highlighted HSP60 and IL−13:HSP60 (Odds Ratio 1.206, 95% CI 1.041−1.397, p=0.003) and IL−13 (Odds Ratio 1.020, 95% CI 1.007−1.033, p=0.012).
**Validation Phase:** The validation assay was performed using HSP−60 and IL−13. Using the formula obtained from the Discovery Phase; the overall sensitivity was 76%(66−88% 95%CI); specificity 74%(64−84% 95% CI); positive predictive value 74%(64−84% 95% CI); and negative predictive value 76%(66−86% 95% CI).

**Conclusion:** We found an association between urinary levels of HSPs, cytokines and BC. These results suggest that it may be possible to develop a simple biomarker for BC, and raise the possibility that increased expression of anti−inflammatory cytokines and HSPs might allow BC evade immune surveillance.

**Poster #105**

**LONG-TERM ONCOLOGIC OUTCOMES OF PATIENTS WITH STAGE PT0 FOLLOWING RADICAL CYSTECTOMY**

Manoj Rao, Cory Hugen, Anthony Polcari, Ahmer Farooq, Robert C. Flanigan and Marcus L. Quek
Loyola University Medical Center
(Presented By: Manoj Rao)

**Introduction:** The surveillance regimen for patients with pathologic stage T0 following radical cystectomy (RCx) for primary urothelial carcinoma (UCC) is controversial. We evaluated the oncologic outcomes of pT0 patients.

**Methods:** 376 patients underwent RCx at our institution from 1998–2008. We assessed the long-term outcomes of those with pT0, focusing on recurrence-free survival.

**Results Obtained:** 4.5% (17/376) of patients were staged T0 after cystectomy. 29% (5/17) of these patients had documented clinical stage T2 bladder cancer.

After mean followup of over 5 years (62 months), 24% (4/17) developed a recurrence at a median 10 months. The overall disease-specific survival of this cohort was 50%. Of these four patients, one was clinical stage T2, two had history of prior partial cystectomy with recurrence, and one failed intravesical immunotherapy (clinical stage Ta). Recurrences were detected with CT scans in all patients — two for post operative surveillance, one for persistent hematuria, and one for flank pain.

Recurrence-free survival was then stratified by >/< 10 lymph nodes (LN) removed. No patients with LN yield >10 recurred, and there were 3 pelvic recurrences in the LN<10 group including 2 nodal recurrence.

**Conclusion:** A large percentage of patients with pT0 after RCx with lymph node yield under 10 had recurrence of bladder cancer. Further analysis for UCC recurrence with pT0 should focus on lymph node yield and prior partial cystectomy.

**Poster #106**

**NODAL YIELD IS NOT INDEPENDENTLY ASSOCIATED WITH SURVIVAL IN PATIENTS WITHOUT NODAL METASTASIS AT RADICAL CYSTECTOMY**


¹University of Texas Health Science Center, San Antonio, TX; ²Weil Medical College of Cornell University, New York, NY; ³University of Texas MD Anderson Cancer Center, Houston, TX; ⁴University of Padua, Padua, Italy; ⁵University of Southern California, Los Angeles, CA; ⁶Laval University, Québec City, QC, Canada; ⁷Ludwig-Maximilians-Universität München, Klinikum Grosshadern, Munich, Germany & Universität of Bonn, Bonn, Germany; ⁸McGill University Health Centre, Montréal, QC, Canada; ⁹University of Montréal, Montréal, QC, Canada; ¹⁰University of Regensburg, Regensburg, Germany; ¹¹University of Western Ontario, London, ON, Canada; ¹²University of Texas Health Science Center, San Antonio, TX

(Presented By: John Fitzgerald)

**Purpose:** To determine if the number of lymph nodes examined in radical cystectomy specimens is associated with patients’ survival in those with pathologically negative lymph nodes.
**Patients and Methods:** We collected and analyzed data from nine centers contributing retrospective cohorts of patients (n=3,993) with urothelial carcinoma of the bladder (UCB) treated with radical cystectomy and pelvic lymphadenectomy without neo–adjuvant chemotherapy. **Results:** The median nodal yield was 16 (25%–75% Range, 9–30 nodes). A total of 580 (25.4%) patients had less than 10 nodes identified and 57% had less than 20 nodes. The median 5–year survival rates for patients with nodal yields of less than or more than 10 nodes were 74.4% (95%CI 70.1−78.3%) and 78.0% (95%CI, 77.7–82.0%) respectively (p=0.018). On multivariate analysis that adjusted for the effects of competing clinical and pathologic variables, nodal yield was not associated with cancer-specific or overall survival when evaluated as a continuous or categorical variable (P>.37). **Conclusions:** In this large multicenter cohort, nodal yield was not independently associated with survival among patients with node negative disease. This may be explained by variability in patient anatomy and pathologic processing which may affect the nodal yield rate but have little effect on patients’ prognosis.

**Poster #107**

**THE RELEVANCE OF ATYPICAL VOIDED CYTOLOGY IN BCG AND NON-BCG TREATED PATIENTS**

Alex Sokol, Daniel Thorner and Nicholas Karanikolas
SUNY Downstate Medical School, Department of Urology, Brooklyn, NY
(Presented By: Daniel Thorner)

**Introduction and Objectives:** A number of urine assays are used to assess for malignant cell features, however urine cytology remains one of the most common screening and surveillance tools used in patients with known or suspected urothelial malignancies. A growing number of urine cytologies are reported as atypical often resulting in exhaustive efforts to identify the source and relevance of these purported abnormal findings. The purpose of this study was to compare the relevance of atypical urine cytology in patients previously treated with BCG to those who had never received BCG.

**Materials and Methods:** Following IRB approval, a retrospective review was performed on all patients with atypical voided urine cytology between 2001 and 2006 from a single institution. All cytologies were reviewed by one dedicated uropathologist. Charts were reviewed to obtain history and duration of BCG treatment and cystoscopic, radiographic and pathologic findings for all applicable patients.

**Results:** The patient cohort consisted of 183 patients with 300 atypical voided urine cytology specimens. The mean ages for the BCG and non-BCG treated patients were 75 years (± 9.21) and 72 years (± 10.16), respectively (p=.0037). The mean follow-up time from atypical cytology was 36 months (± 31.3) for the non-BCG and 25.0 months (± 26.4 months) for the BCG treated cohort (p=.0011). The BCG treated patients provided 124/300 (41%) of the voided cytology specimens and the non–BCG treated patients provided 176/300 (59%) of the specimens. In BCG treated patients 44/124 (35%) atypical cytologies were associated with urothelial malignancies as compared to 36/176 (20%) in the non–BCG treated patient cohort (OR 2.14: 95% CI 1.27 –3.59; p=.004). High grade or invasive cancers were identified in 12/124 (9.6%) BCG and 11/165 (6.7%) non-BCG treated patients (p=0.272). Renal pelvic lesions were identified in 3/124 (2.4%) BCG treated and 1/176 (0.6%) non–BCG treated patients (p=0.169).

**Conclusions:** Overall, atypical urine cytologies in patients with prior BCG treatment are associated with an approximate two-fold greater incidence of bladder or upper tract pathology than a non-BCG treated patient cohort. The incidence, however, of high-grade urothelial cancers in the bladder or upper urinary tract was not significantly different between the two groups. Atypical urine cytology needs to be addressed with greater clinical concern in those patients with a history of prior BCG treatment.
**Poster #108**

**COMPARISON OF RECURRENCE PATTERNS OF UPPER TRACT UROTHELIAL CARCINOMAS TREATED ENDOSCOPICALLY OR WITH RADICAL NEPHRECTOMY**

Mark Anderson, GM Preminger and BA Inman
Duke University, Durham, NC
(Presented By: Mark Anderson)

**Objective:** To better understand the recurrence pattern of upper tract urothelial carcinoma (UTUC) treated either endoscopically (nephron-sparing surgery, NSS) or by radical nephroureterectomy (RNU).

**Methods:** A retrospective review of 317 UTUC cases was performed. Clinicopathologic and outcomes data were collected and compared between patients initially managed with RNU or NSS. Categorical variables were compared between groups with the chi-square test and continuous variables with the t test. Univariate survival analyses consisted of cumulative incidence plots compared with the logrank test while Cox regression was used for multivariate survival analysis.

**Results:** The two arms had similar distributions of age, gender, medical comorbidities, ASA and Charlson scores. Mean length of stay was 3.2 and 6.8 days for the NSS and RNU groups, respectively (p<0.001). The average number of procedures required to treat the UTUC was 2.3 for NSS and 1.2 for RNU. The presence of a solitary kidney with UTUC, preoperative renal insufficiency, or bilateral disease were similar between the two groups (p=0.489, 0.719, and 0.661 respectively). RNU cases were more likely to be high grade (52% v. 37%, p<0.001) and of high stage (TNM stage group II−IV) (54% v. 20%, p<0.001). The 2-year cumulative incidence of recurrent cancer was the same for the bladder location (20% v. 20%, p=0.689) but much higher in the upper tract location for the NSS group (46% v. 18%, p<0.001). The 4-year metastasis-free survival was slightly lower in the RNU group, though this was not significant (62% v. 69%, p=0.234). Multivariate Cox modeling confirmed that NSS was associated with a substantially higher risk of local upper tract recurrence (HR=3.82, p<0.001).

**Conclusion:** Patients with UTUC treated with NSS have a dramatically higher risk of local upper tract recurrences. However, these recurrences are usually manageable with other minimally-invasive procedures and do not appear to increase the long-term metastasis rate. Careful upper tract surveillance is mandatory for UTUC treated with NSS.
Poster #109

CAN WE RELIABLY IDENTIFY PATIENTS FOR RADICAL CYSTECTOMY WITHOUT NEOADJUVANT CHEMOTHERAPY?
Rian Dickstein, H. Barton Grossman, Shannah Pretszch, Jose Karam, Randall Millikan, Colin Dinney and Ashish Kamat
The University of Texas MD Anderson Cancer Center, Houston, TX
(Presented By: Rian Dickstein)

Introduction and Objectives: When neoadjuvant chemotherapy is administered prior to radical cystectomy in patients with muscle invasive urothelial cancer, the patients who benefit most are those with pathologic T3−4 or N+ disease. Thus, some advocate reserving neoadjuvant chemotherapy for patients considered high risk based on presence of the following clinical parameters: lymphovascular invasion, hydroureteronephrosis, presence of a palpable or visible mass on exam under anesthesia or imaging (suggesting cT3 disease), and/or variant histology. The goal of this study was to report the outcome of patients who were classified as “not high risk” (i.e. lacking the above mentioned criteria) and underwent radical cystectomy without neoadjuvant chemotherapy.

Methods: On retrospective review of 858 patients who underwent radical cystectomy from 2000 to 2008, we identified 174 patients with muscle invasive disease (cT2) who were classified as “not high risk” (i.e. did not have lymphovascular invasion, hydroureteronephrosis, variant histology, and/or palpable or visible mass on imaging studies) and underwent radical cystectomy without neoadjuvant chemotherapy. Endpoints of interest included pathologic upstaging (≥ pT3), pathologic lymph node positivity, need for adjuvant or salvage chemotherapy, disease recurrence, and disease specific survival (DSS).

Results: Of the 174 patients, 155 (88.6%) were male and the median age was 67.6 years (range 39−86). At radical cystectomy, 75 patients (42.9%) were upstaged (pT3N0: 45; pT4N0: 6; pTxN+: 24). Thirteen patients (7.4%) received adjuvant chemotherapy for adverse pathology. After a median interval of 27 months, 38 patients (21.7%) developed recurrent disease; isolated pelvic recurrences: 4, distant recurrences: 34, and 2 had both. Eighteen patients with recurrent disease went on to receive salvage chemotherapy. Overall, 25 patients (14.3%) died of disease with a 5−year DSS of 83%.

Conclusion: Although clinical understaging remains a problem in the management of patients with muscle invasive urothelial cancer, our criteria for selection of patients for primary radical cystectomy without neoadjuvant chemotherapy results in a cohort with a 5 year DSS of 83%.

Poster #110

LONGITUDINAL EVALUATION OF THE CONCORDANCE AND PROGNOSTIC VALUE OF LYMPHOVASCULAR INVASION IN TRANSURETHRAL RESECTION AND RADICAL CYSTECTOMY SPECIMENS
Matthew Resnick¹, Meredith Bergey², Laurie Magerfleisch², John Tomaszewski³, S. Bruce Malkowicz² and Thomas Guzzo²
¹Division of Urology, University of Pennsylvania School of Medicine; ²Division of Urology, University of Pennsylvania School of Medicine, Philadelphia, PA; ³Department of Pathology, University of Pennsylvania School of Medicine, Philadelphia, PA
(Presented By: Matthew Resnick)

Objective: Data surrounding the concordance between the presence of lymphovascular invasion (LVI) in transurethral resection (TURBT) specimens and radical cystectomy (RC) specimens is sparse. Additionally, there are few data to support the use of LVI documented on TURBT as a prognostic marker of occult lymph node metastases and survival. To this end we sought to evaluate the concordance between TURBT and RC specimens with regard to the presence of LVI. Additionally, we evaluated the prognostic value of LVI at both TURBT and RC in the prediction of lymph node metastases, overall survival, disease−specific survival, and recurrence−free survival following RC.

Methods: We reviewed the records of 487 patients who underwent RC at our institution between 1987 and 2008 and evaluated for the presence or absence of LVI as determined by pathologic evaluation. We then evaluated for the presence or absence of LVI on prior TUR specimens of this cohort of patients undergoing RC. Cox regression and Kaplan-Meier analysis were undertaken to evaluate the contribution of LVI to various outcomes.
Results: Of 474 patients with complete LVI data, 60 (12.3%) were found to have LVI at TURBT as compared to 161 (33.1%) at RC. While the presence of LVI at TURBT was more significantly (p=0.008) associated with the presence of LVI at RC, only 42.9% of patients in whom LVI was documented at TURBT were found to harbor LVI at RC. The risk of nodal disease was higher in those patients with LVI at TURBT than in those with no evidence of LVI at TURBT (48.3% vs. 25.0%, p<0.001). Additionally, LVI at TURBT was associated with increasing risk of pathologic upstaging and receipt of adjuvant chemotherapy. Survival analysis revealed significant decrement in overall and recurrence−free survival among those with LVI at TURBT when compared to those with no evidence of LVI.

Conclusions: Lymphovascular invasion at TURBT provides useful prognostic information that should be incorporated into treatment planning in those with urothelial carcinoma of the bladder. This prognostic tool may be of particular use in those considering radical cystectomy for nonmuscle-invasive disease or for those considering neoadjuvant chemotherapy.

Poster #111
WITHDRAWN

Poster #112

SENSITIVITY OF URINE CYTOLOGY AND CT UROGRAPHY IN ISOLATED UPPER TRACT UROTHELIAL CARCINOMA AND IN THE DETECTION OF BLADDER UROTHELIAL CARCINOMA RECURRENCES
Mohummad M. Siddiqui and Dianne Sacco
Massachusetts General Hospital, Boston, MA
(Presented By: Mohummad M. Siddiqui)

Purpose: We investigated the sensitivity of voided urine cytology and CT Urography (CTU) in patients with isolated upper tract urothelial carcinoma (UTUC).

Materials and Methods: Patients from 1997 to 2010 with a new diagnosis of UTUC and no prior history of lower tract or contralateral urothelial carcinoma were reviewed. Initial and subsequent voided urine cytology, CTU, surgical specimen pathology, and recurrences upon post-operative follow-up were recorded.

Results: Fifty-eight patients were reviewed with an average follow-up of 54 months. Voided cytologies had sensitivity of 40% in all UTUC patients with a modest improvement to 45% with repeat cytologies. Cytology in patients with aggressive disease, such as grade 3/3, stage T2+, and ultimate progression to metastatic disease, had an improved sensitivity at 54−58%. Cytology sensitivity did not vary based on tumor location or presentation symptoms. CTU scans demonstrated a 97% sensitivity with a suspicious scan or filling defect. A smaller proportion, 70% of the CTU scans showed only a filling defect. Upon postsurgical follow-up, 45% of patients had bladder UC recurrences. Voided cytology had a 86% sensitivity of detecting recurrence if the patient had a history of positive cytology, and a 6% sensitivity if the patient had a history of only negative cytologies. The specificity of cytology upon follow-up for detection of recurrences was 95% in our series.

Conclusions: Voided urine cytology has poor sensitivity for the diagnosis of UTUC, even when patient with aggressive disease are examined. Repeat cytology does not improve the sensitivity significantly. CTU by contrast had a high sensitivity in identifying patients with suspicion for UTUC. We did find however that in the setting of known previously positive cytology from UTUC, follow-up cytology may be of reasonable sensitivity for monitoring patients for bladder UC recurrence.
Poster #113

SECONDARY TRANSURETHRAL RESECTION FOR T1 BLADDER CANCER: MORE IMPORTANT THAN JUST STAGING?
Eric Umbreit, Mark Shimko, R. Houston Thompson and Igor Frank
Mayo Clinic, Rochester, MN
(Presented By: Eric Umbreit)

Objective: We evaluated the oncologic benefit of secondary transurethral resection (TUR) in patients with newly diagnosed T1 bladder cancer.

Methods: We retrospectively studied patients diagnosed with T1 disease between 1995 and 2005 at our institution. The time period encompasses the transition from mostly single TUR to routine secondary TUR. Patients were grouped according to whether or not secondary TUR was completed. End points included recurrence, progression and survival and evaluated using logistic and Cox proportional hazards regression.

Results: There were 191 patients diagnosed with T1 bladder cancer, of which a single TUR was performed in 137(74%) and repeat TUR was performed in 49(26%) patients. Secondary TUR detected residual disease in 27 (55%) patients and 9 (18%) were upstaged to muscle-invasive disease. The median follow-up for survivors was 7.3 years for single TUR and 6.0 years for repeat TUR. The 5-year recurrence rate was 36% with secondary TUR and 61% for single TUR at the time of diagnosis (p=0.107). The rate of progression to muscle invasive disease (18% vs 48%, p=0.043) and death from any cause (25% vs 71%, p=0.045) at 5 years were significantly higher for patients without secondary TUR. The likelihood of undergoing cystectomy at any time following T1 diagnosis was no different for patients with or without repeat TUR (HR 1.06; p=0.303).

Conclusion: Secondary TUR not only detected a significant percentage of residual tumors and changed treatment strategy in upstaged cases, but was also associated with a protective benefit against progression and death.

Poster #114

EFFECT OF RESIDUAL PATHOLOGIC STAGE AFTER TRANSURETHRAL RESECTION AT RADICAL CYSTECTOMY FOR UROTHELIAL CARCINOMA
Matthew Tollefson¹, Stephen Boorjian² and Igor Frank²
¹Mayo Clinic; ²Mayo Clinic, Rochester, MN
(Presented By: Matthew Tollefson)

Introduction and Objective: In patients undergoing radical cystectomy for muscle-invasive urothelial carcinoma, pathologic evaluation of the cystectomy specimen is a critically important factor for outcome prediction and to identify candidates for adjuvant therapy. However, the risk of progression and therefore the optimal surveillance/management strategies for patients without identifiable residual invasive disease at cystectomy are poorly defined. Therefore, we reviewed the long-term outcomes in patients who were downstaged to non-invasive urothelial carcinoma at time of radical cystectomy.

Methods: We identified 1,177 consecutive patients who underwent radical cystectomy at our institution between 1980 and 1999 for muscle-invasive urothelial carcinoma without neoadjuvant radiation or chemotherapy. Patients were stratified according to the stage of disease at cystectomy. Postoperative disease recurrence and survival were estimated using the Kaplan-Meier method and compared using the log rank test. Cox proportional hazard regression models were used to analyze the impact of pathologic stage on survival.

Results: Median patient age at surgery was 69 years; median follow-up after cystectomy was 13.0 (range 0.03–28.0) years. pT stage at radical cystectomy was pT0 in 69 (5.9%) patients, pTa in 38 (3.2%), pTis in 237 (20.1%) pT1 in 194 (16.5%), pT2 in 270 (22.9%) and pT3/4 in 369 (31.4%). The 10-year cancer-specific survival was 84.1%, 77.4%, 71.1% and 58.5% for those with pT0, pTis, pT1 and pT2, respectively. On multivariate analysis, when compared to patients with pT0 or pTis disease at cystectomy, the risk of cancer-specific mortality was significantly increased in patients with pT1 (RR 1.7; p=0.003) and pT2 (RR –1.86; p<0.001) tumors. There was no difference in disease-specific mortality among patients with pT0, pTa and pTis disease at cystectomy (p=0.17).

Conclusions: Down staging from initial T2N0 bladder cancer to non-invasive disease at radical cystectomy significantly reduces disease recurrence and cancer specific mortality. However, even patients with pT0 disease may suffer disease recurrence, and therefore require continued surveillance after surgery.
SIGNIFICANCE OF CIRCULATING TUMOR CELLS IN PATIENTS WITH TRANSITIONAL CELL AND RENAL CELL CARCINOMA
Helen Levey and Manish Vira
Hofstra North Shore LIJ School of Medicine
(Presented By: Helen Levey)

Introduction: Circulating tumor cells (CTCs) have been shown to have pathologic and clinical prognostic correlation in metastatic breast, colon, and prostate cancer. The objective of this study is to determine the significance of CTCs in patients with high risk transitional cell (TCC) and renal cell carcinoma (RCC) using the CellSearch System (Veridex, Inc. Raritan, NJ).

Methods: In a prospective study, 26 patients were enrolled with newly diagnosed muscle invasive or metastatic TCC and advanced RCC. CTCs were enumerated in the blood before initiating therapy (baseline). Samples consisted of 3 specimens of 7.5 mL peripheral blood analyzed in triplicate. Pathologic staging, clinical stage, and tumor grade were analyzed for statistical significance with maximum and mean CTCs per 7.5 mL sample in both RCC and TCC patients.

Results: Of the 26 patients tested, 15 were diagnosed with muscle invasive or metastatic TCC and 11 diagnosed with advanced RCC with median ages of 70.5 years (range, 46–88 years) and 63.7 years (range, 44–90) respectively. At least one CTC was detected in 86% (12/14) of patients with TCC and 92% (11/12) of patients with RCC. Using Wilcoxon scores two–sample analysis, there was no significant difference in the presence of CTCs between RCC and TCC (z = −.6). Chi–square analysis revealed no significant correlation between CTCs and clinical stage (p=0.13) or pathologic stage (p=0.2). Patients were followed for median 16.8 months (mean 13.1 months) after initiation of treatment. Log rank survival analysis revealed that among the entire cohort, patients with CTCs at baseline had significantly worse overall survival (Figure 1, p=0.01). Subset analysis revealed that this difference was only seen in patients with TCC (p=0.02).

Conclusion: CTCs are detectable in the peripheral blood of patients with newly diagnosed advanced TCC and RCC prior to intervention. This pilot study suggests that although CTCs may not correlate with baseline pathologic outcomes, the presence of CTCs may predict worse overall survival. These results provide the impetus for a larger study to determine the true significance of CTCs in patients with TCC and RCC.
Poster #116

ABILITY OF UROVYSION FISH ANALYSIS TO SELECT PATIENTS WITH LOW OR INTERMEDIATE RISK NON-MUSCLE INVASIVE BLADDER (LI-NMIBC) CANCER FOR DECREASED SURVEILLANCE

Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Introduction and Objectives: Recurrent LI-NMIBC is difficult to detect cytologically, requiring frequent cystoscopies. Urovysion’s (Abbot Laboratories Inc., Downers Grove, IL) fluorescent in-situ hybridization (FISH) assay detects genetic changes associated with LI-NMIBC and may be useful in identifying patients for extended screening intervals. We analyzed the ability of FISH analysis to identify LI-NMIBC patients suitable for increasing surveillance from every 3 months in the first year post-diagnosis to 1 initial surveillance 3 months after resection and then, if cystoscopy, cytology and FISH are all normal, no surveillance until 1 year after initial resection.

Methods: Charts of 54 consecutive patients with LI-NMIBC who underwent cystoscopy, cytology and FISH analysis every 3 months for the first year after resection since 2004 were retrospectively identified and reviewed. We analyzed the number of tumors or high grade cytologies that would have been missed if surveillance cystoscopy, cytology and FISH analysis had not been done between 3 and 12 months post-resection for patients with a normal cystoscopy, cytology and FISH analysis at 3 months after initial resection and compared those results to patients with normal cystoscopy, cytology and abnormal FISH analysis.

Results: The mean age of the 54 patients was 67 (range 25–89) and 41 were males. 39 patients had normal cystoscopy, cytology and FISH at 3-month follow-up. If no further surveillance was done until 1 year post-resection, 2 low grade tumors (3mm and 7mm at 7 months post-resection) and 2 incidents of high grade cytology would have been missed (4/39, 10%). 15 patients had normal cystoscopy and cytology but abnormal FISH results at 3 months. If no further surveillance had been done until 1 year after resection, 6 tumors (6/15, 40%) (5, 8, 3, 3, 9, 2mm at 5, 6, 6, 7, 9, 10 months post-resection) and no high grade cytology would have been missed. Overall, statistically fewer patients with normal compared to abnormal FISH at first follow-up developed tumors before 1 year (4/39 vs. 6/15, p=0.033).

Conclusions: The high negative predictive value of FISH analysis can be used to significantly increase our ability to select patients suitable for extended screening intervals. It may be prudent to include FISH analysis at the first post-resection follow-up before selecting patients with LI-NMIBC for an extended screening interval.

Poster #117

UTILITY OF QUANTITATIVE FLUOROSCENT IN SITU HYDRIDIZATION (FISH) TO PREDICT NON-MUSCLE INVASIVE BLADDER CANCER (NMIBC) RECURRENCE

Henry Rosevear, Andrew Lightfoot and Michael O’Donnell
University of Iowa, Iowa City, IA
(Presented By: Henry Rosevear)

Introduction and Objectives: Urovysion’s (Abbot Laboratories Inc., Downers Grove, IL) FISH analysis is used to monitor bladder cancer recurrence in patients with a history of NMIBC and is often reported as a binary variable (normal/abnormal) depending on an arbitrary cutoff of abnormal cells. Early reports have suggested a positive correlation between quantitative FISH analysis and NMIBC recurrence. We investigated whether the percentage of abnormal cells as determined by FISH analysis in patients with a history of NMIBC correlated with risk of recurrence.

Methods: At our institution, barbotage FISH analysis is routinely done along with cystoscopy and cytology on both high risk (Ta/T1 high grade or CIS) and low or intermediate risk patients (all others) at every 3-month follow-up for the first year post-resection. We retrospectively reviewed 241 consecutive patients with NMIBC and identified 399 FISH analyses for which we had one year follow-up. We only included FISH analyses which were reported as abnormal or normal (<10% were inconclusive). Normal FISH analyses were defined as 2 or fewer abnormal cells per sample. We calculated the percentage abnormal cells and correlated that to the number of patients who had a recurrence of their NMIBC as defined by positive high grade cytology or tumor on cystoscopy during the first year of follow up.
**Results:** The sensitivity, specificity, positive predictive value and negative predictive value of FISH analysis if reported as a binary variable was 55, 43, 16 and 89% respectively. Considering only those patients with abnormal FISH, the average percentage of abnormal cells for patients who were found to have NMIBC recurrence at 1 year was 38% (range 6–100) compared to 21% (range 6–100) for patients who were recurrence–free at 1 year (p<0.0001). High risk patients who recurred within 1 year had a statistically higher percentage of abnormal cells as compared to those who did not recur within 1 year (50% [range 6–100] vs. 25% [range 6–100], respectively p=0.001). There was no difference in the percentage of abnormal cells for those patients with low or intermediate risk disease based on recurrence within 1 year (22% [range 6–100] vs. 20% [range 6–100], respectively p=0.25).

**Conclusions:** The percentage of abnormal cells in FISH analysis correlates with risk of recurrence for patients with high risk disease and can be used to guide surveillance interval decisions in patients with no other evidence of recurrence.

---

**Poster #118**

**THE IMPACT OF RACE AND GENDER IN PATIENTS UNDERGOING RADICAL CYSTECTOMY FOR BLADDER CANCER**

Sean Sawh, Joshua Langston, J. Patrick Selph, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi

(Presented By: Sean Sawh)

**Purpose:** This study evaluated the impact of race and gender on operative and pathological outcomes in patients undergoing radical cystectomy for bladder cancer.

**Methods:** From a cystectomy cohort of 460 patients (2001–2008), 363 patients underwent radical cystectomy and urinary diversion with curative intent and had complete demographic and clinical records and at least 1 year of follow–up. The impact and differences based on gender (male, female) and race (Caucasian (CA), African–American (AA), and other) with regard to clinical parameters and operative pathology were analyzed. Organ–confined status (OC), lymph–node positivity (LN), were also measured. Due to the small numbers of “other” (n=10; 3%), these patients were excluded from comparative analysis.

**Results:** With regard to race, 54 (15%) were AA, 10 (3%) were other, and 299 (82%) were CA. AA (vs. CA) were significantly younger (61.9 vs. 67.4; p=0.001), more likely female (37% vs. 27%; p=0.038), and had a worse pre–operative renal function (creatinine 1.4 vs. 1.1 mg/dl; p=0.024). No racial differences smokers (13% vs. 19%; 0.726) BMI (28.7 vs. 27.2; p=0.105) in operative outcomes were observed (EBL (523 vs. 520) (0.957), diversion type (52% vs. 73% conduit) (0.130), length of stay (median 6 vs. 6)(0.698). In addition, AA had a lower rate of being OC (50% vs. 61%)(0.036) and a higher rate of LN positivity (24% vs. 16%) (0.029). With regard to gender, 103 (28%) were female and 260 (72%) were male. Females were more often never smokers (26% vs. 13%; p=0.040), had a lower BMI (26.1 vs. 27.9; p=0.009), better pre–operative renal function (creatinine 1.0 vs. 1.2 mg/dl;p<0.001). No differences between females vs. males were observed with regard to age (66.5 vs. 66.5; 0.778), EBL, length of stay, although females more often received an ileal conduit (78% vs. 65%; p = 0.061). Females were less often OC (40% vs. 65%; p = 0.012), and more often LN+ rate (24% vs. 15%; p = 0.039). AA females had the lowest rates of OC disease and highest rates of LN positivity (see table).

**Conclusions:** The present analysis demonstrates differences in clinical, operative, and pathologic characteristics based on race and gender in patients undergoing radical cystectomy for bladder cancer.
**Poster #119**

**DOES ROBOTIC RADICAL CYSTECTOMY FOR BLADDER CANCER AFFECT LONG-TERM HEALTH-RELATED QUALITY OF LIFE?**

J. Patrick Selph, Joshua Langston, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi  
(Presented By: J. Patrick Selph)

**Purpose:** In recent years, surgeons have begun to report case series of minimally invasive approaches to radical cystectomy including robotic-assisted techniques — demonstrating the surgical feasibility of this procedure with reported benefits of reduced blood loss and more rapid return of bowel function and hospital discharge. However, the long-term affects on a patient’s health-related QOL remain uncertain. We compared the health related quality of life in patients undergoing radical cystectomy and urinary diversion for bladder cancer analyzing the impact of surgical technique on these outcomes measures.

**Methods:** The Functional Assessment of Cancer Therapy–Bladder (FACT–BL) and SF–12 QOL instruments were administered to 52 patients who had undergone a radical cystectomy and urinary diversion at our institution between 1/05 – 8/08. Patients were stratified based on the surgical technique utilized – robotic-assisted laparoscopic (n=33) versus open (n=19) approach.

**Results:** The mean follow-up since cystectomy was shorter for the robotic versus open patients (21.7 vs. 29.6 months; p=0.041). No other differences were observed with regard to age, gender, race, or diversion type between the two groups. The table shows the FACT–BL domain scores and SF–12 scores for robotic versus open patients. Note, no differences were noted among any of the FACT–BL domains nor in the SF–12 physical and mental scores. The only statistically different score was found in the FACT–BL questions addressing interest in sex (BL4) and ability to have/maintain an erection (BL5) – both which were higher for the robotic approach (p=0.011 and p=0.035, respectively).

**Conclusions:** No significant differences occur with regard to long-term health-related quality of life measures between patients undergoing a robotic versus an open surgical approach to radical cystectomy for bladder cancer. Given the limited number of subjects in this study, a larger multi-institutional analysis is required to better study this important question.

**Key:** GP=physical; GS= social/family; GE=emotional; GF=functional; AC=additional concerns; PCS=physical score; MCS=mental score

<table>
<thead>
<tr>
<th></th>
<th>GP</th>
<th>GS</th>
<th>GE</th>
<th>GF</th>
<th>AC</th>
<th>PCS</th>
<th>MCS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Robotic</strong> (n=33)</td>
<td>6.6</td>
<td>20.9</td>
<td>7.0</td>
<td>20.1</td>
<td>14.4</td>
<td>43.9</td>
<td>46.9</td>
</tr>
<tr>
<td><strong>Open</strong> (n=19)</td>
<td>4.3</td>
<td>22.0</td>
<td>6.1</td>
<td>21.8</td>
<td>12.1</td>
<td>42.2</td>
<td>49.7</td>
</tr>
<tr>
<td><strong>p value</strong></td>
<td>0.168</td>
<td>0.496</td>
<td>0.446</td>
<td>0.327</td>
<td>0.117</td>
<td>0.655</td>
<td>0.415</td>
</tr>
</tbody>
</table>
**Poster #120**

**COMPARATIVE OUTCOMES IN OCTOGENARIANS UNDERGOING RADICAL CYSTECTOMY**

Adam D. Berneking¹, Henry Rosevear², James A. Brown³ and Michael A. O’Donnell³

¹University of Iowa College of Medicine; ²University of Iowa, Iowa City, IA; ³University of Iowa Department of Urology

(Presented By: Henry Rosevear)

**Objective:** Recent evidence suggests a decreased rate of radical cystectomy in patients ≥80 years. We evaluated the morbidity of octogenarians treated with radical cystectomy, seeking to identify variations in complication rate in octogenarians.

**Methods:** We retrospectively reviewed 359 consecutive radical cystectomy patients (January 2000 to April 2010) for preoperative demographic, laboratory and clinical data, and operative and postoperative records. Complications were graded using a modified Clavien–Dindo system. Metastasis/recurrence was defined as local or distant spread outside of the bladder. P-values <0.05 considered significant.

**Results:** 43/359 (12%) patients were 80 years of age or older (octogenarians) at the time of their cystectomy. Octogenarians were significantly less likely to have been given neoadjuvant chemotherapy than non-octogenarians (54/316, 17% vs 0/43; p=0.02). Octogenarians were less likely to have a history of smoking or have COPD (14 vs 2%, p=0.04 and 81 vs 60%, p=0.03). Octogenarians were more likely to undergo non-continent diversions than non-octogenarians (100% vs 70%, p = 0.01). Octogenarians were also more likely to require an intraoperative transfusion compared to non-octogenarians (65% vs 39%, p = 0.02). Octogenarians had a significantly higher rate of developing neurological complications than non-octogenarians (26% vs 11%, p = 0.02) but trended toward fewer genitourinary complications (42 vs 58%, p=0.06).

Overall complication rate for both major (Clavien Grade III–V) and minor (Clavien Grade I–II) complications was similar among both groups (respectively, 20% vs 19%, p=0.98 and 80% vs 81%, p=0.98) as were LOS (9 vs 9 days, p=0.99) and percentage of patients who developed metastasis or recurrence (27% vs 30%, p=0.72). The percentage of Octogenarians with positive LNs and number of LNs removed at surgery did not vary (29% vs 28%, p=0.07; 15 vs 16, p=0.91). Final pathology for both groups was also similar (T0: 2.3% vs 8.5%; Ta: 4.7% vs 3.8%; CIS: 9.3% vs 12.3%; T1: 11.6% vs 8.2%; T2: 11.6% vs 18.7%; T3: 48.8% vs 32.9%; T4: 11.6% vs 15.5%)

**Conclusions:** Radical cystectomy in octogenarians is safe and feasible, with expected similar oncological outcomes, increased neurological complications and potentially reduced genitourinary complications. Our data on octogenarians may be biased by the reduced percentage who had either COPD or history of smoking compared to non-octogenarians, possibly suggesting a healthier population.

---

**Poster #121**

**LYMPH NODE DENSITY: UTILITY IN STRATIFYING PATIENTS FOR ADJUVANT THERAPY AFTER RADICAL CYSTECTOMY FOR BLADDER CANCER**

Eugene Lee¹, Harry Herr², Wassim Kassouf³, Mark Munsell¹, H. Barton Grossman¹, Colin Dinney¹ and Ashish Kamat¹

¹University of Texas MD Anderson Cancer Center, Houston, TX; ²Memorial Sloan-Kettering Cancer Center, New York, NY; ³McGill University Health Centre, Montreal, QC, Canada

(Presented By: Eugene Lee)

**Purpose:** Patients with nodal metastasis detected at radical cystectomy for bladder cancer have an overall poor prognosis and are often considered for adjuvant chemotherapy. We explore the utility of lymph node density (LND) for stratifying these patients based on disease specific survival (DSS).

**Methods:** From a pooled database from M. D. Anderson Cancer Center (MDACC) and Memorial Sloan-Kettering Cancer Center (MSKCC), we identified 248 patients with nodal metastasis after radical cystectomy (performed from 1979 –2003). Of these patients, 143 had at least 8 nodes evaluable (surrogate marker for ‘adequate’ nodal dissection) and did not receive neoadjuvant or adjuvant chemotherapy. The Kaplan–Meier product–limit estimator and Cox proportional hazards regression model were used to assess DSS at different LND cutoffs.
**Results:** The mean and median follow-up for the patients was 45.9 months and 30.0 months, respectively (range 0.5 to 122). For those patients alive at last follow-up, the median follow-up was 66.0 months. There were 81 patients who died of their disease with an overall median DSS of 39.5 months. The 2-year DSS was 62.0% (95% CI 53.2%–69.6%), and the 5-year DSS was 38.1% (95% CI 29.4% to 46.6%). DSS was intimately linked to LND at the 10%, 15%, 20%, 25%, 30%, and 35% cut points (p<0.001). Patients with LND ≤ 15% (n=66 with 23 deaths from disease) had a 5 year DSS of 61.1%. Conversely, patients with a LND > 15% (n=77 with 58 deaths from disease) had a 5 yr DSS of 19.2%. Survival worsened as LND increased, such that only 4% of patients with LND > 35% (n=26 with 24 deaths from disease) were alive at 5 years. **Conclusion:** In the context of an adequate node dissection, LND may be used as a tool to risk-stratify patients and select appropriate candidates for adjuvant chemotherapy. Furthermore, this concept would be useful when reporting the results of ongoing trials of adjuvant chemotherapy. **Funding:** This research is supported in part by the Cancer Center Support Grant (NCI Grant P30 CA016672).

**Poster #122**

**REAL TIME DIAGNOSIS OF BLADDER CANCER WITH PROBE-BASED CONFOCAL LASER ENDOMICROSCOPY**

Jen-Jane Liu¹, Katherine Wu², Winifred Adams³, Katherine Mach², Kristin Jensen³ and Joseph Liao²

¹Stanford University, Stanford, CA; ²Department of Urology, Stanford University, Stanford, CA; ³Department of Pathology, Stanford University, Stanford, CA

(Presented By: Jen-Jane Liu)

**Introduction:** Probe-based confocal laser endomicroscopy (pCLE) is an emerging technology for in vivo optical imaging of the urinary tract. Micron scale resolution is achieved with sterilizable imaging probes (1.4 or 2.6mm diameter), which are compatible with standard cystoscopes and resectoscopes. White light cystoscopy (WLC) has well-recognized shortcomings bladder cancer diagnosis, particularly in differentiating nonpapillary urothelial carcinoma from inflammation and delineation of tumor boundaries. Real time optical biopsy of suspected lesions with pCLE could be a useful adjunct to overcome these shortcomings.

**Methods:** Patients scheduled for transurethral resection of bladder tumor are recruited. Patients first undergo WLC, followed by pCLE with intravesical fluorescein as contrast, and finally, histologic confirmation of the resected tissues. We are conducting a prospective diagnostic accuracy study of pCLE for diagnosis of bladder cancer. Diagnostic accuracy is determined both in real time by the operative surgeon and offline in a blinded fashion after additional image processing. Using histology as the standard, the sensitivity, specificity, positive and negative predictive value of WLC, pCLE, and WLC + pCLE are calculated.

**Results:** Based on our initial experience to date (n=92 patients), we have demonstrated the safety profile of intravesical and intravenous fluorescein administration and established objective diagnostic criteria to differentiate between normal, benign, and neoplastic urothelium. Confocal images of normal bladder showed organized layers of umbrella cells, intermediate cells, and lamina propria. Low grade bladder cancer is characterized by densely packed monomorphic cells with central fibrovascular cores, whereas high grade cancer consists of highly disorganized microarchitecture and pleiomorphic cells with loss of cellular cohesiveness. Review of H&E sections by pathology did not show any discernible differences or phototoxicity in tissues exposed to fluorescein and pCLE compared to non-study subjects.

**Conclusions:** With additional validation, pCLE may prove to be a valuable adjunct to WLC for real time diagnosis of bladder cancer.

**Funding:** Stanford Cancer Center and Dept. of Urology
**Poster #123**

**EXTRAVESICAL NON-MUSCLE INVASIVE INVOLVEMENT OF UROTHELIAL CANCER**  
Andrew J. Lightfoot¹, Benjamin Carpenter², Henry M. Rosevear² and Michael A. O’Donnell²  
¹University of Iowa, Iowa City, IA; ²University of Iowa Department of Urology, Iowa City, IA  
(Presented By: Andrew J. Lightfoot)

**Introduction:** It is estimated that up to 25% of patients with carcinoma in–situ (CIS) of the bladder will have upper tract involvement at some point in the disease process. Additionally, 30% of men with CIS will have prostatic urethral involvement. Although not as common, extravesical involvement is also associated with papillary bladder disease. We sought to characterize the response to medical treatment in patients with extravesical non–muscle invasive urothelial cancer.

**Methods:** A retrospective review of patients with extravesical NMIBC was undertaken. Patients included were found to have high grade upper tract cytology and no visible abnormality on retrograde nephrostogram and or positive prostatic urethral biopsies. Treatment failure was based on positive biopsy or isolated positive upper tract cytology.

**Results:** 241 NMIBS patients (163 with high grade disease) were identified. 43 (29 male and 14 female) were noted to have extravesical involvement. Median age was 67 (range 30−80). Of the 43 patients, 32 had CIS of the bladder prior to extravesical involvement. In total, 8 patients were treated for prostatic urethral involvement, 33 for right upper tract and 34 for left upper tract involvement. Overall, 9 women and 6 men had panurothelial disease. Extravesical involvement was synchronous in 14 and metachronous in 27. Following treatment with either immunotherapy or chemotherapy, the complete response to therapy and 1− and 2−year recurrence−free survival (RFS) for the prostate was 63%, 33% and 17% respectively. Similar results were found for the treatment of upper tracts, with 66%, 46% and 34%, respectively. In total, 10 patients went on to undergo cystectomy and 12 required nephroureterectomy. Five patients developed metastatic disease and 4 of these patients died of their disease.

**Conclusions:** Extravesical non–muscle invasive urothelial cancer occurred in 17.8% of all patients treated at our institution for NMIBC. Those patients who are not surgical candidates or refuse surgery may benefit from topical therapy. Topical treatment, however, is not without risk of progression, metastasis, and even death.

**Poster #124**

**THE USE OF HEXYLAMINOLAEVULINIC ACID (HEXVIX ) DURING THE INITIAL RESECTION IN NON-MUSCLE INVASIVE BLADDER CANCER: DECREASE OF RECIDIVE**  
Ana Maria Autran Gomez¹, Francis Dubosq², Olivier Dumonceau³, Mohammed Fennouri², Bogdan Ilescu², Laurence Peyrat², Vincent Molinie² and Herve Baumert²  
¹Division of Urology Department of Surgery London Health Sciences Center, University of Western Ontario, London, ON, Canada; ²Groupe Hospitalier Paris Saint Joseph Paris, France  
(Presented By: Ana Maria Autran Gomez)

**Introduction:** 80% of urothelial tumours are non muscule-invasive bladder cancer (NMIBC). The complete endoscopic resection (TUR) is fundamental to prognostic, progresion and managment. Several reports have showed the utility of photodynamic diagnosis (PDD) with Hexylaminolaevulinic acid (HAL) compared with white light cystoscopy (WL) in the recurrences and presence of residual tumors at initial resection.

**Objectives:** The aim was reported the risk of residual tumor after the initial resection using PDD with HAL.

**Material and Methods:** 93 patients were recorded retrospectively, from January 2005 to January 2010 with suspected NMIBC. The population divided in 2 groups on the base of type resection: Group A: 1er resection with WL and Group B: 1er resection with HAL. The secondary and subsequent resections were performed with HAL. The HAL solution was used and WL cystoscopy performed followed of fluorescence light. Mann-Whitney test was calculated (p<0.05 statistical significance). The chi-square test of recurrence-free survival (RFS) using the Kaplan-Meier method.
Results: 93 patients 28(29%) females 65(71%) males. Group A: WL 38 (41%), Group B HAL 55(50%). Age 69.50±11.22 and 71.55±8.82 respectively. Tumor characteristics: number of lesion, prognostic risk, size, stage and grade tumour. In Group A: 9(23%) multifocal (≥4) and 29(76%) unifocal (<4), 15(39%) high risk and 23(60%) low risk, size 22.89±7.62mm, pTaG1 16(42%), pTaG2 16(42%), pTaG3 6(16%). Group B: 51(88%) multifocal, 4(7%) unifocal, 25(43%) high risk, 30(54%) low risk, size 27.34±13.89 mm and pTaG1 20(36%), pTaG2 24(44%), pTaG3 11(20%) respectively. No statistical differences in tumor size were observed (p=0.687). The residual tumour rate at secondary TUR was 24% and in the WL group and 5% in HAL group the difference was highly significant statistical (p<0.001). The mean follow−up 60 months. The RFS Kaplan Meier with HAL Vs WL (p=0.0001). When the RFS time was analyzed separately according to the prognostic groups for additional explorative analysis, the superiority of HAL was apparent throughout all the groups.

Conclusions: Our results showed an increased and efficiency in HAL−TUR during the second resection with a significant reduction of disease recurrence. HAL resection provides improvement of clinical outcomes in patients with NMIBC. Furthermore prospective multicentric studies will be necessary to evaluate the use of HAL−TUR as standard resection.

Poster #125

EXTERNAL VALIDATION OF POSTOPERATIVE NOMOGRAM FOR PREDICTION OF RECURRENTCE AND SURVIVAL FOLLOWING RADICAL CYSTECTOMY IN PATIENTS WITH UROTHELIAL CARCINOMA OF THE BLADDER
Michael Brooks¹, Maxine Sun², Pierre I. Karakiewicz², Shahrokh F. Shariat³, Gilad E. Amiel¹, Seth P. Lerner¹ and Guilherme Godoy¹
¹Scott Department of Urology, Baylor College of Medicine, Houston, TX; ²University of Montreal Health Center, Montreal, QC, Canada; ³Weil Medical College Cornell University, New York, NY
(Presented By: Michael Brooks)

Introduction: Nomograms are important predictive tools for the management of complex diseases. Although they have shown better performance than traditional staging systems, their application in the clinical practice, especially for bladder cancer is still modest.

Objective: To externally validate previously developed nomograms for prediction of recurrence (J Urol 176:1354, 2006), cancer−specific and overall survival (Clin Ca Res 12:6663, 2006) following radical cystectomy (RC) and pelvic lymph node dissection (PLND) for patients with urothelial carcinoma treated at one academic center.

Methods: From January 2003 to September 2009, two surgeons from a single institution performed 207 consecutive RC and PLND for bladder cancer. After excluding patients with non−urothelial histologies, metastatic disease at presentation and cases of salvage cystectomy, 176 patients had evaluable data for analysis. The data elements were the same as for the original nomogram, including age, gender, pathological T stage, N stage and grade, presence of carcinoma in situ (CIS) and lymphovascular invasion (LVI), neoadjuvant chemotherapy (CHT), adjuvant CHT and adjuvant radiation therapy. Predictive accuracy estimates were measured using the receiver operating characteristics derived area under the curve.

Results: Median age was 69 years (interquartile range [IQR], 61, 75), 88.6% were male, and median follow−up for patients alive was 24 months (IQR, 11, 49). The majority of patients had muscle invasive disease (pT2, pT3 and pT4 in 16.5%, 31.0% and 10.2%, respectively) and high−grade tumors (79.0%); 23.9% had positive nodes (pN1=5.7% and pN2=18.2%). CIS and LVI were present in 52.8% and 32.4% of patients, respectively. Neoadjuvant CHT was used in 9.1%, while adjuvant CHT was used in 31.8% of patients. The predictive accuracy estimates at 2, 5 and 8 years for recurrence, cancer−specific and overall survival were 77.9, 81.2, 79.6%, 79.9, 82.2, 83.2%, and 79.4, 81.0, 81.8%, respectively. Calibration plots revealed overestimation of predictions in all three endpoints.

Conclusions: The bladder cancer nomograms for prediction of recurrence, cancer−specific and overall survival (http://www.nomogram.org) performed well with reasonable accuracy in this cohort of patients treated with RC and PLND. Future clinical trials are needed to explore the potential impact of nomogram prediction on treatment selection and disease management.
QUALITY AND CONSISTENT PELVIC LYMPH NODE DISSECTION FOR BLADDER CANCER DESPITE POTENTIALLY ADVERSE CLINICAL VARIABLES

Brigitte Espinoza¹, Samuel Lawindy², Hui-Yi Lin³, Xiuhua Zhao³, Julio PowSang¹, Philippe Spiess¹ and Wade Sexton¹
¹Moffitt Cancer Center, Tampa, FL; ²University of South Florida, Tampa, FL; ³Biostatistics Department, Moffitt Cancer Center & Research Institute, Tampa, FL
(Presented By: Brigitte Espinoza)

Objectives: Studies reveal that larger numbers of lymph nodes resected at the time of Radical Cystectomy (RC) translates into improved disease specific survival likely due to the removal of lymph nodes harboring micrometastatic disease. We evaluated various factors that might negatively impact the yield of a pelvic lymph node dissection (PLND) in patients undergoing RC.

Patients and Methods: From January 2004 to January 2010, 358 patients underwent RC and bilateral PLND for BC. Demographic, clinical, operative, and pathological variables were retrospectively reviewed and analyzed in both univariate and multivariate models using Poisson model analysis to determine their impact on the number of lymph nodes removed. Studied variables included age, sex, body mass index (BMI), surgical approach (open, laparoscopic, robotic), previous neoadjuvant chemotherapy, previous abdominal/pelvic surgery, prior therapies for prostate cancer (radiotherapy (XRT), brachytherapy, radical prostatectomy, cryotherapy), estimated blood loss (EBL), type of PLND (standard vs extended), type of urinary diversion and pTNM stage. P−values < 0.05 were considered statistically significant.

Results: Median number of nodes resected was 15 (IQ range 10−21). In the univariable model, the following variables were associated with decreased node counts; type of PLND (P< .0001), previous pelvic surgery (P=.0065), surgical approach (P=.0016), neoadjuvant chemotherapy (P=.0265), prior prostate cancer therapy (P=.0234) and diversion with cutaneous ureterostomies (P= .0065). However, in the final Poisson multivariable analysis, only the type of LND (<0.0001) negatively impacted the pathologic node count.

Conclusions: Pathologic node counts at the time of RC and PLND for BC are dependent upon the extent of dissection. We did not identify specific clinical factors that consistently affected the total lymph node yield and thus the quality of the PLND.

CLINICAL OUTCOMES AND IMPACT OF SURGICAL TREATMENT IN THE RENAL FUNCTION OF SECOND PRIMARY TUMORS OF THE UPPER URINARY TRACT FOLLOWING RADICAL CYSTECTOMY

Joceline Liu, Guilherme Godoy, Gilad E. Amiel and Seth P. Lerner
Scott Department of Urology, Baylor College of Medicine, Houston, TX
(Presented By: Joceline Liu)

Introduction: Patients with bladder urothelial carcinoma (UC) are at risk for developing second primary tumors (SPTs) in the upper urinary tract (UUT), which tend to behave aggressively. Perioperative cisplatin−based therapy (CBT) is standard of care for muscle invasive bladder UC and requires adequate renal function which may be a limitation after definitive surgery for UUT cancers.

Objective: To evaluate the outcomes of patients with SPTs after radical cystectomy (RC). Of particular interest is change in glomerular filtration rate (GFR) associated with UUT−SPT surgical treatment, and eligibility for peri−operative CBT.

Methods: From January 2003 to January 2010, two surgeons at a single institution performed 265 consecutive RC for bladder UC. Twenty−nine patients developed SPTs after RC. Of the 23 patients who underwent surgical management, 20 had UUT−SPT and are the focus of this study. Patient outcomes were measured using end points of survivorship and GFR, in relation to tumor stage, grade and time to SPT.

Results: SPT were predominantly invasive (T2=35.0%, T3=15.0%, T4=10.0%), high−grade (90.0%) with CIS+ in 25.0%. Patients underwent nephroureterectomy (80.0%) or ureterectomy (10.0%). Adjuvant chemotherapy was used after RC in 30.0%, and as neoadjuvant and adjuvant to SPT treatment in 5.0% and 25.0%, respectively. Median time (IQR) to SPT occurrence after RC was 37.0(17.0, 50.0) months while follow−up in patients alive after UUT−SPT surgery was 34.0(13.0, 42.0) months. The estimated 5−year disease−specific and overall survival following treatment was 55.0% and 44.6%, respectively. Median (IQR) GFR precystectomy was 68.1(53.6, 72.8), pre−UUT−SPT surgery was 49.0(45.8, 59.8), while post−UUT−SPT surgery was 39.0(34.5, 43.6) mL/min/1.73m2. Eligibility for CBT decreased after UUT−SPT treatment from 77.8% to 22.3%, and from 27.8% to 5.6%, based on the GFR cutoffs of 45 and 60 mL/min/1.73m2, respectively. This resulted in a significant proportion of patients rendered ineligible for CBT as a result of surgical treatment (p=0.002).

Conclusions: UUT−SPTs manifest as more advanced disease after RC. Surgical treatment of UUT−SPTs adversely impact renal function, with consequences in CBT eligibility. These results merit a larger study to evaluate the role of neoadjuvant chemotherapy and explore novel, non−nephrotoxic targeted therapies in the peri−operative setting of surgery for SPTs.
Poster #128

SURGICAL MANAGEMENT OF RENAL LESIONS: A COMPARISON OF CRYOABLATION, PARTIAL AND RADICAL NEPHRECTOMY IN THE NATIONWIDE INPATIENT SAMPLE
Jeffrey Woldrich, Ryan Kopp, Sean Stroup, Kerrin Palazzi-Churas and Ithaar Derweesh
UCSD, San Diego, CA
(Presented By: Jeffrey Woldrich)

Purpose: We sought to explore trends in the surgical management of renal masses and identify clinical variables associated with the selection of each technique.

Methods: We queried the Nationwide Inpatient Sample (NIS), identifying all hospital admissions in patients older than 18 years with a primary diagnosis of renal mass undergoing cryoablation (CA), radical (RN) or partial nephrectomy (PN) from 1998 to 2007. Linear Regression Models examined annual trends in prevalence of these procedures. Multivariate analysis (MVA) explored age, race, sex and comorbid disease on surgery selected. We performed statistical analysis using Pearson correlation, chi squared, and ANOVA tests.

Results: We identified 498,162 procedures performed during the study period: 17,643 CA, 66,619 PN and 413,900 RN. The prevalence of CA was 6.1/100,000 hospital admissions in 1998 and did not increase over the study period. The prevalence of PN was 10.4/100,000 hospital admissions in the same year and increased by 2.84/100,000 hospital admissions/year throughout the study period (p<0.001). The prevalence of RN was 135/100,000 hospital admissions in 1998 and also increased by 1.52/100,000 hospital admission/year (p=0.004). On MVA age<70, male sex, Caucasian race, hypertension and diabetes favored the performance of CA or PN over RN (all p≤0.011). There was an increased odds ratio of RN in patients with a diagnosis of chronic kidney disease or renal cell carcinoma as compared to other modalities (both p≤0.01). Patients 70 years or older were 2.14 times more likely to undergo CA than PN (p<0.001). Diabetic patients also had an odds ratio of 1.21 of undergoing CA rather than PN (p<0.001). African-American patients had a slightly increased prevalence of PN as compared to CA (p=0.026). Patients with a diagnosis of renal cell carcinoma were 6.44 times more likely to undergo PN than CA (p<0.001).

Conclusion: The prevalences of PN and RN are increasing, although RN remains the dominant procedure performed. Patients who are younger, male, Caucasian, hypertensive or diabetic are more likely to undergo a nephron sparing approach. Of these patients, those younger than 70 and those with a diagnosis of renal cell carcinoma were most likely to undergo PN.

Poster #129

NEPHROMETRY SCORING AS A PREDICTIVE TOOL FOR PERIOPERATIVE OUTCOMES
Nikhil Waingankar, Mostafa Sadek, Sylvia Montag, Zhamshid Okhunov, Lee Richstone, Louis Kavoussi and Manish Vira
Smith Institute for Urology, North Shore-Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Nikhil Waingankar)

Introduction: Nephrometry scoring was developed as a means to assess renal tumor complexity. Three points each are given for tumor size, exophytic vs endophytic nature, nearness to the collecting system, and polar location, with more complex lesions receiving higher scores. We applied this system to a series of patients undergoing laparoscopic partial nephrectomy (LPN) to determine if nephrometry scoring is predictive of perioperative outcomes.

Materials and Methods: Imaging was retrospectively reviewed for 306 patients who underwent LPN by a single surgeon (LRK) at our institution. After review of CT scan or MRI, nephrometry scores were assessed. Perioperative data were reviewed in our prospectively maintained operative database. Univariate and multivariate analyses were performed to assess the correlation between nephrometry score and outcome measures.

Results: Mean Nephrometry sum across the series was 7.1 (SD 2.0). The possible range in R.E.N.A.L−NS is 4−12. In our series, there were 34 patients with a sum of 4 (11.1%), 44 with a sum of 5 (14.4%), 58 with a sum of 6 (19.0%), 39 with a sum of 7 (12.7%), 44 with a sum of 8 (14.4%), 46 with a sum of 9 (15.0%), 37 with a sum of 10 (12.1%), and 4 with a sum of 11 (1.3%). On univariate analysis, R.E.N.A.L−NS was found to be significantly associated with warm ischemic time (p<0.001), % change in creatinine (p=0.043), postoperative transfusions (p=0.046), postoperative complications (p=0.026), and length of stay (p=0.020). On multivariate analysis, total R.E.N.A.L−NS was found to be an independent predictor of warm ischemic time (p=0.017).

Conclusion: Our findings with R.E.N.A.L−NS in a series of laparoscopic partial nephrectomy patients validate its use as a classification scheme that quantifies anatomical complexity of renal tumors relative to surgical resection.
URINARY COLLECTING SYSTEM INVASION IS A PREDICTOR FOR OVERALL AND DISEASE-SPECIFIC SURVIVAL IN LOCALLY INVASIVE RENAL CELL CARCINOMA

Christopher B. Anderson, Peter E. Clark, Todd M. Morgan, Kelly L. Stratton, S. Duke Herrell, Rodney Davis, Michael S. Cookson, Joseph A. Smith, Jr. and Sam S. Chang
Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN
(Presented By: Christopher B. Anderson)

Purpose: The significance of renal cell carcinoma (RCC) invasion into the urinary collecting system remains in question. While urinary collecting system invasion (UCSI) was previously included in the TNM staging classification, it is no longer a part of the current system. We sought to examine the impact of UCSI on survival in patients with locally advanced RCC.

Materials and Methods: We identified 1,420 consecutive patients who underwent radical nephrectomy at a single institution between 1988 and 2008. Patients with pathologic pT3 RCC who had data on UCSI were included in the study. Clinicopathologic variables were compared using Chi-squared tests. Cox multivariate survival analysis was performed to evaluate the relationship between UCSI and both overall and disease-specific survival.

Results: 312 patients were identified with pT3 RCC, of whom 22.2% had UCSI. In the univariate analysis, UCSI was significantly associated with higher T stage (i.e. pT3a vs pT3b; p=0.033), higher grade (p=0.044), the presence of sarcomatoid features (p=0.032) and the presence of positive lymph nodes (p=0.008). Furthermore, patients with UCSI had lower 5 year overall survival (52.2% vs. 32.2%; p=0.001), and disease-specific survival (60.1% vs. 35.7%; p<0.001). UCSI remained independently associated with overall (p=0.039) and disease-specific survival (p=0.008) on multivariate analysis.

Conclusions: The presence of UCSI is associated with a significant decrease in overall and disease-specific survival in patients undergoing radical nephrectomy for pT3 RCC. Locally advanced tumors that cross an additional anatomic boundary into the urinary collecting system appear to represent a particularly aggressive form of disease. To date, there have been no studies examining this relationship for locally advanced tumors. These data suggest that the inclusion of UCSI should be considered in the next TNM staging system for RCC.
Poster #131

**POPULATION BASED ANALYSIS OF SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA AND VENOUS TUMOR THROMBUS**

Jared Whitson, Adam Reese and Maxwell Meng
UCSF, San Francisco, CA
(Presented By: Jared Whitson)

**Objectives:** Venous tumor thrombi (VTT) are present in a subset of patients with renal cell carcinoma (RCC) and represent advanced tumor stage. It is unclear whether the same prognostic factors for all patients with RCC pertain to those with VTT.

**Methods:** Patients within the Surveillance, Epidemiology, and End Results database with RCC and VTT were identified and their management was characterized as either surgical or non-operative. The Kaplan–Meier method and Cox regression analyses were performed to identify factors associated with disease–specific mortality.

**Results:** One–year survival for patients undergoing surgery was 90% (M0) and 60% (M+), as compared to 49% (M0) and 23% (M+) in non–operative patients. In multivariable analysis, there was decreased mortality in surgically managed patients (HR 0.4, 95% CI 0.3–0.5). In the surgical cohort, factors associated with mortality included larger tumor size (HR 1.2, 95% CI 1.0–1.4), medullary, collecting duct, or sarcomatoid histology (HR 2.2, 95% CI 1.5–3.3), grade 3 (HR 2.2, 95% CI 1.5–3.3) or grade 4 (HR 2.9, 95% CI 1.8–4.5) tumors, positive lymph nodes (HR 1.5, 95% CI 1.0–2.0), and metastases (HR 3.5, 95% CI 2.6–4.8). In patients managed non–operatively, only tumor thrombus level above the diaphragm (HR 1.7, 95% CI 1.0–2.7) and metastases (HR 3.2, 95% CI 1.8–5.8) were associated with mortality.

**Conclusions:** In this large, population–based study of patients with RCC and VTT, disease–specific factors were strongly associated with cancer–specific mortality. After controlling for adverse prognostic factors, surgery was significantly associated with improved outcome independent of the presence of metastatic disease.

---

Poster #132

**SYNERGISTIC ANTIPROLIFERATIVE EFFECT OF COMBINATION MUSHROOM BETA-GLUCAN AND VITAMIN C ON ADVANCED RENAL CELL CARCINOMA: INDUCTION OF APOPTOSIS**

Andrew Fishman, Bobby Alexander, David Green, Muhammad Choudhury, John Phillips and Sensuke Konno
Department of Urology, New York Medical College, Valhalla, NY
(Presented By: Andrew Fishman)

**Introduction and Objectives:** The poor overall survival of advanced renal cell carcinoma (RCC) makes clear the urgent need for more effective treatment modalities. Beta–glucan, a bioactive compound has been shown to have anticancer and immunostimulatory activity and potentiated by vitamin C (VC). We examined the combined effects of mushroom beta–glucan (MBG) and VC on the growth of RCC in vitro as an unconventional, alternative approach.

**Methods:** Human RCC cell lines (ACHN) were employed and cultured with varying concentrations of MBG (obtained commercially) or in combination with VC. Cell growth was assessed at specified times using a trypan blue exclusion method. To explore the growth inhibitory mechanism, cell cycle analysis and Western blot analysis on several apoptotic parameters were also performed.

**Results:** MBG by itself was capable of inducing a ~40% and ~65% growth reduction at 700 and 1000 μg/ml, respectively. Both MBG (<500 μg/ml) and VC (200 μM) by itself had no effects on cell growth, but when the ineffective concentration of MBG (300 μg/ml) was combined with VC (200 μM), a ~90% growth reduction was attained. Cell cycle analysis revealed an 85% decrease in the S phase cell population with a concomitant 75% increase in G1 cells following such MBG/VC treatment. Western blots further exhibited that MBG/VC–induced growth reduction was associated with a down–regulation of anti–apoptotic bcl−2, up–regulation of pro–apoptotic Bax, and degradation of poly–(ADP–ribose)–polymerase (PARP), indicating induction of apoptosis.

**Conclusions:** MBG alone demonstrates antiproliferative effect on RCC cells in vitro, at relative high concentrations (>700 μg/ml). However, a lower concentration of MBG (300 μg/ml) can be synergistically potentiated in combination with VC (200 μM), resulting in a ~90% growth reduction. This is also accompanied by a G1 cell cycle arrest and the modulation of apoptotic regulators (bcl−2, Bax, and PARP). Therefore, MBG/VC–induced growth reduction is more likely attributed to apoptosis (programmed cell death) which may provide a more effective alternative treatment modality for advanced RCC in the future.
**Poster #133**

**PERIOPERATIVE MANAGEMENT OF RENAL CELL CARCINOMA WITH INFERIOR VENA CAVAL TUMOR THROMBUS: AN INSTITUTIONAL PROTOCOL**

Daniel Woodruff, Peter Van Veldhuizen, Phillip Johnson, Greg Muehlebach, Timothy Williamson and Jeffery Holzbeierlein

University of Kansas Medical Center, Kansas City, KS

(Presented By: Daniel Woodruff)

**Objective:** Although an inferior vena caval tumor thrombus (IVC–TT) occurs in only 10% of patients diagnosed with renal cell carcinoma (RCC), the perioperative management of these patients remains challenging. Multiple publications have outlined surgical approaches and outcomes, but there have been no studies detailing the best perioperative clinical management of patients with IVC–TT. Our goal was to define the optimal management of these patients.

**Materials and Methods:** A review of all published literature regarding management of RCC with IVC–TT was performed utilizing PubMed and the Cochrane Database. Reviews were also made of all relevant literature regarding the need for cardiopulmonary bypass and recommendations regarding thrombus in any location in patients with malignancy. Specific items critically examined included: need for preoperative heart catheterization, need for anticoagulation, type of anticoagulation, need for additional studies such as lower extremity duplex or vengogram, and indications for vena cava filter placement. Results were then presented to a multidisciplinary group made up of experts in the fields of Urology, Hematology/Oncology, Cardiothoracic Surgery, Interventional Radiology, and Pulmonary medicine. Based on the available literature a best practice guidelines regarding the management of RCC with IVC–TT was established at our institution.

**Results:** Our institutional recommendations were: 1) Preoperative cardiac catheterization in all patients believed to require cardiopulmonary bypass for removal of the thrombus but only cardiac clearance for those who bypass is unlikely, 2) Preoperative anticoagulation using a low molecular weight heparin such as enoxaparin unless contraindicated due to bleeding from the tumor or other contraindication, 3) A lower extremity duplex ultrasound to evaluate the presence of thrombosis in the legs which may present as a pulmonary embolism postoperatively, and 4) Avoidance of vena caval filters whenever possible is recommended due the potential for caval thrombosis and the difficulties they present during surgical resection.

**Conclusion:** This study identified the available literature on the management of IVC–TT in association with RCC and was carefully reviewed by a multidisciplinary team. As a result we have established a set of practice guidelines at our institution to help optimally manage patients with RCC and an inferior vena caval thrombus. This research was unfunded.

**Poster #134**

**ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR RENAL TUMORS GREATER THAN 4 CM: A MULTI-INSTITUTIONAL ANALYSIS OF PERIOPERATIVE OUTCOMES IN 445 PATIENTS**

Firas Petros¹, Georges-Pascal Haber², Lori Dulabon³, Shyam Sukumar¹, Sam Bhayani¹, Michael Stifelman³, Jihad Kaouk² and Craig Rogers¹

¹Vattikuti Urology Institute, Henry Ford Hospital, Detroit, MI; ²Glickman Urological and Kidney Institute, Cleveland Clinic Foundation, Cleveland, OH; ³Department of Urology, NYU Medical Center, New York, NY; ⁴Division of Urological Surgery, Washington University School of Medicine, St. Louis, MO

(Presented By: Firas Petros)

**Introduction:** Robotic Assisted Partial Nephrectomy (RAPN) has emerged as a viable approach to minimally invasive surgery for small renal tumors. There are few reports of RAPN for tumors > 4 cm. We evaluate perioperative outcomes of RAPN for tumors > 4 cm in size compared to RAPN for tumors ≤ 4 cm in a large multi-institutional study.

**Methods:** Data for 445 consecutive patients who underwent RAPN at 4 institutions between June 2006 and April 2010 were reviewed. Patients were stratified into two groups according to tumor size on preoperative radiographic imaging: 83 with tumors >4 cm (group 1) and 362 patients with tumors ≤4 cm (group 2). Outcomes were compared between groups.

**Results:** Median radiographic tumor size was 5.0 cm (4.1–11 cm) for group 1 and 2.3 cm (0.7– 4 cm) for group 2. Patients with tumors>4 cm had a greater warm ischemia time−(24 vs. 17 minutes, p<0.001), operative time−(194 vs. 180 minutes, p=0.017), blood loss−(200 vs. 150 ml, p=0.001) and rate of collecting system repair−(72.2% vs. 51.6%, p= 0.006). There was no statistically significant difference in percent decrease in mean estimated GFR between groups at 1 month−(9% vs. 4.5%, p=0.09). There was no difference in overall complications between groups.

**Conclusions:** In the largest multi-institutional series of RAPN for clinical stage T1b tumors to date, RAPN for tumors > 4 cm is safe and feasible showing comparable outcomes to RAPN for smaller tumors. Large tumors have greater warm ischemia times, operative times, blood loss and rate of collecting system repair.
ASSOCIATION OF R.E.N.A.L. NEPHROMETRY SCORE AND ISCHEMIA TIME DURING PARTIAL NEPHRECTOMY

Jason Bylund, Dustin Gayheart, Ramakrishna Venkatesh, David Preston, Stephen Strup and Paul Crispen
University of Kentucky, Lexington, KY
(Presented By: Jason Bylund)

Introduction and Objective: The R.E.N.A.L. Nephrometry Score (RNS) was introduced in attempt to standardize the reporting of renal tumors based upon tumor size, location and depth. The proposed scoring system may reveal surgical complexity, especially when applied to patients undergoing partial nephrectomy. However the scoring system has yet to be validated or associated with intraoperative outcomes. Here then, we evaluate the association of the RNS with intraoperative outcomes at the time of partial nephrectomy.

Methods: Patients undergoing partial nephrectomy, open or laparoscopic, with available contrast enhanced cross sectional preoperative imaging were identified between from 2005 to 2009. RNS were assigned according to the previously described protocol. Tumors were further characterized as being of low (score 4−6), moderate (score 7−9), and high (score 10−12) complexity. Associations between total RNS and estimated blood loss, ischemia time, and total operative time were examined using the Kruskal−Wallis Test.

Results: A total of 106 patients were identified with appropriate preoperative imaging prior to partial nephrectomy. Median patient age was 59 years. 51% of the tumors were located in the right kidney. Median tumor size was 2.6 cm (range 1.0 –7.7). RNS ranged from 4 to 11, with 65% (69/106) low, 31% (32/106) moderate, and 5% (5/106) highly complex tumors. Median estimated blood loss, ischemia time and total operative were 200cc, 24 minutes, and 203 minutes, respectively. Estimated blood loss was not significantly associated with total RNS (p = 0.552) or complexity (p = 0.80). Ischemia time was significantly associated with total RNS (p = 0.029) and complexity (p = 0.0004), with lower scores and lower complexity tumors having shorter arterial clamp times. Total RNS (p =0.85) and complexity (p = 0.64) were not significantly associated with total operative time.

Conclusions: The RNS is a reproducible system that reflects the surgical complexity of renal tumors undergoing partial nephrectomy based upon renal ischemic time. These findings support the use of the RNS during preoperative planning and when comparing surgical outcomes in patients undergoing partial nephrectomy.

RADIOGRAPHIC PREDICTORS OF VENA CAVA WALL INVASION BY TUMOR THROMBUS IN RENAL CELL CARCINOMA

Eric Umbreit, Mark Shimko, R. Houston Thompson and Bradley Leibovich
Mayo Clinic, Rochester, MN
(Presented By: Eric Umbreit)

Objective: To determine whether IVC wall invasion could be predicted by measuring renal vein and suprahilar IVC diameters on imaging.

Methods: From 1970 to 2006, 28 patients had IVC wall invasion by tumor thrombus at the time of nephrectomy. Utilizing preoperative MRI or CT, the largest axial diameter of the renal vein(RV) and suprahilar IVC anteroposterior diameter were measured. Wall invasion was determined pathologically. Fifty–six controls (two for each case with wall invasion) were selected by matching on date of surgery, tumor size and thrombus level. Conditional logistic regression was used to determine the risk of IVC wall invasion.

Results: The mean RV diameters were 26.2 mm and 18.6 mm and the mean IVC diameters were 36.2 and 29.0 for the IVC wall invasion and control groups, respectively. Each 1–mm increase in RV diameter was associated with a 21% increase in the risk of IVC wall invasion (odds ratio 1.21; p=0.027). Similarly, each 1–mm increase in IVC diameter was associated with a 14% increase in the risk of IVC wall invasion (odds ratio 1.14; p=0.025). Patients with RV diameters ≥21mm were significantly more likely to have invasion compared to patients with RV diameters <21mm (odds ratio 5.16; p=0.041).

Conclusions: Patients with renal cell carcinoma tumor thrombus are at risk for IVC wall invasion and can be risk–stratified based on preoperative radiographic imaging. The presence of a large tumor thrombus and expanded renal vein or IVC diameter increases the risk of invasion and the subsequent need for complex vascular repair.
PERCUTANEOUS ABLATION OF T1A RENAL CELL CARCINOMA: THE ALBANY MEDICAL CENTER EXPERIENCE

Michael Feuerstein¹, Ronald Kaufman, Jr¹, Kenneth Mandato², Allen Herr², Badar Mian¹, Hugh Fisher¹ and Gary Siskin²
¹Albany Medical College and Stratton Veterans Affairs Medical Center, Albany, NY; ²Albany Medical College, Albany, NY
(Presented By: Michael Feuerstein)

Introduction: Partial nephrectomy has become the standard treatment for small renal cancers. Thermal ablation and observation remain options for appropriate patients, but data are still lacking. Many previous series of thermal ablation include various surgical techniques and high rates of benign disease. We present our experience with image-guided, thermal ablation for patients with biopsy-proven, T1a renal cell carcinoma (RCC).

Methods: This is a retrospective review of consecutive cases of radiofrequency or cryotherapy ablation of T1a (≤ 4cm) RCC performed at our center. All patients underwent a pre-ablation, percutaneous biopsy. Pre-operative data including demographics, body mass index (BMI), Charlson comorbidity index (CCI), and pathology results were recorded. The type of procedure (RFA or cryotherapy) and post-procedure complications were documented. Follow-up information consisted of last available imaging, date of last follow-up, and change in GFR. Recurrence was defined as an enhancing lesion on CT or MRI when a confirmatory biopsy was not obtained.

Results: From January 2005 to December 2009, our center performed 50 percutaneous ablation procedures for renal masses. Thirty patients (60%) had a T1a RCC with a confirmatory biopsy, including three patients who underwent previous nephrectomy for RCC. Median age was 70 years (range 42–88), median BMI 33 kg/m² (range 23–50), and median tumor size was 2.5cm (range 1.6–4.0). Median and mean follow-up were 14 and 19 months, respectively. Twenty-six patients (87%) had no local progression of disease. All four patients with local progression underwent a successful second ablation. One patient with a prior history of RCC developed systemic disease. Median change in GFR was −3.5 ml/min/1.73m². There was one major complication of a pneumothorax in our series.

Conclusions: Percutaneous ablation of T1a RCC resulted in short-term outcomes comparable to partial nephrectomy, with no effect on renal function. For patients with advanced age, morbid obesity, and high-risk co-morbidities, percutaneous ablation provides a safe surgical option. We advocate pre-ablation biopsies in future studies until long-term results are verified.

FEASIBILITY AND OUTCOMES OF LAPAROSCOPIC RENAL INTERVENTION AFTER PRIOR OPEN IPSILATERAL RETROPERITONEAL SURGERY

Ronald Boris¹, Gopal Gupta², W. Marston Linehan³, Peter Pinto³ and Gennady Bratslavsky²
¹Indiana University Medical Center, Indianapolis, IN; ²National Cancer Institute, Bethesda, MD
(Presented By: Ronald Boris)

Introduction and Objectives: Managing patients with recurrent or de novo renal tumors after prior retroperitoneal surgery is technically challenging. We present our initial experience with laparoscopic renal interventions (LRI) after prior open retroperitoneal surgery to evaluate feasibility and outcomes in patients requiring ipsilateral renal intervention.

Methods: We reviewed records of patients undergoing attempted laparoscopic or robot-assisted renal intervention after at least one prior open ipsilateral retroperitoneal surgery between April 2001 and October 2009. Demographic, perioperative, renal functional, and oncologic outcome data were collected. Logistic regression analyses were performed to identify risks for conversion to open surgery. A total of 34 patients underwent 39 staged attempted LRI after 48 prior open ipsilateral renal or adrenal surgeries. The LRI included 20 minimally invasive partial nephrectomies (MIPN), 11 laparoscopic RFAs (LRFA), and 8 laparoscopic nephrectomies (LTN).

Results: No attempted nephron sparing procedure resulted in kidney loss. Overall conversion rate of the entire cohort was 28% and was highest in the MIPN group (40%). On univariate analysis only multiple tumors treated significantly increased chances of open conversion (p<0.01). A subset analysis demonstrated similar rates of blood loss, operative times, and conversion rates in patients undergoing partial nephrectomy having prior open partial nephrectomy compared to prior open adrenal surgery only. There was no significant difference in preservation of renal function between MIPN and LRFA, with over 85% of preoperative renal function preserved. For the entire cohort at mean follow up of 11.9 months (range 1–97.5) metastasis-free survival and overall survival was 94.1% and 97%, respectively.
Conclusions: LRI after prior open ipsilateral retroperitoneal surgery is feasible. Repeat partial nephrectomy has the highest conversion risks amongst the laparoscopic renal interventions and appears to be independent of prior renal or adrenal procedure. Attempting repeat LRI for multiple tumors is a significant risk factor for open conversion. Renal functional and oncologic outcomes are encouraging at early follow up.

Poster #139

OUTCOMES OF KIDNEY CANCER ARISING FROM THE DISTAL NEPHRON – A SEER ANALYSIS
Michael Abern¹, Annie Dude² and Christopher Coogan¹
¹Rush University Medical Center, Chicago, IL; ²University of Chicago, Chicago, IL
(Presented By: Michael Abern)

Introduction and Objectives: Medullary renal cell carcinoma (MRCC) is a rare tumor associated with sickle cell nephropathy in young patients and portends a poor prognosis. It is believed to originate from the medullary distal nephron and is therefore classified as a subtype of collecting duct carcinoma (CDC). Literature to date has largely been case reports or small case series. We examine a national tumor registry to compare the clinical characteristics and outcomes from cases of distal nephron tumors.

Methods: We examined all cases of MRCC (n=21) and CDC (n=227) reported to The Surveillance, Epidemiology and End Results (SEER) database between 1988 –2007. Staging for cases prior to 2003 were converted to the current AJCC definitions. A Cox proportional hazard model was created controlling for race, gender, age at diagnosis, stage, and tumor histology. The primary endpoint was all−cause survival. Student T and chi square tests were used for bivariate analysis. Results were reported as Cox proportional hazard ratios (HR) and Kaplan–Meier survival curves.

Results Obtained: Patients with MRCC are younger (26.4 years vs. 61.8 years, p < 0.001), more often African American (71.4% vs. 23.3%, p < 0.001), metastatic at presentation (71.4% vs. 27.8%, p = 0.009), and less likely to undergo surgery (61.9% vs. 84.6%, p < 0.01) compared to patients with CDC. Median survival and 1 year survival was 5 months and 35%, respectively for MRCC and 26 months and 64% for CDC (p = 0.003).

Conclusions: Patients with MRCC present younger, at a later stage, are more often African American, and have a poor prognosis. The clinical and survival characteristics are significantly different compared to CDC.

Poster #140

ONCOLOGIC OUTCOMES OF ENUCLEATIVE SURGERY FOR HIGH GRADE CLEAR CELL RENAL CELL CARCINOMA IN VHL PATIENTS
Heinric Williams, Anup Vora, Peter Pinto, W. Marston Linehan and Gennady Bratslavsky
National Cancer Institute
(Presented By: Heinric Williams)

Introduction and Objectives: While enucleative surgery for sporadic renal cell carcinoma (RCC) is not routinely practiced because of concerns for local recurrence, there have been recent reports supporting this technique for sporadic renal masses. Patients with von Hippel Lindau (VHL) develop multiple clear cell carcinomas that are routinely treated with enucleative resection when the largest lesion reaches 3cm. Since we are unable to identify high grade lesions preoperatively, our patient population provides us with unique opportunity to assess the oncologic outcomes of patients treated with enucleative surgery for high grade lesions.

Methods: VHL patients treated at the National Cancer Institute between 1990 and 2010 with enucleative partial nephrectomy and found to have high grade (Fuhrman Grade ≥3) clear cell RCC on final pathology were included in this study. Patients were excluded if they had evidence of metastatic disease at the time of surgery. The pathology reports were reviewed for the number and size of all and high grade lesions removed. The oncologic outcomes were assessed by the need and time to repeat intervention on the same renal unit and development of metastatic disease.
**Results:** We identified 20 patients that underwent enucleative surgeries for high grade clear cell RCC on 21 renal units. The average number of tumors removed was 6 (1–14) with the average number of high grade tumors of 1.8 (1–5). The average size of the high grade lesions was 3.9 cm (0.7 to 7) After a median follow-up of 7.5 years (1 to 21 years), only one patient (5%) developed metastatic disease and subsequently died. Reintervention on the same renal unit was required in 5 of 21 renal units (24%) and included 2 subsequent partial nephrectomies, 1 total nephrectomy, and 2 radio frequency ablations. The median time to reintervention on the same unit was 72 months.

**Conclusion:** This data suggests that enucleative surgery for high grade renal lesions may remain a reasonable technique. The oncologic outcomes of surgery for high grade lesions do not seem to be compromised with enucleative resection. Despite encouraging oncologic outcomes in VHL patients, application of this technique to the sporadic RCC population would need further validation.

**Poster #141**

**COMPARISON OF OPEN, LAPAROSCOPIC, AND ROBOTIC PARTIAL NEPHRECTOMY FOR PT1B RENAL TUMORS**

Nicholas Power, Preston Sprenkle, Tarek Ghoneim, Paul Russo and Jonathan Coleman

MSKCC, NY, NY

(Presented By: Nicholas Power)

**Introduction:** The indication for partial nephrectomy in the treatment of RCC is evolving, particularly for larger, more complex tumors. The following study compares the current treatment modalities of robotically assisted laparoscopic (RALPN), pure laparoscopic (LPN) and open partial nephrectomy (OPN) for T1b tumors. Perioperative, oncologic and functional outcomes were analyzed for each technique with intermediate follow-up.

**Materials and Methods:** A total of 2290 patients who underwent partial nephrectomy at MSKCC by 15 urologic oncologists were identified after IRB approval from January 2002 to July 2010. Of these, 232 patients with pT1b renal cortical tumors were reviewed. 187 patients underwent OPN (13 surgeons, 108 underwent mini-flank incisions), 28 LPN (3 surgeons) and 18 (4 surgeons) RALPN. All perioperative management was uniform on clinical pathway. Perioperative data, clinicopathologic variables and oncologic outcomes were reviewed. Fisher exact and Chi-squared tests were used for descriptive statistical analysis.

**Results:** Median follow-up for OPN, LPN, and RALPN was 26.6 mos, 19.7 mos, and 6.4 mos, respectively. There were no significant differences in age, renal function outcomes (eGFR), gender, laterality, EBL, transfusion rates, operative time, histological subtype, tumor size, and margin status between procedures. Univariate non-parametric analysis revealed significant differences in preop ASA score (higher score in RALPN vs OPN, p=0.04), ischemia time (OPN 41.5 min, LPN 38.5 min, RALPN 34 min; p=0.01), renal hypothermia (OPN 79%, LPN 3%, RALPN 11%; p=0.004), and median length of stay (OPN 4d, LPN 3d, RALPN 3d; p=0.005). Postoperative pain medication use data revealed no difference between techniques (opioid p=0.968, acetaminophen p=0.146, and ibuprofen p=0.918). 1 conversion to open occurred in each of the LPN and RALPN groups. There were no cancer specific deaths. One local recurrence and 4 metastasis events occurred in the OPN group (median 16.3 months to events).

**Conclusion:** In this series with limited follow up, open and minimally invasive partial nephrectomy procedures for pT1b tumors appear to be comparable in terms of operative, functional and convalescence outcomes. Minimally invasive procedures were associated with less renal ischemia time and shorter LOS. Further follow up is needed to evaluate for oncologic endpoints of local and distant recurrences.

**Poster #142**

**WITHDRAWN**
**Poster Session II**

**Poster #143**

**OFF-CLAMP VERSUS ON-CLAMP LAPAROSCOPIC PARTIAL NEPHRECTOMY: DOES CLINICAL STAGE MATTER?**
The Arthur Smith Institute for Urology, North Shore - Long Island Jewish Health System, New Hyde Park, NY
(Presented By: Soroush Rais-Bahrami)

**Introduction and Objectives:** We aim to show the operative feasibility and oncologic efficacy of performing off–clamp laparoscopic partial nephrectomy (LPN), avoiding warm ischemia, not only for patients with cT1a tumors but also those with a larger tumor burden.

**Methods:** Retrospective review of all LPN between June 2006 and March 2010 was performed, stratifying 390 patients by clinical T−stage (cT1a=313, cT1b=62, cT2=15). Perioperative and postoperative parameters were investigated comparing patients who underwent LPN with hilar−control (n=264) versus those who had off−clamp LPN (n=126) collectively and within each clinical stage cohort.

**Results:** There was no significant difference in the proportion of off−clamp LPN for cT1a tumors, compared to cT1b, and cT2, p=0.21. Off−clamp versus hilar−control LPN patients had a significantly greater estimated blood loss when compared collectively (p=0.05) with no significant difference in either intraoperative or postoperative transfusion rates. This difference was true only for the subset analysis of cT1a (p=0.02), but not cT1b (p=0.91) or cT2 (0.42) tumors. There was no difference in the operative time or length of hospitalization comparing off−clamp to hilar−control LPN by stage: cT1a (p=0.77 and p=0.17), cT1b (p=0.77 and p=0.07), and cT2 (p=0.42 and p=0.66), respectively. In our series, five cases had positive margins on final pathology and one case was converted to open partial nephrectomy. Of the five positive margin cases, four cases underwent hilar−control LPN and one case underwent off−clamp LPN. Two cases (1.6%) of off−clamp LPN were intraoperatively converted to hilar−control LPN.

**Conclusions:** LPN can be performed off−clamp in patients with organ−confined renal tumors without compromising the operative time, blood loss requiring transfusions, or length of hospitalization. Rates of positive margins, intraoperative blood transfusions, and conversion to open surgery were very low and limited to patients with cT1a disease in our series.

**Poster #144**

**A COMPARISON OF PERI-OPERATIVE OUTCOMES OF ROBOT-ASSISTED AND PURE LAPAROSCOPIC PARTIAL NEPHRECTOMY**
Rebecca O’Malley¹, Tara Kowalik¹, Matthew Hayn¹, Timothy Collins¹, Hyung Kim² and Thomas Schwaab¹
¹Roswell Park Cancer Institute, Buffalo, NY; ²Cedars-Sinai Medical Center, Los Angeles, CA
(Presented By: Rebecca O’Malley)

**Introduction:** Although nephron−sparing surgery is the standard of care for the treatment of small renal masses, partial nephrectomy (PN) remains under−utilized. A potential reason for the discrepancy is the desire for minimally invasive surgical approaches but the limitation of the advanced laparoscopic techniques needed to perform PN. Robot−assisted surgery has eased the transition to minimally invasive prostate surgery and thus may also do so for PN. To explore this we undertook a comparison of surgical outcomes of LPN and RAPN at our institution.

**Methods:** Using our institutional renal tumor database, we identified patients with normal renal function and a normal contralateral kidney who underwent RAPN for a localized renal mass by a single surgeon who had performed <25 previously. 35 patients were identified and compared to the last 35 similar patients who underwent LPN by a surgeon who had performed >150 previous LPNs. Surgical outcomes were compared between the 2 groups, including; warm ischemia time (WIT), surgical times, estimated blood loss, transfusion rate, positive margin (PSM) rate, length of stay and intra−operative and post−operative complications (Cxs).

**Results:** Pre−operative patient and tumor characteristics were similar between the groups excepting tumor size, which was larger in the RAPN group (3.6 ±1.8cm vs. 2.7 ±0.9cm, p=0.007). Cxs, surgical and oncologic outcomes were similar. Unclamped patients comprised a larger proportion of patients in the RAPN than the LPN group (34.3 and 2.9%, p=0.10). WIT was similar when considering only those patients clamped (mean WIT 19.5±1.3 vs. 21.6±1.5 min. for RAPN and LPN, p=0.331). The PSM rate was higher in the RAPN group (14 vs. 3%, p=0.088), with all but 1 PSM 1mm or less in size. Subset analysis revealed that 3 of the 5 PSMs in the RAPN group occurred in the unclamped patients. In all clamped RAPN patients the PSM rates was 8.7%.

**Conclusions:** RAPN is a safe option with peri−operative outcomes similar to those of LPN performed by an experienced surgeon. RAPN may have the advantage of allowing a shorter learning curve as evidenced by the similar outcomes with larger lesions for a less experienced surgeon. The high PSM rate in the unclamped RAPN group is worrisome and has prompted a re−evaluation of technique at our institution.
**Poster #145**

**UTILIZATION OF PARTIAL NEPHRECTOMY AT A CANCER CENTER IN THE MODERN ERA**

Rebecca O’Malley¹, Tara Kowalik¹, Matthew Hayn¹, Timothy Collins¹, Khurshid Guru¹, Willie Underwood¹, Hyung Kim² and Thomas Schwaab¹

¹Roswell Park Cancer Institute, Buffalo, NY; ²Cedars-Sinai Medical Center, Los Angeles, CA

(Presented By: Rebecca O’Malley)

**Introduction:** Analyses of population based databases have demonstrated a striking underutilization of partial nephrectomy (PN) despite its superiority in functional outcomes. Disparities in treatment patterns exist in the community and at some tertiary centers, based on age, gender and some comorbidities. The goal of the current study was to determine predictors of PN utilization at a cancer center in the modern era.

**Methods:** Using our institutional renal tumor database, we identified patients who were potential candidates for elective PN (solitary tumors ≤ 7cm, baseline creatinine ≤ 1.5 mg/dL and a normal contralateral kidney). We estimated the effects of hypothesized predictors on the likelihood of undergoing radical nephrectomy (RN) versus PN by univariable (UV) and multivariable (MV) logistic regression. Variables included were: age, gender, race, smoking status, Charlson comorbidity index, body mass index (BMI), preoperative creatinine, year of surgery (YOS), radiographic tumor size and whether diagnostic biopsy was performed.

**Results:** Of the 244 patients identified, 64% underwent PN and 37% underwent RN between August 2004 and June 2010. The cohort was composed of 11% non-Caucasians, 59% males and 22% current smokers with a mean age, BMI and tumor size of 61 years, 31 kg/m² and 3.5 cm, respectively. Of the cohort, 17% underwent biopsy. On UV analysis advanced age, larger tumor size, earlier YOS and Caucasian race all predicted RN (OR 1.03 CI 1.02−1.06, OR 2.09 CI 1.70−2.58, OR 0.56 CI 0.46−0.70, OR 0.36 CI 0.13−0.99, respectively). On MV analysis using all variables, tumor size and YOS remained independent predictors (OR 2.89 CI 2.11−3.95, OR 0.44 CI 0.33−0.59, respectively). Renal cell carcinoma (RCC) on biopsy was also independently predictive on MV analysis (OR 0.37 CI 0.14−0.97).

**Conclusions:** Predictors of PN utilization at a cancer center differ from previous analyses and include decreasing tumor size, more recent YOS and RCC on biopsy. Appropriately, age and gender (when comorbidity is included) are not predictors of type of surgery. The significance of RCC on biopsy as a predictor of PN is unclear but may represent co-varying selection bias for lesions that are both accessible to biopsy and more appropriate candidates for PN.

---

**Poster #146**

**LAPAROSCOPIC-GUIDED RADIOFREQUENCY ABLATION IS SAFE FOR TREATMENT OF ENHANCING RENAL MASSES IN PATIENTS TAKING WARFARIN AND/OR ANTIPLATELET AGENTS**

Michael Gorin¹, Elie Antebi¹, Robert Carey² and Vincent Bird³

¹University of Miami, Miami, FL; ²Sarasota, FL; ³University of Florida, Gainesville, FL

(Presented By: Michael Gorin)

**Objectives:** Laparoscopic-guided radiofrequency ablation (LRFA) is an option for the treatment of enhancing renal masses in elderly patients with multiple comorbidities. Often these patients are prescribed warfarin and/or an antiplatelet agent (aspirin or clopidogrel) for the management of comorbid diseases. These patients pose a management challenge due to the risk for perioperative bleeding and thrombotic events. We evaluate the safety and efficacy of LRFA in this specific patient group.

**Methods:** From our institutional databases, we identified all patients who underwent LRFA for treatment of enhancing renal masses who were prescribed warfarin and/or an antiplatelet agent. Records were reviewed for patient demographics, perioperative data, tumor characteristics, blood loss, intraoperative complications and tumor recurrence. Statistical analysis was performed using the Student’s t-test.

**Results:** A total of 107 patients underwent LRFA during the study period. A cohort of 52 patients were identified to be taking warfarin and/or an antiplatelet agent (aspirin or clopidogrel) at the time of ablation. More specifically, 8 patients were taking warfarin, 30 aspirin and 7 clopidogrel in isolation. Seven patients were taking a combination of agents. All such medications were stopped within a week of LRFA. Mean patient age was 75 years, and mean ASA score was 3. Common comorbidities included coronary artery disease (55.8%), arrhythmias such as atrial fibrillation (21.2%) and diabetes mellitus (21.2%). Mean tumor size was 3.4 cm. Preablation biopsy revealed RCC in 36 (69.2%) cases.
Mean estimated blood loss was 21 ml. Blood loss of the 55 patients who were not on one of these medications was a mean of 22ml, with no statistically significant difference observed. No patients experienced a bleeding related complication in the perioperative period. Moreover, no patients experienced a complication related to the stopping of these medications (i.e. no coronary or cerebral events).

**Conclusions:** LRFA is safe in patients who are taking warfarin and/or antiplatelet agents. Intraoperative blood loss is minimal in this patient population when these medications are discontinued one week prior to ablation. These patients did not manifest any clinically evident thrombotic events in the perioperative period.

**Poster #148**

**PERIOPERATIVE AND ONCOLOGIC OUTCOMES OF LAPAROSCOPIC RADICAL NEPHRECTOMY FOR RENAL CELL CARCINOMA WITH VENOUS EXTENSION**

Nikhil Waingankar, Mostafa Sadek, Basit Khan, Lee Richstone, Louis Kavoussi and Manish Vira

Smith Institute for Urology, North Shore-Long Island Jewish Health System, New Hyde Park, NY

(Presented By: Nikhil Waingankar)

**Background:** Open radial nephrectomy (ORN) is the gold standard for management of renal cell carcinoma (RCC) with renal vein extension (T3b). A few case series and individual reports have demonstrated the feasibility of a laparoscopic approach for T3b RCC.

**Objectives:** Our study aims to assess perioperative and oncologic outcomes of laparoscopic radical nephrectomy (LRN) for T3b RCC. Our secondary goal is to compare preoperatively (cT3b) and postoperatively (pT3b) diagnosed cases.

**Methods:** Charts were reviewed for 36 consecutive patients who underwent LRN for T3b RCC. Perioperative and oncologic outcomes were compared to a 23–patient cohort from our database who underwent ORN for T3b RCC. LRN for cT3b was then compared to a contemporary age– and ASA–matched cohort who underwent LRN for T1 – T3a RCC. Finally, cT3b and pT3b cases were compared. Chi–Square and Fischer’s exact tests were performed for categorical data, and independent sample t–tests were done for continuous data. Kaplan–Meier analysis and log–rank tests were used to compare survival.

**Results:** LRN had lower EBL (620 vs 1216cc, p=0.01), OR time (178.3 vs 287.2 min, p=0.005) and length of hospitalization (4.3 vs 6.8 days, p=0.02) with similar major complication rates (13.9% vs 11.5%, p=0.78) compared to ORN. LRN for cT3b had similar EBL (p=0.11), OR time (p=0.20), complications (p=0.51), and length of hospitalization (p=0.15) compared to LRN for T1a – T3a RCC. LRN for cT3b cases had similar EBL (p=0.25), OR time (p=0.83), complications (p=0.06), and length of hospitalization (p=0.32) compared to LRN for pT3b cases. Cancer–specific survival was similar between LRN and ORN (p=0.34, Figure 1), and between LRN for cT3b and pT3b (p<0.51).

**Conclusions:** LRN for T3b RCC has superior perioperative outcomes to ORN without limiting oncologic efficacy. LRN for T3b RCC has similar perioperative outcomes to LRN for lower staged disease. Clinically and pathologically diagnosed cases of T3b RCC have similar clinical and pathologic outcomes. Laparoscopic management of RCC with venous extension is safe and feasible in the hands of experienced laparoscopic urologic surgeons.

**Poster #149**

**RENALE NEPHROMETRY SCORE MAY NOT BE ASSOCIATED WITH OPERATIVE MODALITY FOR PARTIAL NEPHRECTOMY**

Ryan Kopp¹, James L’Esperance², Michael Santomauro², Kerrin Palazzi-Churas¹, Sean Stroup¹ and Ithaar Derweesh¹

¹UCSD Division of Urology, San Diego, CA; ²Department of Urology, Naval Medical Center, San Diego, CA

(Presented By: Ryan Kopp)

**Introduction and Objectives:** The RENAL nephrometry score has been proposed as a standard for quantifying anatomical characteristics of renal tumors. Although preliminary studies have shown this system to be relatively reproducible, data is lacking regarding clinical utility for surgical planning. We sought to identify if there is an association between nephrometry score and partial nephrectomy (PN) modality.

**Methods:** We performed a retrospective cohort analysis of 133 patients from 2 institutions who underwent PN for cT1 renal masses from 3/2009 for 6/2010. Partial nephrectomy modalities included open (O–PN, n=62), laparoscopic (L–PN, n=45), and robotic (R–PN, n=26). Demographics, renal function, comorbidities, operative data, and complications were compared between groups. Nephrometry sum was compared between groups using (simple 4–6, intermediate 7–9, complex ≥10) and (<8 vs. ≥8). Components of the RENAL system were compared between groups.
Results Obtained: There were no significant differences in age, race, sex, BMI, preoperative creatinine or eGFR, history of hypertension, diabetes, or coronary artery disease. Tumor laterality and median tumor size was not significantly different between groups, although more tumors ≥3cm existed in the O–PN group (O–PN 43.5% vs L–PN 18.6% vs. R–PN 30.8%, p=0.027). Operative time (min) was shorter in O–PN (O–PN 160 vs. L–PN 256 vs. R–PN 207, p=<0.001). Estimated blood loss (mL) was lowest in R–PN (O–PN 200 vs. L–PN 200 vs. R–PN 125, p=0.01). There was no significant difference in mean nephrometry score (O–PN 6.8 vs. L–PN 7.2 vs. R–PN 6.7, p=0.333), and no significant difference when nephrometry sum was stratified [simple (O–PN 46% vs L–PN 31% vs. R–PN 46%), intermediate (O–PN 44% vs L–PN 56% vs. R–PN 50%), and complex (O–PN 10% vs L–PN 13% vs. R–PN 4%), p=0.436)]. Nephrometry sum was also not significantly different when stratified by <8 vs. ≥8 (p=0.631).

Conclusions: Nephrometry score may be a useful method to quantify anatomical features of renal tumors. Based on our retrospective analysis, nephrometry sum alone may not influence operative planning for PN in cT1 renal masses. However, further studies are needed to elucidate utility of RENAL nephrometry in clinical decision making and as a predictor of patient outcomes.

Poster #149

PARTIAL NEPHRECTOMY FOR TUMORS OVER 4 CMS: ONCOLOGICAL, CLINICAL OUTCOMES AND ASSESSMENT OF COMPLICATION USING A GRADED SCORE
Division of Urology, Department of Surgery, London Health Science Centre, University of Western Ontario, London, ON, Canada
(Presented By: Ali Al-Zahrani)

Introduction: The role of nephron–sparing surgery (NSS) is well established for T1a renal lesions (<4 cm). Renal tumor control achieved by NSS is equivalent to one achieved by Radical Nephrectomy (RN) in appropriately selected patients, offering the benefits of decreased renal insufficiency rate when compared to RN. Recent data for renal tumors > 4 cms have suggested that it might be possible to expand the indication of NSS, with comparable oncological and clinical outcomes. However, NSS for tumors > 4 cms has been associated with a slightly higher rate of complications.

Objectives: To evaluate the oncological and clinical outcomes of NSS for renal tumor > 4 cms and to assess the complications based in a graded, validated and reproducible score (Clavien grade).

Materials and Methods: After the approval of the institutional ethic board, we retrospectively identified 214 patients who underwent NSS for renal tumors. Thirty nine patients had tumors over 4 cms. The study period was from 2002 to 2009. Patients with metastasis at the time of diagnosis, follow-up less than 6 months or with non sporadic tumors were excluded from the study. Continues and categorical variable were assessed with Mann–Whitney U test and chi–square test, respectively. Kaplan–Meier analysis was used to calculate the overall survival and cancer specific survival rate. The assessment of the complication was done using the Clavien score.

Results: Forty five tumors were identified in 39 patients. The median age was 61 year ± 1.7. Median tumor size was 5.2 cms. The surgical indication was imperative in 7 patients (solitary kidney or contralateral atrophic kidney) and elective in 32 (82 %). The final pathology report showed that 34 (81.2%) and 5 (18.2 %) tumors were malignant and benign, respectively. After a mean follow– up of 35.8 months (median 34 months), the over all survival rate was 89.7% while none had died from renal tumors. Tumor recurrence was detected in 2 patients (5.9 %). There were 18 complications in 14 patients (35.9%) and most of these complications were grade 1–2 (61.1%).

Conclusion: NSS for tumors >4 cm is surgically feasible and has good oncological outcome. Assessment of the peri–operative complications with the Clavien grading system showed that most of these events are minor in severity (Grade 1–2).
**Poster Session II**

**Poster #150**

**PROSPECTIVE EVALUATION OF BIOMARKERS IN PATIENTS WITH UPPER TRACT UROTHELIAL CARCINOMA: PROGNOSTIC ROLE OF CELL CYCLE REGULATORS**

Ramy Youssef, Tyler Arendt, Nicholas Cost, Arthur Sagalowsky, Yair Lotan and Vitaly Margulis  
UT Southwestern Medical Center, Dallas, TX  
(Presented By: Ramy Youssef)

**Introduction and Objectives:** The aim of this study was to prospectively evaluate the prognostic role of a panel of tissue biomarkers in patients with upper tract urothelial carcinoma (UTUC).

**Methods:** Since 2007, primary tumors of patients treated with radical nephroureterectomy (RNU) for high grade UTUC were prospectively evaluated for expression of p53, p21, p27, Cyclin E, and pRB/Ki−67. Standardized, automated immunohistochemical staining and scoring were utilized in conjunction with bright field microscopy imaging and advanced color detection software. The relationship between tumor markers and pathological parameters as well as oncologic outcomes was assessed.

**Results:** The study included 28 patients with 16 (57%) renal pelvis and 12 (43%) ureteral tumors. At a median follow up of 20 months, 8 (29%) patients experienced systemic disease progression and 7 (25%) died from UTUC. Expression of p53, p21, p27, Cyclin E, and pRB/Ki−67 was altered in 12 (46%), 5 (18%), 10 (36%), 1 (4%) and 25 (89%) tumors, respectively. Unfavorable prognostic bio−score (>2 altered markers) was associated with non−organ confined UTUC at RNU (>pT2 and/or pN1−2). Specifically, 9 (50%) of 18 patients with non organ confined UTUC demonstrated unfavorable prognostic bio−score, compared to 1 (10%) patient with organ confined UTUC (p=0.048). Median cancer−specific survival of patients with >2 altered biomarkers was 14.0 months, and it was not reached in patients with < 2 altered markers (HR 3.766, p=0.052).

**Conclusions:** The preliminary analysis of this ongoing prospective study demonstrates that tissue biomarkers can be utilized for prediction of non−organ confined disease and overall oncologic outcomes after RNU for UTUC. Further study will determine if tissue biomarkers can be employed for patient risk−stratification and integration of peri−operative systemic chemotherapy into management paradigm of UTUC.

**Poster #151**

**PRIMARY FEMALE URETHRAL CANCERS: A RARE AND DIFFICULT EARLY DIAGNOSIS**

Luke Wiegand¹, Brigitte Espinoza¹, Peter Mennie¹, Matthew Biagioli¹, Jorge Lockhart¹, Julio Powsang¹, Philippe Spiess¹, Raul Ordorica² and Wade Sexton¹  
¹Moffitt Cancer Center, Tampa, FL; ²University of South Florida, Tampa, FL  
(Presented By: Brigitte Espinoza)

**Introduction:** Primary urethral cancer accounts for less than one percent of malignant tumors in the female urothelial tract. It is a rare malignancy that presents a challenging dilemma in terms of early diagnosis, intervention and successful outcome.

**Methods:** Twenty−two cases of primary urethral cancer in women were identified over the past seven years at our institution. The patients’ data were compiled, analyzing demographics, presenting symptoms, pathologic characteristics, disease extent and outcome.

**Results:** Median age was 63 years (range 39−92). Most patients (20/22) reported either gross hematuria (17) or urinary retention (10) at diagnosis. Eighteen patients had a palpable mass – eight associated with a urethral diverticulum. The average time from onset of symptoms to diagnosis was 21 months (median 13.5, range 2−72 months). Locally advanced disease (T3/T4 or N+) or evidence of extrapelvic/distant metastasis was present in 63% (14/22). The majority of patients (15) had mucinous or clear cell adenocarcinoma histologies (including every patient with a recognizable urethral diverticulum). Other tumor types included squamous cell carcinoma (4), transitional cell carcinoma (2) and melanoma (1). Primary treatment modalities consisted of cystectomy, PLND, urinary diversion (8), chemoradiation (8), and multiagent systemic chemotherapy for those presenting with distant metastasis (6). Overall mean follow−up is 19 months (median 12, range 2–88 months). Twelve patients (55%) are deceased due to disease recurrence and/or progression, whereas 4 patients (18%) remain disease free.

**Conclusions:** The majority of female patients with primary urethral cancer present with advanced disease possibly due to delays in diagnosis. Early diagnosis is problematic and requires a high index of suspicion. Multimodality treatment strategies should be considered to optimize survival.
Poster #152

**LAPAROSCOPIC ADRENALECTOMY FOR ADRENAL CORTICAL CARCINOMA**

Helen R Levey¹, Soroush Rais-Bahrami¹, Philip Pierorazio², Trinity J Bivalacqua², Nikhil Waingankar³, Mohamad Allaf², Louis R Kavoussi¹ and Manish Vira¹

¹The Arthur Smith Institute for Urology North Shore-Long Island Jewish Health System, New Hyde Park, NY; ²The James Buchanan Brady Urological Institute Johns Hopkins Medical Institutions, Baltimore MD

(Presented By: Helen R Levey)

**Introduction and Objectives:** The role of laparoscopic adrenalectomy for patients with suspected adrenal cortical carcinoma (ACC) remains controversial. Technical difficulty of the procedure increases with increasing tumor size. Small series have reported laparoscopic adrenal surgery as a feasible oncologically-sound modality for suspected ACC. We examined the perioperative parameters of laparoscopic adrenalectomy for ACC in a multi-institutional setting.

**Methods:** A retrospective review of fourteen patients who underwent laparoscopic adrenalectomy for suspected ACC at two institutions between July 2002 and June 2009 was performed. Preoperative patient demographics and perioperative parameters were collected and stored in a patient de-identified database.

**Results:** The mean age of this study cohort was 50.6±15.4 (range 21.4–73.9) years at the time of surgery and 9 patients (64.3%) were female. These patients had an ASA score of 2.7±0.5 (2–3) and preoperative body mass index of 29.5±6.5 (21–39) kg/m². The mean operative time and estimated blood loss were 136.5±64.0 (80–249) min and 285.0±295.4 (50–900)cc, respectively, with only one patient (7.1%) requiring perioperative blood transfusion. The patients had a mean tumor size of 8.1±3.9 (3–15)cm. One patient required intraoperative conversion to open surgery for oncologically-sound resection of a 15cm adrenal mass. The mean postoperative hospital stay was 2.5±0.9 (2–4) days.

**Conclusions:** We report a multi-institutional experience of laparoscopic adrenalectomy for ACC revealing it as a feasible alternative to open surgery. Further investigation into the long term oncologic outcomes and comparison to open surgery is needed in a randomized manner.

---

Poster #153

**END OF LIFE COMPLICATIONS IN MEN DYING FROM PROSTATE CANCER TREATED WITH AND WITHOUT RADICAL PROSTATECTOMY USING A POPULATION-BASED APPROACH**

Kara Babaian¹, Deanna Cross², Mark Ritter³, Jeremy Cetnar³ and David Jarrard³

¹University of Wisconsin, Madison, WI; ²Marshfield Clinic, Marshfield, WI; ³University of Wisconsin

(Presented By: Kara Babaian)

**Introduction and Objective:** End-stage prostate cancer can be associated with significant morbidity and result in numerous hospital admissions, invasive procedures, and surgical interventions. Using a population-based approach, we examined whether men with end-stage prostate cancer who had been treated with radical prostatectomy might require fewer interventions than those with no history of prostate removal.

**Methods:** Utilizing the Marshfield Epidemiological Study Area (MESA) database consisting of 70,000 patients we compare end of life complications in men who underwent a radical prostatectomy versus no local therapy. The database was queried between the years 1995–2010 for patients who died from prostate cancer. Information was gathered for age of diagnosis, age of death, stage, grade, presence of metastatic disease, procedures, and hospitalizations and statistically compared. The number of hospitalizations and procedures were limited to the last three years of life. The database was queried using ICD-9 codes for specific GU procedures.

**Results:** The query identified 153 patients who died from prostate cancer. 28 patients underwent a prostatectomy and 125 had no local therapy. The average number of years between age of diagnosis and death was 7.9 and 3.4 in the prostatectomy and no local therapy group, respectively (p<0.05). The overall number of hospital admissions per patient in the prostatectomy and no local therapy group was 2.9 and 2.4, respectively. Overall, 28(18%) underwent 35 procedures during the last three years of life. Twenty-six patients underwent 31 procedures in the no local therapy group, and 2 patients underwent 4 procedures in the prostatectomy group. The number of procedures per patient was 2 and 1.2 in the prostatectomy and no local therapy group, respectively (p=NS). The most common procedure was (re)placement of a nephrostomy tube (50%) followed by TURP, foley or suprapubic tube placement, and stent. Patients in the prostatectomy group only required nephrostomy tube placement.

**Conclusions:** This is the first population-based study to examine the role of prostatectomy in end-stage prostate cancer. In the last three years of life, only 18% of patients required a procedure making intervention infrequent for patients. No significant difference in the number of procedures was found between men who had their prostates removed and those that did not were found.
OUTCOMES OF MEN WITH AN ELEVATED PREOPERATIVE PSA AS THEIR SOLE INTERMEDIATE OR HIGH RISK FEATURE PRIOR TO PROSTATECTOMY
Ashley Ross, Phillip Pierorazio, Trinity Bivalacqua, Mark Ball, Elizabeth Humphreys, Misop Han, Jonathan Epstein, Alan Partin and Edward Schaeffer
The Johns Hopkins Brady Urological Institute, Baltimore, MD
(Presented By: Ashley Ross)

Introduction: Outcomes of men with elevated PSAs (>=10ng/ml) diagnosed with prostate cancer at low stage and biopsy grade (clinical stage (CS) <= T2a, biopsy Gleason sum (bGS) <= 6) have not been thoroughly explored. Here we examine findings at prostatectomy and the biochemical (BFS), metastasis (MFS) and cancer specific survival (CSS) of these men.

Methods: The IRB−approved, Johns Hopkins Radical Prostatectomy (RP) Database was queried from 1992 to 2010 for men with had clinically localized disease and who did not receive neoadjuvant therapy. Presenting features and pathological outcomes were evaluated among men using appropriate comparative tests (t−test, chi−squared, ANOVA). Kaplan−Meier method with log−rank test was used to determine BFS, MFS and CSS.

Results: Of 16,579 men analyzed, 8% (1332) had CS <= T2a, bGS <= 6 and either a PSA of 10−20(6.9%,1145) or >20 ng/ml(1.1%,187) at diagnosis. At RP, 21.7% of D'Amico low risk patients were upgraded to GS >= 7 and 19.8% had extraprostatic disease (EPD). In comparison, among patients with low risk CS and bGS but elevated PSAs of 10−20ng/ml or >20ng/ml, 37% and 52.4% were upgraded at surgery and 34.7% and 59.7% had EPD respectively (p<0.001). Positive margin rates were also increased among men with PSA of 10–20ng/ml or >20ng/ml as their only intermediate or high risk feature (OR (95% ci) of 1.7 (1.5−1.9) and 3.2 (2.3−4.4) compared to low risk men). These men had improved BFS compared to their respective D'Amico risk group (10 year BFS of 68% and 38% among D'Amico intermediate and high risk groups versus 76% and 51% among those with low risk CS and bGS and PSAs of 10−20 or >20 ng/ml). Ten year MFS and CSS of these men were similar to D'Amico intermediate risk patients. These men were more likely to have anterior tumor (58% of those with PSA 10−20ng/ml versus 33% of intermediate risk patients; 67% of those with PSA >20ng/ml versus 40% of high risk patients, p<0.003).

Conclusions: Elevated PSAs (>=10ng/ml) in men with low GS and CS at diagnosis increases the risk for upgrading, EPD and positive surgical margins at prostatectomy. These men are curable however with MFS and CSS rates similar to D'Amico intermediate risk patients. These men are more likely to have anterior tumors and acquiring additional cores from the anterior / transition zone should be considered when biopsying patients with low CS (<= T2a) and elevated PSAs (>=10ng/ml).

SPATIAL RE-TARGETING BIOPSY TECHNIQUE USING TRUS/MR FUSION IMAGE WITH GPS GUIDANCE
Casey Ng¹, Osamu Ukimura¹, Mitchell Gross¹, Suzanne Palmer², Samuel Valencerina², Andre Berger¹, Ricardo Brandina¹, Monish Aron¹, Mihir Desai¹ and Inderbir Gill¹
¹Department of Urology, USC Keck School of Medicine, Los Angeles, CA; ²Department of Radiology, USC Keck School of Medicine, Los Angeles, CA
(Presented By: Casey Ng)

Introduction and Objectives: Real−time TRUS guidance, with computer−aided technologies of (i) image−fusion of TRUS/MR and (ii) a GPS−like needle tracking system, could precisely document the actual location of every biopsy−sampled tissue. The aim of the study is to determine the feasibility and accuracy of a computer−aided re−targeting biopsy to the same spatial location of previously performed biopsy trajectories with TRUS/MR image fusion and a GPS−like tracking system.

Methods: Using TRUS/MR fusion images by combining ultrasound images (LogicE9 with Volume Navigation ultrasound platform, GE Healthcare, Wauwatosa, Wisconsin) with 3D MR volumetric images, we performed needle biopsies on 3 phantom prostates (CIRS−066), which contain 3 randomly located iso−echoic but MR−visible lesions 0.5cc in volume. Target biopsies were performed to the center of each lesion with India ink injection at the tip to facilitate assessment of biopsy accuracy. The needle trajectories were recorded to create GPS−like guidance images. The newly acquired 3D data used for spatial re−targeting to previously biopsy location.

Results: All TRUS/MR fusion targeted biopsy successfully penetrated the MR−defined lesion. The error of targeting, which is defined as the difference between the center line of the lesion and actual needle tract, was 1.5mm±0.4mm. In spatial−directed re−targeting biopsy, 3D volume data, with marks of the distal and proximal end−points of the initial biopsy trajectory, were displayed side−by−side with the real−time TRUS. The comparative analysis of the spatial co−ordinates (of both distal and proximal ends) of the initial biopsy with those of the re−targeting biopsy revealed a spatial error of 5.9±2.3mm.

Conclusions: TRUS/MR fusion image targeting revealed encouraging accuracy. Re−targeting needle placement onto the registered initial random biopsy locations at a later time was challenging, but was feasible using real−time US guidance with the integration of GPS−like navigation technology. Refinement of this technology may play important roles for patients undergoing active surveillance and focal therapy for prostate cancer.
PROSTATE SIZE AS A PREDICTOR OF GLEASON SCORE UPGRADING IN LOW-RISK PROSTATE CANCER PATIENTS

Judson Davies, Monty Aghazadeh, Sharon Phillips, Shady Salem, Peter Clark, Michael Cookson, Rodney Davis, S. Duke Herrell, Sam Chang, Joseph Smith and Daniel Barocas
Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN(Presented By: Judson Davies)

Introduction: Gleason score upgrading (GSU) between clinical and surgical pathologic staging occurs in 30−50% of cases. Predicting the likelihood of GSU in men with low−risk prostate cancer may be particularly important, since the presence of higher−grade disease influences management decisions and impacts prognosis.

Objective: To determine clinical predictors of GSU between prostate biopsy and radical prostatectomy (RP) specimens in low−risk prostate cancer patients.

Materials and Methods: The cohort consisted of 3,087 men that underwent RP at our institution between January 2000 and June 2008. 1709 (55.4%) patients had low−risk disease by D’Amico risk classification. Patients with prior treatment (167), 5−alpha reductase inhibitor use (41), or incomplete data (250) were excluded. The remaining 1251 patients were divided into three groups according to pathologic Gleason score (no GSU, minor GSU [3+4=7] and major GSU [≥4+3=7]) based on differential outcomes in the entire cohort. Clinical variables compared between groups included pre−operative PSA, age, BMI, race, number of cores, number of positive cores, percent tumor involvement in biopsy specimens, prostate volume, and interval between biopsy and surgery. A multivariate model was fit to identify clinical predictors of any GSU or major GSU.

Results: 387 of 1251 patients (31.0%) were upgraded; 324 (26%) had minor GSU and 63 (5%) had major GSU. On multivariate analysis, age (OR 1.65, 95% CI [1.37−1.98], p<0.01), PSA (OR 1.50, 95% CI [1.29−1.74], p<0.01), percent cancer involvement in biopsy specimens (OR 1.32, 95% CI [1.14−1.53], p<0.01), year of surgery (OR 1.66, 95% CI [1.24−2.23], p<0.01) and smaller prostate volume (OR 0.58, 95% CI [0.48−0.69], p<0.01) were independent predictors of any GSU (≥3+4=7). However, only age (OR 1.61, 95% CI [1.11−2.33], p=0.01), PSA (OR 1.58, 95% CI [1.18−2.11], p<0.01), and smaller prostate volume (OR 0.67, 95% CI [0.49−0.96], p=0.03) were independent predictors of major GSU. Men with prostate volumes at the 25th percentile (36 grams) were 50% more likely to experience GSU compared to men with prostate volumes at the 75th percentile (58 grams).

Conclusions: Nearly one third (31%) of low−risk patients were upgraded at final pathology. Smaller prostate size, older age, and higher PSA predict major GSU. Identifying low−risk patients at risk for GSU could play a role in counseling patients regarding management and prognosis.

OBESITY AND PROSTATE ENLARGEMENT IN MEN WITH LOCALIZED PROSTATE CANCER

Ryan Kopp¹, J. Kellogg Parsons¹, Alan Partin², Elizabeth Humphreys², Stephen Freedland³ and Misop Han²
¹UCSD Division of Urology, San Diego, CA; ²The Brady Urological Institute, The Johns Hopkins Medical Institution, Baltimore, MD; ³Division of Urologic Surgery, Departments of Surgery and Pathology, Duke University, Durham, NC
(Presented By: Ryan Kopp)

Purpose: Obesity is associated with prostate enlargement in men without prostate cancer. Associations of obesity with prostate size in men with prostate cancer, however, remain unclear.

Materials and Methods: We examined pre−operative body mass index (BMI) and whole prostate weight in a cohort of 16,325 patients undergoing radical prostatectomy for localized prostate cancer from 1975 to 2008 at a single institution using multivariable regression modeling adjusting for age, year of surgery, pre−operative serum prostate−specific antigen (PSA), pathologic stage, and Gleason grade.
**Poster Session II**

**Results:** Of the entire cohort, 2,982 (18%) patients had a prostate weight of at least 40 g. These men were older (p<0.001), had a higher pre-operative BMI (p = 0.002), higher pre-operative PSA (p<0.001), and were more likely to have pT2 disease (p<0.001). In multivariable regression, pre-operative BMI was associated with increased prostate weight: for each 1 kg/m2 increase in BMI, prostate weight increased by 0.45 g (95% CI 0.35 to 0.55, P–trend < 0.001). Compared to men with BMI < 25 kg/m2, men with a BMI ≥ 35 kg/m2 had a 41% (1.41 (95% CI, 1.01–1.95) increased risk of prostate weight of at least 40 g and a 70% (OR 1.70, 95% CI 1.32 to 2.20) increased risk of prostate weight of at least 50 g.

**Conclusion:** Obese men with localized prostate cancer have larger prostates. These data validate prior observations linking obesity with prostate enlargement and may have important ramifications for prostate cancer diagnosis in obese men.

**Poster #158**

**CD151 AS A PROGNOSTIC BIOMARKER FOR PROSTATE CANCER**

Carlos Martinez, Catalina Vasquez, Susanne Chan, Venu Chalasani, Jose Gomez-Lemus, Andrew Williams, Larry Stitt, Joseph Chin and John Lewis

University of Western Ontario, London, ON, Canada

(Presented By: Andrew Williams)

**Introduction:** Limitations with the prostate specific antigen (PSA) are evident when the life time risk of prostate cancer (PCa) diagnosis (16%) and deaths (3–4%) are compared. In addition the recent European screening randomized trial confirmed that 48 patients need to be treated to save one life, emphasizing the need of a more accurate diagnosis for patients who have an increased risk resulting in metastatic disease and death. CD151 is a tetraspanin protein which has been demonstrated to play a critical role in the metastatic process derived from its interaction with integrins. In this study we evaluated the role of CD151 as a molecular prognostic factor for PCa analyzing immunohistochemical staining and clinical variables.

**Methods:** After REB approval and patients consented. Paraffin embedded specimens from 99 patients who underwent radical prostatectomy between 1994–1998 (RRP) with pathological pT2 and pT3 were analyzed and compared with clinical variables with a mean follow up of 12.1 years ± 1.6 SD. After deparaffination, immunohistochemical analysis was carried out and protein expression was categorized as negative (score=0); or positive in weak(1), moderate(2) and strong(3). The immunohistochemical analysis was additionally performed in benign tissue around and away the tumour as a control. Similar analysis was conducted in 36 diagnostic paraffin embedded biopsy specimens of patients who had documented metastatic disease during their follow up.

**Results:** There was a statistically significant difference in CD151 expression between malignant tissue and benign tissue around (p=0.01) and away the tumour (p<0.01) in RRP specimens in addition CD151 was associated with earlier biochemical failure p=0.022. The diagnostic biopsy specimens showed that CD151 staining was associated with overall metastasis (p<0.01), bone metastasis (p=0.01) and hormone resistance (p<0.01).

**Conclusion:** CD151 positive staining in RRP specimens add a prognostic role to predict biochemical failure and might be helpful during the initial biopsy to discriminate patients with higher risk of metastasis. Additional studies in other datasets are required to confirm these findings.

**Poster #159**

**PATIENTS ON STATINS ARE LESS LIKELY TO HAVE PROSTATE CANCER AND HAVE LOWER CANCER VOLUME**

Nelly Tan¹, Eric Klein², Jianbo Li², Ayman Mousa² and J Stephen Jones²

¹Yale-New Haven Hospital, New Haven, CT; ²Cleveland Clinic, Cleveland, OH

(Presented By: Nelly Tan)

**Introduction:** There is controversy on the effect of statin medication on the overall risk of prostate cancer (PC). We performed a retrospective study investigating the use of statin medications and their effects on PC risk.
Materials and Methods: We retrospectively reviewed 4733 patients who underwent initial prostate biopsy from 1997–2007 at Cleveland Clinic. We identified a total of 3182 non-users and 1022 statin users. Univariate comparisons between groups were done using Wicoxon rank–sum test or Chi–square test. Multivariate regression models were used to assess the effects of statin use on overall risk of PC, moderate–to–high grade PC and PC volume.

Results: In a univariate analysis, there were statistically significant differences in age (63.5 vs. 65.7, P<0.01), African American descent (11.6% vs. 15.4%, P<0.01), DRE positivity (8.9% vs. 5.3%, P<0.01), BMI (27.9 vs. 28.9, P<0.01), prostate volume (48.1 vs. 46.0 cc, P<0.01), and number of cores obtained (11.6 vs. 12.6 cores, P<0.01) between non–statin users and stain users, respectively. In multivariate analysis that adjusted for risk factors, statin use was associated with 23% overall lower risk of PC (OR 0.77, 95%CI 0.63–0.94), 45% overall lower risk of moderate to high grade PC (OR 0.55, 95% CI 0.43–0.71), and 23% lower risk of high volume tumor, defined as 3 or more positive biopsy cores (OR 0.77, 95% CI 0.64–0.94) and lower percentage of cores positive.

Conclusions: After adjusting for risk factors, statin use is associated with a substantially lower risk of PC and lower cancer volume in the screening population.

Poster #160

SHORT TIME TO PSA NADIR AFTER RADICAL PROSTATECTOMY IS ASSOCIATED WITH INCREASED RISK OF BIOCHEMICAL RECURRENCE: RESULTS FROM THE SEARCH DATABASE
Jean-Alfred Thomas¹, Joseph Presti², William Aronson³, Martha Terris⁴, Christopher Kane⁵, Christopher Amling⁶, Stephen Freedland¹ and Daniel Moreira¹
¹Division of Urologic Surgery, Department of Surgery, and the Duke Prostate Center, Duke University School of Medicine, Durham, NC and Urology Section, Veterans Affairs Medical Center Durham, NC; ²Department of Urology, Stanford University Medical Center and Urology Section, Department of Surgery, Veterans Affairs Medical Center, Palo Alto, CA; ³Urology Section, Department of Surgery, Veterans Affairs Medical Center, Greater Los Angeles, Los Angeles, CA; ⁴Urology Section, Division of Surgery, Veterans Affairs Medical Centers and Division of Urologic Surgery, Department of Surgery, Medical College of Georgia, Augusta, GA; ⁵Division of Urology, Department of Surgery, University of California at San Diego Medical Center, San Diego, CA; ⁶Division of Urology, Department of Surgery, Oregon Health & Science University, Portland, OR

Introduction: To evaluate the association between PSA nadir level and time to nadir (TTN) with biochemical recurrence (BCR) risk after radical prostatectomy among men from the SEARCH database.

Material and Methods: Retrospective analysis of 1,133 men from the SEARCH database treated with radical prostatectomy between 1998–2009 with available ultrasensitive PSA nadir within 1–6 months after radical prostatectomy. Uni and multivariable analyses of ultrasensitive PSA nadir, TTN and time from nadir to BCR were done with Kaplan–Meier plot and Cox proportional hazards (adjusted for demographics, tumor features and preoperative PSA).
Results: The median TTN was 2.6 months (IQR=1.7–3.5). In univariable analysis, longer TTN was associated with higher PSA nadir (P=0.001). After multivariable adjustments, longer TTN was an independent predictor of lower BCR risk (HR=0.87, 95%CI=0.77–0.98, P=0.024). After stratification for TTN (<2 months, 2–6 months) and PSA nadir level (detectable, undetectable), men with TTN <2 months and undetectable nadir had the best BCR-free survival while those with shorter TTN and detectable nadir had the worst survival. Compared to men with undetectable nadir and TTN of 2–6 months, those with undetectable nadir and shorter TTN (HR=1.52, 95%CI 1.06–2.21, P=0.024), those with detectable nadir and TTN <2 months (HR=3.43, 95%CI=2.37–4.97, P<0.001) and those with detectable nadir and shorter TTN (HR=6.13, 95%CI=3.95–9.52, P<0.001) had progressively higher BCR risk. However, the improvement of TTN in predictive accuracy was minimal (0.002).

Conclusion: Among men undergoing radical prostatectomy, shorter TTN and detectable PSA nadir level were associated with higher risk for BCR. However, TTN did not improve the accuracy of a model to predict BCR.

Poster #161

ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY: EVALUATION OF THE FUNCTIONAL AND ONCOLOGIC LEARNING CURVE
Joshua Langston, J. Patrick Selph, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Joshua Langston)

Purpose: In less than a decade, robotic-assisted laparoscopic radical prostatectomy has rapidly become the most commonly performed surgical technique for prostate cancer. Some authors have analyzed the potential learning curve associated with this procedure by examining operative and pathologic metrics such as EBL, OR time, and positive margins. However, little work has been undertaken to examine the longer-term effects of that learning curve with regard to functional and oncologic outcomes. We studied the impact of case experience of functional and short-term oncologic outcomes.

Methods: From an experience of over 700 robotic prostatectomies, we examined the outcomes of the first 300 patients in order to allow for a minimum of 18 months of clinical and oncologic follow-up. Patients were categorized in tertiles (1st 100, 2nd 100, 3rd 100 cases) in which the following outcome parameters were analyzed: PSA, EBL, LOS, positive margin rate, 1-year bRFS, 12 month continence (any pad and <=1 pad), and potency. Erectile function was classified as successful erections with or with oral meds in patients who were potent pre-operatively.

Results: Differences in peri-operative factors were observed including EBL, LOS, and PSM rates. Despite the differences in PSM rates, no differences in 1-year bRFS rates were observed. 12-month continence was higher in the most recent tertile, but no differences in potency was seen.

Conclusions: The learning curve with robotic prostatectomy may have some long-lasting effects on continence (albeit mild), but no significant influence on short-term bRFS rates or potency. Further follow-up will be necessary to determine if these observations on functional and oncologic outcomes persist in the long term.

<table>
<thead>
<tr>
<th>tertiles</th>
<th>Age (yrs)</th>
<th>PSA</th>
<th>Mean Gleason</th>
<th>EBL (ml)</th>
<th>LOS (days)</th>
<th>PSM rate</th>
<th>1 yr bRFS</th>
<th>No pads (&lt;= 1 pad 12 mos)</th>
<th>% erections 12 mos</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n=100)</td>
<td>59.1</td>
<td>5.4</td>
<td>6.5</td>
<td>351</td>
<td>1.8</td>
<td>21%</td>
<td>94%</td>
<td>87% (97%)</td>
<td>61%</td>
</tr>
<tr>
<td>(n=100)</td>
<td>59.3</td>
<td>5.5</td>
<td>6.5</td>
<td>324</td>
<td>1.4*</td>
<td>16%</td>
<td>95%</td>
<td>88% (97%)</td>
<td>56%</td>
</tr>
<tr>
<td>(n=100)</td>
<td>58.9</td>
<td>5.1</td>
<td>6.4</td>
<td>255*</td>
<td>1.1*</td>
<td>7%*</td>
<td>96%</td>
<td>94% (98%)*</td>
<td>71%</td>
</tr>
</tbody>
</table>
**Poster #162**

**RADIATION THERAPY FOR PROSTATE CANCER INCREASES BOTH THE RISK OF RECTAL CANCER AND ITS AGGRESSIVENESS**  
David Margel¹, Jack Baniel², Nir Wasserberg³, Micha Bar-Chana⁴ and Ofer Yossepowitch³  
¹Division of Urology, Department of Surgical Oncology, Princess Margaret Hospital, University Health Network, Toronto, Canada; ²Institute of Urology, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel; ³Department of Surgery B, Rabin Medical Center, Beilinson Campus, Petach Tikva, Israel; ⁴Israel National Cancer Registry, Ministry of Health, Jerusalem  
(Presented By: David Margel)

**Purpose:** To assess whether radiation therapy for prostate cancer (PCa) increases the risk of rectal cancer (RCa) and compare morbidity of RCa after radiation to that after surgery.

**Patients and Methods:** The Israel Cancer Registry was queried to identify all PCa and RCa diagnosed between 1982–2005. The age adjusted standard incidence ratio (SIR) of RCa was calculated and compared between the following groups: male Israeli population, patients with PCa treated with Rx, patients treated surgically for PCa. The files of patients with RCa after Rx and surgery were reviewed for the following: clinical presentation, staging and oncologic outcome of these tumors.

**Results:** We identified 29,593 patients with PCa; 2163 were treated with radiation and 6762 were treated surgically. Of these, 194 patients were diagnosed with RCa.  
We did not observe an increased risk of RCa in PCa patients compared to the male Israeli population (SIR=0.9 95%CI 0.83−1.1). However the risk of RCa was greater in radiation treated patients compared to: the male population (SIR= 1.81 95% CI 1.2−2.5), and surgically treated PCa (SIR=1.22 95%CI 1.65−0.85).  
Following radiation only seven patients (27%) had localized RCa (T1 or 2) compared to 19 patients (46%) after surgery (p<0.05). Rectal cancer specific survival was superior in patients following surgery than those after radiation (log rank p=0.03).

**Conclusions:** There is an increase in the incidence of RCa following prostate radiation. These cancers are aggressive. Further studies are needed to validate these results and assess whether routine colonoscopy follow-up is warranted after pelvic radiation.

**Poster #163**

**AVOIDING ANDROGEN DEPRIVATION THERAPY IN MEN WITH HIGH RISK PROSTATE CANCER: THE ROLE OF RADICAL PROSTATECTOMY AS INITIAL TREATMENT**  
Ranko Miocinovic, Ryan Berglund, Andrew Stephenson, Stephen Jones, Amr Fergany, Jihad Kaouk and Eric Klein  
Cleveland Clinic, Cleveland, Ohio  
(Presented By: Ranko Miocinovic)

**Introduction:** To examine the ability of surgery as initial management in avoiding androgen deprivation therapy (ADT) in patients with high risk localized prostate cancer.

**Materials and Methods:** A total of 267 men were identified from a cohort of patients treated by radical prostatectomy (RP) between January 1998 and June 2004. Patients were included if they presented with clinical stage >T2b, and/or prostate specific antigen (PSA) ≥15 ng/ml, and/or Gleason score ≥ 8. Information on biochemical recurrence, distant metastasis, cancer specific survival, and use of ADT was obtained from a prospectively maintained database.

**Results:** The mean follow-up was 6.7 years (range, 1–146 months). Biochemical recurrence (BCR), distant metastasis (DM), and death from prostate cancer were observed in 112 (42%), 28 (10%), and 15 (6%) patients, respectively. Salvage treatment was performed in 95 (85%) of 112 patients with BCR. Only 71 (27%) of 267 men were subjected to ADT. Overall, 10 year probabilities of freedom from BCR, DM, death from prostate cancer, and ADT were 59% (95% CI, 53–65), 89% (95% CI, 85–92), 94% (95% CI, 91–97), and 73% (95% CI, 68–79), respectively.

**Conclusion:** RP provides excellent long–term clinical outcomes for patients with high risk localized prostate cancer and avoids the use of ADT in approximately 70% of these patients.
Poster #164

PSA SCREENING IN PATIENTS WITH DE NOVO METASTATIC PROSTATE CANCER
Jessica Kreshover¹, Rian Dickstein² and Mark Katz¹
¹Boston University Medical Center, Boston, MA; ²MD Anderson Cancer Center, Houston, TX
(Presented By: Jessica Kreshover)

Background: There has recently been an escalation in the controversy regarding PSA screening for prostate cancer. In our experience, there continues to be a fair volume of patients presenting with metastatic disease at the time of initial diagnosis. We sought to identify whether or not those patients presenting initially with metastatic prostate cancer (MPC) underwent PSA screening.

Methods: We identified patients with MPC at initial diagnosis from 2003 to 2008 at a single institution. Patient related factors including age, Gleason score, PSA, and radiographic findings were recorded among others. We compared those patients who had a PSA prior to diagnosis of MPC versus those that did not. A qualitative data analysis ensued.

Results: Eighty one patients were found to have MPC at initial diagnosis. Of the 81, 18 patients were found to have a prior PSA recorded before their diagnosis, for a screening rate of 21.9%. Six of 81 patients (7.4%) had a prior PSA < 4.0 ng/mL (Table 1). In only one of these patients was MPC diagnosed within a year of their first screening PSA. The remainder developed MPC between one and five years later. Twelve of 81 patients (14.8%) had a PSA > 4.0 ng/mL and had never returned for a scheduled prostate biopsy (Table 2). In this group only two patients were found to have MPC within a year of their first PSA. However, the other ten patients developed metastases between one and five years later. The majority of those patients that were screened 12 of 18 (66.7%) were lost to follow up, until their de novo diagnosis of MPC.

Conclusions: Most patients (> 75%) who were found to have MPC at initial diagnosis had never been screened for cancer by PSA. Unfortunately, the majority of patients screened for prostate cancer had delayed their follow up. This may suggest that in a portion of these patients, progression to metastases may have been spared if they had returned for diagnostic biopsy and sought treatment for their disease. Alternatively, these patients may have been destined for metastatic disease regardless of whether or not they were screened.

Poster #165

PROSTATE CANCER-SPECIFIC SURVIVAL THIRTY YEARS AFTER RADICAL PROSTATECTOMY
Dan Lewinshtein and Christopher Porter
Virginia Mason Medical Center, Seattle, WA
(Presented By: Dan Lewinshtein)

Background: We report on 30−year cancer control and survival outcomes after radical prostatectomy in a single center series of patients treated during a 43−year period.

Methods: Between 1954 and 1997, 1004 consecutive patients underwent radical prostatectomy at Virginia Mason Medical Center in Seattle, Washington. Kaplan–Meier 30−year probabilities of prostate−cancer (PC) specific, overall, PSA progression−free, local and distant progression−free survival were determined. Univariate and multivariate Cox regression models addressed PC−specific mortality.

Results: Mean age was 63.3 years. 75.3% of patients were clinical stage T2a or higher. Mean pre−op PSA was 9.51ng/ml. 18.2% of patients had a biopsy Gleason sum 7 or higher. 30−year PC−specific survival, overall survival, PSA progression−free survival, local and distant progression−free survival were 76%, 4% 45%, 89%, and 81%, respectively. Median times to local progression, distant progression, and PC−specific death were not reached during follow up. Median time to overall death was 19 years. In univariate analyses, pre−op PSA, pathological stage, pathological Gleason sum, positive surgical margin, lymph−node invasion (LNI), PSA relapse, local relapse and distant relapse represented statistically significant predictors of PC−specific mortality (all p<0.001). In multivariate analyses only PSA relapse, local relapse and distant relapse remained significant (all p<0.02).

Conclusions: This is one of the most mature radical prostatectomy series. It demonstrates that long−term biochemical cancer control outcomes after radical prostatectomy might be suboptimal. However, local and distant control outcomes are excellent, and cancer specific mortality is minimal even 30 years after surgery. Finally, only relapse was a significant predictor of PC−death, and thus it is difficult to ascertain who will die of their cancer at time of diagnosis.
**Poster #166**

**THE EFFECT OF THE NUMBER CORES AND PROSTATE RISK FACTORS ON THE ACCURACY OF NEEDLE BIOPSY**

Michael Jurewicz, Ali Dabaja, Emil Kheterpal, Naveen Pokala, Mireya Diaz-Insua, Mani Menon and Priyush Agarwal

Vattikuti Urology Institute, Henry Ford Hospital, Detroit, MI

(Presented By: Michael Jurewicz)

**Introduction:** In previous studies, sextant biopsies have been widely variable in their ability to accurately determine Gleason Score (GS) when compared to pathologic results found in radical prostatectomy (RP) specimen. The concordance rate has been shown to be between 28–68% with an upgrading rate of 25–%. As a result of the concordance and upgrading rates, multiple studies recommend that extended biopsies should be the standard of care.

**Purpose:** In response to the aforementioned recommendations that extended biopsies are necessary to accurately assess GS our goal was to determine if an increased number of core biopsies is related to an accurate match or upgrading in the GS.

**Methods:** We performed a retrospective analysis of 984 patients who underwent RP between 2001 and 2008. A Chi-square test was used to compare the GS of the sextant, double sextant, and more than 12 core biopsies and the RP specimens. These results were then further compared using a logistic regression model. The end point determined to be clinically significant was an increase in the total GS or primary GS.

**Results:** The majority of the upgrading occurred in biopsy Gleason 3+3 and 3+4 cases. Upgrading was seen in 35.1% of 6 cores or less, 34.5% of 7–12 cores, and 45.5% of 13+ cores (p=0.061). Number of cores, BMI, or prostate size did not effect upgrading, while perineural invasion, cancer volume on a biopsy, D’ Amico risk criteria, and biopsies before 2001 increased the likelihood of upgrading.

**Conclusion:** Despite the previously accepted thought that increased biopsies yield more accurate results, an extended biopsy did not prove to be more accurate in its ability to match or curb upgrading of pathologic specimens when compared to a 6–12 core biopsy. However, D’Amico risk factors, perineural invasion, and cancer volume are risk factors for upgrading specifically when considering GS 3+3. Therefore, the relationship between the number of cores biopsied and the degree of upgrading when staging prostate cancer is uncertain.

**Poster #167**

**LOW SERUM FOLATE IS A RISK FACTOR FOR BIOCHEMICAL RECURRENCE AFTER RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE**

Daniel Moreira¹, Lionle Banez², William Aronson³, Martha Terris⁴, Christopher Amling⁵, Christopher Kane⁶, Joseph Presti⁷ and Stephen Freedland²

¹The Arthur Smith Institute for Urology, New Hyde Park, NY; ²Duke University, Durham, NC; ³UCLA, Los Angeles, CA; ⁴Medical College of Georgia, Augusta, GA; ⁵Oregon Health & Science University, Portland, OR; ⁶University of California, San Diego, CA; ⁷Stanford University, Palo Alto, CA

(Presented By: Daniel Moreira)

**Introduction:** Folic acid is essential to nucleotide synthesis. Folate deficiency has been implicated in the development of several tumors. However, the role of folate in prostate cancer carcinogenesis is controversial. There is evidence suggesting dietary folate may be protective against prostate cancer while folate supplementation may promote cancer. To date, no studies have examined the role of folate in prostate cancer recurrence after primary treatment. Therefore, we sought to analyze the association between serum levels of folate and risk of biochemical recurrence after radical prostatectomy among men from the Shared Equal Access Regional Cancer Hospital (SEARCH) database.

**Material and Methods:** Retrospective analysis of 135 subjects from the SEARCH database treated between 1988 and 2009 with available preoperative serum folate levels. Patients’ characteristics at the time of the surgery were analyzed with ranksum and linear regression. Uni and multivariable analyses of folate levels and time to biochemical recurrence were done with Cox proportional hazards. As folate levels were not normally distributed, folate was examined after logarithmic transformation.

**Results:** The median preoperative folate level was 11.6ng/mL (reference 1.5−20.0 ng/mL). Folate levels were significantly lower among African−American men than Caucasians (P=0.003). In univariable analysis, higher folate levels were associated with more recent year of surgery (P<0.001) and lower preoperative PSA (P=0.003). In univariable analysis, there was a trend towards lower risk of biochemical recurrence among men with high folate levels (HR=0.61, 95%CI=0.37−1.03, P=0.064). After adjustments for patients characteristics’ and pre− and post−operative clinical and pathological findings, higher serum levels of folate were independently associated with lower risk for biochemical recurrence (HR=0.42, 95%CI 0.20−0.89, P=0.023).
**Conclusion:** In a cohort of men undergoing radical prostatectomy at several VAs across the country, lower serum folate levels were associated with higher PSA and higher risk for biochemical failure. While the source of the folate in the serum in this study is unknown (i.e. diet vs. supplement), these findings if confirmed, suggest a potential role of folic acid supplementation to reduce the risk of recurrence. However, further studies are required to determine whether folate supplementation or altering a man’s diet to increase folate intake can reduce prostate cancer progression.

**Poster #168**

**BIOPSY CHARACTERISTICS OF HIGH-GLEASON DISEASE PREDICTIVE OF FAVORABLE PATHOLOGY AT RADICAL PROSTATECTOMY**

Phillip Pierorazio, Ashley Ross, Brian Lin, Jonathan Epstein, Misop Han, Patrick Walsh, Alan Partin, Christian Pavlovich and Edward Schaeffer

Brady Urological Institute, Johns Hopkins Medical Institutions, Baltimore, MD

(Presented By: Phillip Pierorazio)

**Introduction and Objectives:** Men with high–Gleason sum prostate cancer are at increased risk for biochemical recurrence and mortality from prostate cancer (PC). Radical prostatectomy (RP) may benefit some patients; the ideal treatment for men with high–Gleason PC on biopsy is not well determined.

**Methods:** The IRB−approved, institutional RP database (1982−2010) was queried for men with high–Gleason (8−10) PC on biopsy; 486 men were identified. Prior studies demonstrate BFS and CSS to be significantly improved for men with pT2 or pT3a PC at RP. 10−year biochemical−free (BFS), metastasis−free (MFS) and prostate cancer specific survival (CSS) were calculated using Kaplan−Meier Method by pathological stage to verify pT2 or pT3a as “favorable pathology”at RP when compared to pT3b or N1 disease. Pre−operative characteristics were then compared using appropriate comparative tests among those with favorable and unfavorable pathology. Logistic regression was used to determine pre−operative predictors of unfavorable pathology.

**Results Obtained:** Median age was 60, median PSA 7.2, most men were ≤cT2a (68.9%) and median year of RP was 2004. Median biopsy cores was 12 (range 3−20), median positive cores 3 (1−16), median maximum percent positive core (PPC) 33% (5−100%); cancer was found bilaterally in 107 (44.4%) and was associated with perineural invasion (PNI), atypia and HGPIN in 30.8, 14.3 and 12.7% of cases respectively. Favorable pathology was found in 308 (65.8%) men. 10−year BFS, MFS and CSS were 33.3, 62.9 and 77.8% for men with favorable and 2.1, 29.3 and 50.4% for unfavorable pathology respectively (p<0.001 for all). In multivariable logistic regression, PSA>10ng/mL (HR 3.35, 95%CI 1.004−11.2, p=0.049), biopsy Gleason 9 or 10 (4.05, 1.13−14.5, 0.03) and >3 cores positive (5.86, 1.15−29.8, 0.03) were predictive of unfavorable pathology.

**Conclusions:** Men with high–Gleason sum at biopsy are at high−risk for biochemical recurrence and advanced stage at pathological analysis following RP. Men with favorable pathology (pT2 or pT3a) have significantly better BFS, MFS and CSS than men with unfavorable pathology (pT3b or N1). PSA >10ng/mL, Gleason 9−10 and >3 cores positive at biopsy are predictive of unfavorable pathology. Biopsy predictors of unfavorable pathology may be helpful in selected patients who will benefit most from RP and provide information when counseling patients regarding the risk of recurrence and the ideal treatment for high−risk PC.

**Poster #169**

**A MULTI-INSTITUTIONAL STUDY OF 3794 PATIENTS TO DETERMINE THE LEARNING CURVE FOR ROBOTIC RADICAL PROSTATECTOMY**

Prasanna Sooriakumaran, Majnu John¹, David Lee², Peter Wiklund³ and Ashutosh Tewari¹

¹Weill Cornell Medical College, New York, NY; ²University of Pennsylvania, Philadelphia, PA; ³Karolinska Institute, Stockholm, Sweden

(Presented By: Prasanna Sooriakumaran)

**Introduction and Objectives:** The surgical learning curve for robotic assisted laparoscopic radical prostatectomy (RALP) is oft cited as being shorter than for other surgical modalities. However, while this appears true with regards to surgical safety, the learning curve for more refined variables like positive surgical margin (PSM) rate and operative time (OT) is not well established. Our objective was to assess the surgical learning curve for RALP in terms of these parameters.
 Patients and Methods: We performed a retrospective cohort study of 3794 patients who underwent RALP between Jan 2003 and Sep 2009 by three surgeons (DL, PW, AKT) from three centers (UPenn, Karolinska, Cornell). Mean overall PSM rates and mean overall OT were calculated for all three surgeons at intervals of 50 RALPs per surgeon, and learning curves for these means were fit using a loess method. R version 2.71 was used for all statistical analysis.

Results: The learning curve for PSM rates for all patients demonstrated improvements continued with increasing surgeon experience, with over 1600 cases required to get a PSM rate <10%. When pT3 patients were evaluated, the learning curve started to plateau after 1000–1500 cases. Mean OT plateaued after 750 cases though with further surgical experience the OTs started to climb again.

Conclusions: The learning curve for RALP is not as short as previously thought, and a large number of cases are needed to get PSM rates and OTs to a minimum. This suggests that RALP should be performed by high volume surgeons in order to optimize patient outcomes.

Poster #170

NOMOGRAMS TO PREDICT PROSTATE BIOPSY POSITIVITY BASED ON TYROL SCREENING DATA
Prasanna Sooriakumaran, Majnu John¹, Jasmin Bektic², Mike Herman¹, Doug Scherr¹ and Ashutosh Tewari¹
¹Weill Cornell Medical College, New York, NY; ²Innsbruck Medical University, Innsbruck, Austria
(Presented By: Prasanna Sooriakumaran)

Purpose: There are no published nomograms that predict prostate cancer in a screened population. We describe three nomograms that predict for prostate cancer on biopsy derived from a large screening population.

Patients and Methods: Patients from the Tyrol screening study of known age, total prostate–specific antigen (tPSA), digital rectal examination (DRE), prostate volume, and percent free PSA (%fPSA), and who underwent an initial prostate biopsy from January 1992 to June 2004, were included (n=2271). Multivariable logistic regression models were used to develop the biopsy positivity predictive nomograms: nomogram 1− age, DRE, tPSA; nomogram 2− age, DRE, tPSA, prostate volume; nomogram 3− age, DRE, tPSA, prostate volume, %fPSA . The predictive accuracy of the models was assessed in terms of discrimination and calibration. External validation of the nomograms was performed by comparison with a urologically referred population of patients who underwent prostate biopsy (n=599).

Results: All three nomograms discriminated well between biopsy positive and biopsy negative patients for both the screening and urologically referred cohorts (nomogram 3 better than nomogram 2 better than nomogram 1). All three nomograms were well calibrated internally, but the nomograms under−predicted the probability of a positive biopsy in the urologically referred cohort.

Conclusion: Our nomogram based on age, total PSA, and DRE has a good predictive ability to differentiate between screened patients that will show cancer on initial prostate biopsy and those that will not. Adding prostate volume and percent free PSA improves this predictive power further. All three nomograms under−predict prostate cancer in a urologically referred cohort.

Poster #171

HOW DOES LEVEL I EVIDENCE AFFECT TREATMENT TRENDS OF EBRT+AST COMBINATION THERAPY FOR PROSTATE CANCER?
Shaheen Alanee, Stephanie Jarosek¹, Beth Virnig¹ and Sean Elliott²
¹University of Minnesota, School of Public Health, Minneapolis, MN; ²University of Minnesota, Department of Urologic Surgery and School of Public Health, Minneapolis/MN
(Presented By: Shaheen Alanee)

Introduction and Objectives: Several studies show the addition of androgen suppression therapy (AST) to external beam radiotherapy (EBRT) improves survival in high risk prostate cancer. We tested the hypothesis that after the publication of trials in 1997 and later, an increased proportion of those treated with primary EBRT for high risk prostate cancer would receive neoadjuvant or adjuvant AST. In contrast, a decreased proportion of those with low risk prostate cancer would receive AST.
Methods: 97,940 men ≥66 years, diagnosed with non-metastatic prostate cancer in 1992–2005 and receiving primary treatment with EBRT were identified from the SEER–Medicare database. Patients were classified as high risk if they had cT3 cancer or Gleason Score 8–10. Neo/adjuvant AST was defined as receiving AST any time before or up to 3 months after the completion of EBRT. We defined the crude proportion receiving AST each year. Multivariate logistic regression modeling was then used to define the odds ratio of AST treatment for each year (1993–2005) compared to the baseline in 1992. Separate models were run for low and high risk patients, controlling for the covariates of age, race, income, education, registry, and other comorbidities measured by the Charlson comorbidity index.

Results: The odds of receiving AST, given EBRT increased in 1993–1999, plateaued in 1999–2003 and declined thereafter. The same general trend was seen in high and low risk patients, although the curves diverged over time. Older age and increased comorbidity were associated with higher odds for receiving AST.

Conclusions: The practice of adding AST to EBRT was not positively affected by the publication of supporting level I evidence. 60% of high risk patients in 2005 were not receiving neo/adjuvant AST with their EBRT. Discretionary AST use follows the same general trends as indicated AST use but with a slightly sharper decline over time.

Poster #172

RATIONALLY DESIGNED PEPTIDOMIMETICS TARGET ANDROGEN RECEPTOR SIGNALING IN PROSTATE CANCER
Ganesh Raj
(Presented By: Ganesh Raj)

Background: Androgen receptor (AR) signaling is essential for prostate cancer development, growth, and progression. In our laboratory, we have shown that the interaction between AR and its cofactor, PELP−1 (Proline, Glutamic acid, Leucine rich Protein 1) is critical for AR–mediated genomic signaling. We hypothesized that disruption of the interaction between AR and PELP−1 using rationally designed peptidomimetics could affect AR genomic signaling in prostate cancer.

Methods: We have developed rationally designed bis benzamide scaffold-based alpha-helical peptidomimetics analogous to the nuclear receptor box motif on PELP1 that is presumed to bind AR. Initially two peptidomimetics were created –control D1 and a nuclear receptor box analogue D2. Prostate cancer cells were treated with various concentrations of peptidomimetics prior to incubation with androgen (DHT/R1881 and evaluated for proliferation with MTT assays. Immunofluorescent studies were performed to examine endogenous AR translocation to the DAPI-stained nucleus.

Results: Initial toxicity assays revealed that neither D1 nor D2 were toxic to prostate cancer cells up to a 500nM concentration. We have shown that D2 (but not the control D1) prevents the formation of the AR–PELP1 complex as evidenced by the ability of D2 to block the coimmunoprecipitation between AR and PELP1 in LaPC4 and LnCAP cell lines. D2 was able to significantly decrease DHT-mediated transcription from androgen responsive promoters, whereas the control D1 did not show any activity. Interestingly, we noted that the peptidomimetic D2 blocked DHT-induced translocation of AR to the nucleus. Importantly D2 was able to reduce DHT-mediated proliferation of PCA cells in vitro in all androgen-responsive PCA cells, but not PC–3 cells which lack AR expression. Finally, in animal xenograft models, treatment with D2 blocked the proliferation of androgen-independent C4–2B cells.

Conclusions: We have rationally designed a peptidomimetic to specifically block AR–PELP−1 interaction. This peptidomimetic blocks nuclear translocation of AR, AR mediated genomic signaling as well as DHT-mediated proliferation of prostate cancer cells in vitro and in animal models in vivo. These data strongly indicate that this strategy may serve as a viable therapeutic target for disrupting AR signaling in patients with prostate cancer and has delivered a candidate compound amenable to rapid development into clinical trials.
THE USE OF MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY FOR THE TREATMENT OF LOCALIZED PROSTATE CANCER: A PHASE I STUDY
Alexandra Colquhoun, Harry Foster, Linda Sugar, Masoom Haider, Laurence Klotz, Michael Bronskill and Rajiv Chopra
Sunnybrook Health Sciences Centre, Toronto, ON, Canada
(Presented By: Alexandra Colquhoun)

Introduction and Objectives: Minimally-invasive treatments for localized prostate cancer, that offer good local control over disease, with a low side-effect profile, would have a major impact in improving prostate cancer management. MRI-guided transurethral ultrasound therapy is a candidate technology in which planar high-intensity ultrasound energy is delivered to the prostate gland, via a transurethrally inserted device to generate a precise region of thermal coagulation. Previous studies in canines have demonstrated the feasibility of using active MR temperature feedback to control spatial heating to a specified target region. This phase I study was designed to evaluate the safety and feasibility of this technique in humans.

Methods: MRI-guided transurethral ultrasound therapy was administered, using a combination of sedation and spinal anesthesia, to a pre-determined region of the prostate of men diagnosed with localized prostate cancer (pT1c–pT2a). Subjects underwent immediate radical prostatectomy, and the pattern of thermal damage measured on histology was compared with imaging predictions. High-intensity ultrasound energy was delivered to a 180° sector in the prostate and spatial temperature maps were obtained every five seconds. The temperature measured at the boundary of the target region during treatment was used by the treatment system to adjust the power and rotation rate.

Results: Nine patients, median age 60 (range 49–70), were successfully treated. Baseline biopsy Gleason scores were 3+3 (n=4) and 3+4 (n=5) and the median pre-biopsy PSA, 4.9 (range 2.7–13.1). The transurethral device was inserted without difficulty and spinal anesthesia and sedation effectively eliminated patient discomfort and motion during the 2 hour procedure. Precise transducer positioning was achieved under image guidance, and successful device rotation was achieved within the prostate. MR temperature measurements within the prostate were achieved with a spatial resolution of 2mm and a temperature uncertainty of 1°C every 5 seconds, using a conventional pelvic surface coil array. Temperature measurements were stable, and not affected by motion or breathing. A continuous pattern of heating was delivered over the target region, with a targeting accuracy of 1.0+/−1.5mm. There were no reported complications.

Conclusion: MRI-guided transurethral ultrasound therapy is safe and capable of generating a precise region of thermal damage within the prostate gland under active MR temperature feedback.

CONSISTENCY OF TUMOR POSITION ON REPEAT PROSTATE BIOPSY IN MEN ON ACTIVE SURVEILLANCE FOR PROSTATE CANCER—IMPLICATIONS FOR FOCAL THERAPY
Greg Trottier, Nathan Lawrentschuk, Robert Sowerby, Neil E. Fleshner, Ants Toi, Andrew Evans, Theodorus H. van der Kwast, Kimberly A. Fernandes and Antonio Finelli
Princess Margaret Hospital, University of Toronto, Toronto, ON, Canada
(Presented By: Greg Trottier)

Introduction: Focal therapy is a minimally invasive option for men with prostate cancer on active surveillance (AS). The main concern with this approach is the possibility of missing an undiagnosed cancer or the growth of a new cancer in another part of the gland.

Objective: Our aim was to investigate initial positive and repeat TRUS-BX findings in men on AS to determine how often and to what extent an altered disease profile occurred on second biopsy. We also sought to determine histologic predictors of subsequent cancer occurrence in non-cancerous areas.
Methods: A prospective database is maintained at our institution of all patients undergoing prostate biopsy. Three radiologists perform all biopsies (>2000 systematic biopsies/year) at our institution using a standardized 11–15 core systematic approach. From this database we retrospectively identified 423 AS patients who had at least 2 biopsies. AS inclusion criteria were; ≤3 cores positive, less than 50% of any core positive, ≤Gleason score 7. We compared the site of occurrence of cancer between the first biopsy and second biopsy. Histologic predictors of contralateral cancer occurrence and worsening disease grade were also assessed.

Results: Our AS cohort included 423 men who had ≥2 biopsies. The mean age was 65 and the median time between biopsies was 14 months with a decrease in mean PSA from 7.3 to 7.0 (p<0.01). On second biopsy, 17% of man had an increase in Gleason score, 49% had no change and 35% had no cancer detected. The mean number of positive cores decreased on second biopsy from 1.9 to 1.4 (p<0.01). Cancer position on second biopsy remained the same in 36%, occurred on the ipsilateral and contralateral sides in 29%, with 15% having cancer on the contralateral side only. The only predictor of cancer occurrence on the contralateral side on second biopsy was having contralateral ASAP or HGPIN on the first biopsy (OR 1.82, p=0.02). Having >1 core positive on first biopsy was a predictor of higher grade disease on the second biopsy (OR 2.54; p<0.01).

Conclusions: Follow-up prostate biopsy in men on AS can uncover cancers in the contralateral part of the gland in nearly one third of cases with the only predictors being ASAP or HGPIN in the contralateral area. Caution should be exercised in planning focal therapy based on positive biopsy findings. Funding: none

Poster #175

DO UROLOGIC PROCEDURES SUCH AS PROSTATE NEEDLE BIOPSY AND VASECTOMY CAUSE ERECTILE DYSFUNCTION?
Sandra Koo, Dan Lewinshtein and Christopher Porter
Virginia Mason Medical Center, Seattle, WA
(Presented By: Sandra Koo)

Introduction and Objectives: Prior studies suggest that prostate needle biopsy (PNB) and vasectomy may cause erectile dysfunction (ED). We explored the relationship between a prior PNB or vasectomy and rates of ED.

Methods: We reviewed a prospectively organized database of 890 patients who underwent transrectal ultrasound (TRUS)-guided PNB. ED was modeled as a categorical variable as either any, moderate–severe, or severe based on International Index of Erectile Function (IIEF) scores. Binary logistic regression was used to evaluate the predictive ability of PNB and vasectomy. They were adjusted for age in multivariate analysis. IIEF scores were obtained prior to each biopsy procedure.

Results: Median age and IIEF score were 63 years and 19 points, respectively. According to IIEF scores, 22%, 11%, 15%, 34% had severe, moderate, mild–moderate, and mild ED, respectively. 18% had no ED. Vasectomy status was available in 391 patients, of whom 41% had prior vasectomy. On univariate analysis, age (OR=1.1, p<0.001), prior PNB (OR=1.83, p<0.002) and prior vasectomy (OR=0.41, p<0.001) were all associated with moderate–severe ED. Only age (OR=1.1, p<0.001) and vasectomy (OR=0.39, p<0.002) were predictive for severe ED. On multivariate analysis, age was predictive for moderate–severe (OR 1.08, p<0.001) and severe (OR=1.09, p<0.001) ED, while vasectomy was protective against moderate–severe (OR=0.41, p<0.003) ED. PNB status was no longer significant (p>0.05) after adjustment for other covariates.

Conclusions: Age is a strong predictor of ED. Prior vasectomy is associated with a reduced risk of ED. Prior PNB, after adjustment for other variables, does not increase the risk of ED. Furthermore, ED was common in this cohort, and thus patients undergoing definitive therapy for prostate cancer should be counseled appropriately prior to treatment.
Poster #176

FRAGMENTATION OF PROSTATE CANCER SURVIVORSHIP CARE: IMPLICATIONS FOR COST AND QUALITY
Ted Skolarus, Yun Zhang, Bruce Jacobs and Brent Hollenbeck
Department of Urology, University of Michigan, Ann Arbor, MI
(Presented By: Ted Skolarus)

Objective: Because cancer patients are particularly prone to the effects of fragmented health care delivery, we investigated the extent to which fragmentation of prostate cancer survivorship care was associated with increasing expenditures and potentially decreased quality of care.

Methods: We identified 67,736 patients diagnosed with prostate cancer between 1992 and 2005 using SEER–Medicare data. We used two measures to define fragmented health care: the average number of prostate cancer providers over time and the concentration of each patient’s office visits within their providers measured using the Herfindahl–Hirschman Index. Patients were sorted into 3 fragmentation groups (low, medium, high). We examined how fragmentation was associated with expenditures and potentially duplicate PSA testing within 30 days.

Results: Over one–third of prostate cancer survivors experienced highly fragmented care (37.5% low, 26.7% intermediate, 35.8% high). Patients with more fragmented care were younger (over 80 years, 13.5% high vs. 20.9% low, p<0.001), white (75.2% high vs. 70.1% low, p<0.001), of higher socioeconomic class (33.6% high vs. 25.2% low in the highest tercile, p<0.001) and had more radiation therapy as initial treatment (24.4% high vs. 18.2% low, p<0.001). Patients with greater fragmentation had increased annual survivorship expenditures ($453 high vs. $142 low, median, p<0.001) and more PSA testing within 30 days of a previous test (14.7% high vs. 5.7% low, p<0.05).

Conclusions: Highly fragmented prostate cancer care was significantly more expensive than less fragmented care and may contribute to duplicate services. Efforts to decrease the fragmentation of prostate cancer care through survivorship guidelines or care plans may improve the quality and decrease the costs of survivorship care.

Poster #177

COMPETING RISKS OF DEATH IN PATIENTS WITH LOCALIZED PROSTATE CANCER: RESULTS FROM THE CAPSURE DATABASE
Alexander Kutikov¹, Alan T. Paciorek², Peter R. Carroll² and Stephen A. Boorjian³
¹Fox Chase Cancer Center, Philadelphia, PA; ²University of California San Francisco, San Francisco, CA; ³Mayo Clinic, Rochester, MN
(Presented By: Alexander Kutikov)

Background: Counseling men with newly–diagnosed prostate cancer (PC) regarding the optimal treatment strategy must include consideration of both an individual’s risk of disease progression and the risk of non–cancer death due to medical comorbidities. Here, we evaluated the CaPSURE database to determine the differential impact of clinicopathological variables and patient comorbidity status on PC–specific mortality (PCSM) and non–PC death.

Methods: We identified 6,274 patients with clinically–localized PC from the CaPSURE database who underwent primary RP (4,289) or RT (1,985) between 1987 and 2009. Median follow–up after diagnosis was 64 months (range 1 month–20 years). A Fine and Gray proportional hazards regression model for the subdistribution of competing risk was used to calculate the risks of PCSM and non–PC death, controlling for clinicopathological variables and comorbid conditions (hypertension, heart disease, stroke, diabetes, lung disease, cancer, kidney disease, liver disease). Cumulative incidence curves stratified by comorbidities were generated for PCSM and non–PC death.

Results: Median patient age at diagnosis was 65 years, median PSA was 6.16 ng/mL, and median Gleason sum was 6. 98% of patients presented with cT1 or cT2 disease, and the median number of comorbidities was 1 (range 0 – 7). In total, 987 men died during follow–up, including 169 who died of PC and 818 who died of non–PC causes. Higher biopsy Gleason score, higher clinical stage, higher pre–treatment PSA and treatment with RT were significantly associated with an increased risk of PCSM (Fig 1A). Older age, African–American race, and treatment with RT predicted non–PC death. The number of comorbidities correlated with risk of non–PC death but not PCSM (Fig 1B).

Conclusions: Most men diagnosed with PC will die of other causes. Integrating data on clinicopathological variables with data on comorbid conditions into a competing risks model will enable the more precise prediction of the relative probabilities of PCSM and non–PC death. Such risk stratification allows for an individualized approach to counseling patients regarding PC treatment.
**Poster Session II**

**Poster #178**

**PRESENCE OF GLEASON PATTERN 5 ON BIOPSY: SUBCLASSIFICATION OF HIGH RISK PATIENTS FROM THE SEARCH DATABASE**

Sean Stroup¹, Stephen Freedland², Fred Millard¹, Martha Terris², William Aronson³, Joseph Presti⁴, Christopher Amling⁴ and Christopher Kane⁴
¹University of California, San Diego, CA; ²Duke University, Durham, NC; ³Stanford University, Palo Alto, CA; ⁴Orgeon Health & Science University, Portland, OR
(Presented By: Sean Stroup)

**Introduction and Objectives:** We previously showed that not all men with a biopsy Gleason 8–10 disease have poor outcomes. We sought to assess whether we could further subclassify men with Gleason 8–10 disease on biopsy by determining if presence of any Gleason pattern 5 on initial prostate biopsy was an independent predictor of biochemical recurrence and prostate cancer specific mortality in high risk patients treated with prostatectomy from the Shared Equal Access Regional Cancer Hospital (SEARCH) cohort.

**Methods:** Men with Gleason sum 8–10 and a primary Gleason of 4 or 5 prostate cancer on biopsy who were then treated with radical prostatectomy between 1988 and 2009 were evaluated. The cohort was divided into 2 groups; Gleason 4+4, and those with a pattern 5 (i.e. Gleason 4+5, 5+3, 5+4, and 5+5). Biochemical recurrence was defined as PSA > 0.2 ng/ml, 2 values at 0.2 ng/ml, or secondary treatment for an elevated PSA. Predictors of PSA recurrence and prostate cancer specific death were analyzed using Cox–proportional Hazard models.

**Results:** Of 2,211 men in the SEARCH database, 196 (9%) men met criteria for inclusion in the analysis. Of these, 153 had Gleason 4+4, and 43 had primary Gleason pattern 5 on prostate biopsy. On multivariate analysis, relative to Gleason 4+4, men with Gleason pattern 5 had relatively similar risk of biochemical recurrence (HR=1.55, 95% CI 0.93–2.58, p=0.092) but a significantly higher risk of death from prostate cancer (HR 5.09, 95% CI 1.18–22.00, p=0.029).

**Conclusions:** Subclassification of high risk prostate cancer by prostate biopsy Gleason grading (4+4 vs. presence of Gleason pattern 5) can help identify men at the highest risk of prostate cancer mortality. Specifically, presence of any Gleason pattern 5 cancer on biopsy portends a poor prognosis and impacts cancer specific survival. These findings support the concept of a continuum of risk, even in these high risk patients, and may drive more aggressive use of adjuvant therapies and enrollment of these men onto neoadjuvant clinical trials.

**Poster #179**

**LOCALLY ADVANCED PROSTATE CANCER: A POPULATION-BASED STUDY OF TREATMENT PATTERNS**

William Lowrance, Elena Elkin, David Yee, Andrew Feifer, Behfar Ehdaie, Coral Swartz, Peter Scardino and James Eastham
MSKCC, New York, NY
(Presented By: William Lowrance)

**Introduction and Objectives:** Treatment of locally advanced prostate cancer (LAPC) is controversial, but recent trial results demonstrate superior outcomes for combination therapy compared to monotherapy. We aimed to identify treatment patterns, predictors, and trends in a population–based cohort of men with LAPC.

**Methods:** From Surveillance, Epidemiology and End Results (SEER) cancer registry records linked with Medicare claims, we identified men age 66 and older diagnosed with clinical stage T3 and T4 nonmetastatic PCa from 1998 through 2005. We classified treatments (radical prostatectomy (RP), radiation therapy (RT), or androgen deprivation (AD)) received within 6 and 24 months of PC diagnosis. We assessed trends in combination and monotherapy over time and used multivariable logistic regression to assess sociodemographic and clinical predictors of multimodality treatment.

**Results:** During the study period 3,095 men were diagnosed with LAPC. Within the first 6 months of diagnosis, 34% of patients were treated with a combination of RT and AD, 48% received monotherapy, and 15% received no active treatment. Figure 1 shows the trends in multimodality treatment and monotherapy for LAPC. The most notable change was an increase in use of the combination of RT and AD as primary therapy and a decrease in the use of primary AD since 2003. When considering all patients, including those who received no active treatment, the percent of patients who received RT and AD rose from 26% in 2003 to 35% in 2005, while the percentage treated with AD alone decreased from 47% to 35%. Significant predictors of receiving multimodality therapy were age, race, geographic area, marital status, clinical stage, Charlson comorbidity score, and year of diagnosis.
Conclusions: Patterns of treatment for LAPC shifted over the study period with combined RT and AD becoming the most common primary therapy. Demographic and clinical characteristics independently predict whether or not a patient receives multimodality treatment. The trend toward increased use of multimodality therapy is encouraging, but further work is needed to increase combination therapy and further define the role of RP in this patient population.

Poster #180

PREDICTORS AND OUTCOMES OF MACROSCOPICALLY POSITIVE LYMPH NODES FOUND INTRAOPERATIVELY DURING ROBOTIC RADICAL PROSTATECTOMY DESPITE NEGATIVE PREOPERATIVE IMAGING
Shyam Sukumar, Wooju Jeong, Nilesh Patil, Firas Petros, Ramgopal Satyanarayana, James Peabody, Mani Menon and Craig Rogers
Vattikuti Urology Institute, Henry Ford Health System, Detroit, MI
(Presented By: Shyam Sukumar)

Introduction and Objectives: Discovery of macroscopically positive lymph nodes during robotic prostatectomy is a rare event. We analyzed outcomes of patients with this event and evaluated preoperative predictive factors.

Methods: 4480 patients underwent robotic radical prostatectomy between 2001 and 2010. A total of 87 patients (1.94 %) had lymph node metastasis. In 13 patients, grossly abnormal lymph nodes were discovered intraoperatively and frozen section confirmed metastatic prostate cancer (Group 1). All of these patients had a negative preoperative metastatic workup (including CT and bone scan). We assessed surgical decision (abort versus continue) and postoperative outcomes in these patients. The 74 patients with microscopic lymph node positive disease (Group 2) during this time period were also evaluated and compared to patients in Group 1 using the Mann Whitney−U, Fischer exact and Pearson’s chi−square tests.

Results: Intraoperative discovery of grossly positive lymph nodes occurred in only 13 (14.9%) of all patients with positive lymph node disease. Prostatectomy was aborted in 9 patients and completed in 4 patients. All patients received adjuvant therapy with hormonal deprivation and/or radiation. One patient in each subset developed hormone refractory disease. One patient in the aborted subset has died of prostate cancer. The four patients with a completed prostatectomy are alive at a mean follow up of 48 months with one patient still alive at 80 months. Patients with macroscopically positive lymph nodes had a higher median preoperative PSA (17.2 vs. 6.7, p=0.002) and were more likely on prostate biopsy to have perineural invasion (88.9% vs. 32.4%, p=0.002). 8 patients in Group 1 had high grade disease (Gleason 8 or above) The number of lymph nodes removed was not significantly different between groups (9 vs 8.5, p>0.05); however patients in Group 1 had a higher number of positive lymph nodes (2 vs 1, p=0.025) and lymph node density (0.33 vs 0.17, p=0.028).

Conclusions: Intraoperative findings of macroscopically positive lymph nodes during robotic prostatectomy is a rare event that may occur in high risk patients, particularly with a high PSA and perineural invasion on biopsy. Long term survival is possible after completion prostatectomy. Preoperative discussion with high risk patients to discuss surgeon and patient preferences in the event of this rare intraoperative finding is advised.
Poster Session II

Poster #181

SALVAGE PROSTATECTOMY AFTER RADIATION THERAPY FOR PROSTATE CANCER: A SINGLE CENTER EXPERIENCE
Galaxy Shah, Ahmed Eldefrawy, Elie Antebi, Mohan Arianayagam, Kristell Acosta, Murugesan Manoharan and Mark Soloway
University of Miami, Miller School of Medicine, Miami, FL
(Presented By: Galaxy Shah)

Introduction and Objectives: Salvage prostatectomy (SP) is a technically challenging procedure. If the cancer is still localized, it provides an opportunity for cure. We present our experience with SP in 24 consecutive patients between 1992 and 2009.

Methods: Patients undergoing SP for biopsy proven local recurrence after radiation therapy were included in this analysis. Patient demographics, prostate specific antigen (PSA), Gleason sum, surgical complications and postoperative outcomes were analyzed. Biochemical recurrence was defined as PSA ≥ 0.2 ng/mL and continence was defined as no pads.

Results Obtained: Between 1992 and 2009, 24 patients underwent salvage prostatectomy for local recurrence of the disease after prior EBRT (n = 13) or brachytherapy (n = 11). The mean age at surgery was 63.8 years. The mean follow up was 62.7 months. Bilateral lymph node dissection was not feasible in 10 (42%) of the patients. Mean blood loss was 415 (100−1000) ml, none of these patients required allogenic blood transfusion. Four (16.67%) patients developed bladder neck stricture requiring treatment. Seven patients (29.2%) had incontinence requiring pads. No patient had an artificial urinary sphincter placed. Twelve patients (50%) had biochemical recurrence at a mean interval of 18.75 (1−61) months. Eight patients received androgen deprivation. 5 patients have died, 1 from prostate cancer.

Conclusion: In carefully selected group of patients, salvage prostatectomy is feasible with an acceptable complication rate. 50% of the patients have remained cancer free and have avoided androgen deprivation.

Poster #182

LOW INCIDENCE OF BIOCHEMICAL AND CLINICAL HYPOGONADISM FOLLOWING HYPOFRACTIONATED STEREOTACTIC BODY RADIATION THERAPY (SBRT) MONOTHERAPY FOR LOW TO INTERMEDIATE RISK PROSTATE CANCER
Eric Oermann¹, Simeng Suy¹, Heather Hanscom¹, Sue Lei¹, Nathaniel Piel¹, Hyeon Park¹, Joy Kim¹, Viola Chen¹, Brian Collins¹, Nicholas Constantinople², Stephen Dejter², William Maxted³, John Lynch¹, John Pahira³, Kevin McGeagh³, Reena Jha⁴, Nancy Dawson⁴, Anatoly Dritschilo¹, John Lynch³ and Sean Collins¹
¹Department of Radiation Medicine, Georgetown University Hospital, Washington, DC; ²Department of Radiology, Georgetown University Hospital, Washington, DC; ³Department of Urology, Georgetown University Hospital, Washington, DC; ⁴Department of Medical Oncology, Georgetown University Hospital, Washington, DC
(Presented By: Sean Collins)

Introduction and Objectives: Recent clinical data analyses suggest that large radiation fraction sizes are radio−biologically favorable over smaller fraction sizes in prostate cancer radiotherapy. The CyberKnife is an appealing delivery system for hypofractionated radiosurgery due to its ability to deliver highly conformal radiation therapy to moving targets via hundreds of non−coplanar radiation beams. Non−coplanar beams, however, may increase the risk of testicular irradiation and hypogonadism. We report our early experience using the CyberKnife to deliver hypofractionated stereotactic body radiation therapy (SBRT) monotherapy to patients with low− to intermediate−risk prostate cancer with particular attention to testicular irradiation and hypogonadism.

Methods: Twenty−six patients were treated with hypofractionated SBRT to a dose of 36.25 Gy in 5 fractions. All patients had histologically confirmed low− to intermediate−risk adenocarcinoma of the prostate (clinical stage < T2b, Gleason score < 7, PSA < 20). PSA and total testosterone levels were obtained before radiation therapy, 1 month after the completion of radiation and every 3 months thereafter for 1 year. Samples were obtained in the morning and early afternoon to limit the effect of circadian variation. Biochemical hypogonadism was defined as a total serum testosterone levels below 8 nmol/L.

Results Obtained: All 26 patients completed the planned treatment with an average 15.3 months follow−up. The median pretreatment PSA was 5.75 ng/mL and decreased in all patients to a median of 0.7 ng/mL by 1 year post−treatment. Median pretreatment total serum testosterone levels were 14.87 (range, 5.55−39.87) nmol/L. Post−treatment levels dropped slowly; at 1 year follow−up the median percent fall was 23.75% with a median total serum testosterone level of 10.53 nmol/L (range 5.79−22.38 nmol/L) that was significantly lower than the pretreatment value (p < 0.013). In contrast, the PSA to testosterone ratio dropped quickly to a median value of 0.066 from 0.416. Average EPIC sexual and hormonal scores were not significantly changed by 1 year post−treatment.

Conclusions: Hypofractionated SBRT offers radiobiological benefits of a large fraction sizes and is a well tolerated treatment option for low− to intermediate−risk prostate cancer. Early results are encouraging with biochemical response and acceptable toxicity. The rate of new biochemical and clinical hypogonadism was low 1 year after treatment.
OUTCOMES OF ACTIVE SURVEILLANCE FOR MEN WITH INTERMEDIATE-RISK PROSTATE CANCER
Matthew Cooperberg, Janet Cowan, Joan Hilton, Adam Reese, Harras Zaid, Sima Porten, Katsuto Shinohara, Maxwell Meng, Kirsten Greene and Peter Carroll
UCSF, San Francisco, CA
(Presented By: Matthew Cooperberg)

Purpose: Active surveillance (AS) is an option for the initial management of early stage prostate cancer. Current risk stratification schema identify patients with low−risk disease who are presumed to be most suitable for AS. However, some men with higher risk disease also elect AS; outcomes for such men have not been widely reported.

Methods: Men managed with AS at UCSF were classified as low− or intermediate−risk using the biopsy Gleason sum and the CAPRA score derived from the serum prostate specific antigen (PSA), Gleason grade, extent of biopsy involvement, and T−stage. Low−risk men had Gleason ≤6 and CAPRA score 0−2; intermediate−risk men had Gleason 7 and/or CAPRA score 3−5. Clinical and demographic characteristics, and progression in terms of Gleason score, PSA kinetics, and active treatment were compared between men with low− and intermediate−risk tumors. Outcomes for AS patients who subsequently received surgery were compared to a contemporary risk−matched cohort who received surgery at diagnosis.

Results: Compared to men with low−risk tumors, those with intermediate−risk tumors were older (mean 64.9 vs 62.3 years) with higher mean PSA values (10.9 vs 5.1 ng/ml), and more tumor involvement (mean 20.4% vs 15.3% positive biopsy cores) (all p<0.01). Within four years of the first positive biopsy, the clinical risk group did not differ in terms of the proportions experiencing progression−free survival, (low 54% vs. intermediate 61%, log−rank p=0.22) or the proportions who underwent active treatment (low 30% vs. intermediate 35%; log−rank p=0.88). Among men undergoing surgery, rates of upgrading and upstaging were similar between those treated immediately and those progressing after AS. No patient was node−positive and none had biochemical recurrence within 3 years.

Conclusions: Selected men with intermediate−risk features be appropriate candidates for AS, and are not necessarily more likely to progress. AS for these men may provide an opportunity to further reduce over−treatment of disease that is unlikely to progress to advanced cancer. Longer−term followup is needed, as well as further critical evaluation of definitions of progression on AS.
A PROSPECTIVE CONTROLLED PHASE II STUDY OF NEOADJUVANT EXISULIND THERAPY INITIATED PRIOR TO RADICAL PROSTATECTOMY: EFFECT ON APOPTOSIS

Christopher Weight, Simon Kim, Matthew Tollefson, R. Jeffrey Karnes, Eric Bergstralh and Bradley Leibovich
Mayo Clinic, Rochester, MN
(Presented By: Christopher Weight)

Introduction: Exisulind is an oral selective apoptotic anti-neoplastic drug and its analogs have been shown to induce apoptosis in vitro in many cancer cell lines, including LNCaP and PC3 prostate cancer cell lines without affecting those derived from normal human prostate (PrEC). In order to evaluate the activity of exisulind against CaP in vivo, we carried out a prospective study of neoadjuvant exisulind in patients undergoing radical prostatectomy (RP).

Methods: Men with biopsy proven, localized CaP (Gleason Score \( \geq 6 \)) amenable to RP were offered enrollment into the trial. The treatment group \((n=44)\) was given oral exisulind \((375–400mg)\) daily for a total of 4 weeks and then underwent RP. The control group underwent RP per routine. The primary endpoint was change, from biopsy to prostatectomy specimens, in apoptosis biomarkers (bcl-2, Bax, Par-4, caspase 3, PTEN) between the two groups.

Results: The two cohorts were similar with regard to age, initial PSA, time to surgery, and both clinical and pathologic stage. There were no significant effects of exisulind on biomarkers of cell death between biopsy specimen and post-treatment radical prostatectomy specimen. There were no drug related serious adverse events or deaths. The most common adverse events were liver enzyme abnormalities, flu-like symptoms, fatigue, and gastrointestinal symptoms.

Conclusion: Exisulind is a well-tolerated drug with minimal adverse events; however, we were unable to detect any differences in apoptotic biomarkers among those treated with exisulind compared to controls. There remains no evidence for the use of exisulind in the neoadjuvant treatment of men with CaP.

COMORBID CONDITIONS, TREATMENT TYPE AND ENSUING SURVIVAL IN MEN WITH PROSTATE CANCER: A STATE OF MISMATCH

Karim Chamie, Timothy J. Daskivich and Mark S. Litwin
UCLA, Los Angeles, CA
(Presented By: Karim Chamie)

Introduction and Objectives: Due to the lack of a widely accepted comorbidity assessment tool, comorbidity is poorly integrated into prostate cancer decision making. As a result, men with severe comorbidity may have substantial rates of overtreatment with aggressive therapies for their localized prostate cancer. Hence, we sought to characterize treatment type and subsequent survival for each comorbid condition.

Methods: We conducted a retrospective study of 1,482 men with non-metastatic prostate cancer diagnosed in 1997—at the Greater Los Angeles and Long Beach Veterans Affairs Medical Centers. By limiting our cohort to subjects with one comorbid condition, we were able to determine the probability of undergoing treatment (radical prostatectomy, brachytherapy, external beam radiotherapy, or immediate androgen deprivation therapy) for each condition by comparing them with subjects without any comorbidity referent (Charlson comorbidity score of 0). Probabilities, predictive margins, and relative risks were determined by multivariate analysis and bias-corrected confidence intervals were derived by bootstrapping. We then performed Kaplan–Meier, Cox proportional hazards analyses to assess survival outcomes.

Results: Subjects with a prior malignancy were less likely to undergo treatment for their prostate cancer while controlling for other covariates (RR 0.80; 95% CI 0.52–0.97). Patients with prior history of myocardial infarction, congestive heart failure (CHF), peripheral vascular disease (PVD), moderate–to–severe COPD, dementia, and diabetes with end–organ damage were no less likely to undergo treatment as the referent (no comorbid conditions). However, subjects with CHF (HR 4.34; 95% CI 2.27–2.9), PVD (HR 3.83; 95% CI 1.96–4.8), moderate–to–severe COPD (HR 4.98; 95% CI 3.14–90), dementia (HR 4.96; 95% CI 2.93–38), and diabetes with end–organ damage (HR 3.41; 95% CI 1.77–58) had a higher hazard for mortality when compared with the patients without any comorbid conditions.

Conclusion: Difficulty in discerning severity of comorbid conditions may explain the existing mismatch between treatment and ensuing survival. Prior history of cancer, while not necessarily an admonition of poor prognosis, steers patients and providers away from treatment. Similarly, identification of comorbidity conditions that do in fact portend a dismal prognosis will likely minimize overtreatment in men with prostate cancer.
FUNCTIONAL OUTCOMES FOLLOWING CATHETERLESS ROBOTIC RADICAL PROSTATECTOMY UTILIZING A SUPRAPUBIC DEVICE – AN EXTENDED STUDY
Sonal Grover, Sandhya Rao, Abhishek Srivastava and Ashutosh Tewari
Weill Cornell Medical College, New York, NY
(Presented By: Sonal Grover)

Background: Urethral catheterization after radical prostatectomy is often a source of major discomfort to the patient. The urethral catheterless technique decreases postoperative discomfort and penile shaft and tip pain but the impact on functional outcomes is not known. The purpose of this study was to evaluate continence and potency with the catheterless technique and to measure the incidence of long term complications such as urethral stricture.

Methods: This was a prospective study involving 50 patients who underwent the urethral catheterless technique by a single surgeon between October 2008 and June 2009. Following robotic radical prostatectomy, a Stamey suprapubic cystostomy catheter was used for urinary diversion and a one inch long custom made stent of siliconized latex was used to splint the anastomosis. Demographic, intraoperative and outcomes data were measured and entered in an IRB approved database.

Results: In the fifty patients the return of continence was 66% at 4 weeks, 94% at 12 weeks and 98% at 24 weeks following catheter removal. The duration of suprapubic catheterization ranged from 7 to 12 days, the average being 8 days. Potency data were not available in 5 who were excluded from the analysis. Of 45 patients, 38 (84.44%) patients had bilateral nerve-sparing surgery and 26 of these (68.41%) had a preoperative SHIM of more than 21. The potency rates were 34.61%, 69.23%, 88.46% and 92.30% at 4, 12, 24 and 52 weeks after surgery. No patient in either group had symptoms suggestive of a stricture or bladder neck contracture at 12 months follow-up.

Conclusion: The catheterless approach is both feasible and desirable. In addition to decreased patient discomfort, potency and continence outcomes are comparable or superior to the standard technique. There is no increased incidence of urethral strictures.
**Poster #187**

**EFFECT OF ADJUVANT AND SALVAGE RADIATION THERAPY FOR PROSTATE CANCER ON THE RISK OF SUBSEQUENT URINARY OBSTRUCTION AND INCONTINENCE**

Andrew Feifer¹, Jaspreet Sandhu¹, William Lowrance¹, Caroline Savage² and Elena Elkin²

¹Urology Service, Memorial Sloan-Kettering Cancer Center; ²Dept. of Epidemiology and Biostatistics, Memorial Sloan-Kettering Cancer Center

(Presented By: Andrew Feifer)

**Introduction:** External beam radiotherapy for treatment of locally recurrent prostate cancer in the adjuvant or salvage setting after radical prostatectomy is common. However, little is known about the effect of such treatment on the risks of urinary incontinence or obstruction. We investigated the use of postoperative radiotherapy and its impact on urinary complications in a population-based cohort.

**Methods:** Using Surveillance, Epidemiology, and End Results (SEER) population-based cancer registry data linked with Medicare claims, we identified men who received a radical prostatectomy for clinical stage T1–3 prostate cancer in 2003–2007, who had postoperative radiotherapy to the prostatic bed. In multivariable analyses, we assessed the impact of postoperative radiotherapy on the likelihood of urinary obstruction and incontinence, controlling for year of surgery, surgical technique (minimally invasive vs. open), and patient and tumor characteristics. Postoperative radiotherapy was modeled as a time-dependent covariate.

**Results:** The cohort included 11,925 men, of whom 1,842 (15.4%) received postoperative radiotherapy. There were 546 (5%) men who had at least 1 claim with a diagnosis or procedure indicating incontinence, and 1834 (15%) who had a claim indicating urinary obstruction. Postoperative radiotherapy was associated with an increased risk of urinary obstruction (HR 1.73; 95% CI. 1.42, 2.11; p<0.001), but not with incontinence (HR 0.78; 95% CI: 0.55, 1.09; p=0.14). Clinical stage, PSA and Gleason score and surgical approach were not significant predictors of obstruction or incontinence. The risk of incontinence increased slightly with year of surgery, while the risk of obstruction declined.

**Conclusion:** In this population-based cohort of older prostate cancer patients treated surgically, postoperative radiotherapy was an independent predictor of urinary obstruction but not of incontinence. The elevated risk of obstruction merits discussion with patients who are considering radiotherapy after prostatectomy.

---

**Poster #188**

**CHANGES IN PROSTATE CANCER GRADE IN MEN UNDERGOING SERIAL BIOPSIES ON ACTIVE SURVEILLANCE**

Sima Porten, Jared Whitson, Janet Cowan, Matthew Cooperberg, Katsuto Shinohara, Nannette Perez, Maxwell Meng, Kirsten Greene and Peter Carroll

San Francisco, CA

(Presented By: Sima Porten)

**Objective:** Active surveillance is now considered a viable treatment option for men diagnosed with low risk prostate cancer. However, there is little known regarding change in Gleason grade on serial biopsies over an extended period of time.

**Materials and Methods:** Men diagnosed with prostate cancer between 1998 and 2009, who elected active surveillance as initial treatment, with ≥6 months of follow up, and a minimum of six cores at biopsy, were included in analysis. Upgrading and downgrading were defined as an increase or decrease in primary or secondary Gleason score. Means and frequency tables described patient characteristics and treatment free survival was determined by life table product limit estimates.

**Results:** 363 men met inclusion criteria. Mean age at diagnosis was 62.9 years. 51% of men had prostate specific antigen (PSA) of 6 ng/mL or less and 92% had Gleason score of 6 or less. The majority of men were cT1 (64%), <33% of biopsy cores involved (83%), and were low risk (70%) at diagnosis. The median number of cores taken at diagnostic biopsy was 11, median time to follow up was 52 months, and 22% had ≥3 repeat biopsies. Overall, 40% (111 men) were found to have an increase in Gleason grade. The majority of men who experienced an upgrade (77%) did so by their second repeat biopsy.

**Conclusion:** A proportion of men experience an upgrade in Gleason score while on active surveillance. Men who experience early upgrading likely represent initial sampling error, while later upgrading may reflect tumor de-differentiation.
Poster #189

ROBOTIC ASSISTED LAPAROSCOPIC VS. OPEN CYSTOPROSTATECTOMY: RELATING PRE-OPERATIVE COMORBIDITIES TO POSTOPERATIVE COMPLICATIONS USING A STANDARDIZED REPORTING SYSTEM
Ercole Barbara, J. Michael Drake, John P. Fitzgerald, Yuanyuan Liang, Yumin Chen and Dipen J. Parekh
UTHSCSA, San Antonio, TX
(Presented By: Ercole Barbara)

Introduction and Objectives: Cystoprostatectomy for bladder cancer is a highly morbid procedure, making attempts at decreasing this morbidity of paramount importance. One of the most high profile advancements in cystoprostatectomy in recent years has been robotic-assist laparoscopic cystectomy (RALC), with the perceived benefits of decrease in blood loss, similar oncologic outcomes, improved cosmesis and decreased morbidity. This paper assesses the postoperative morbidity in two groups of cystectomy patients, one open and one robot-assist.

Methods: Retrospective chart review of a single surgeon's experience. Charts were reviewed and all complications within 30 days of surgery were collected. Complications were graded according to the Clavien classification system. All patients were evaluated with preoperative Charlson and ASA scores.

Results: Sixty-three patients charts were reviewed of which 30 underwent an open cystoprostatectomy and 33 underwent a RALC. There were 43 complications in patients with a Charlson score of < 3 in the RALC group compared to 39 in the open group; while 20 complications occurred in patients with a Charlson score equal to 3 or greater in the RALC group vs 55 in the open group (p=0.001). The patients without postoperative complication had an average Charlson score of 1.1 (SD=1.2). The Clavien grade of the complications was insignificantly related to Charlson score (p=0.743 for the RALC group; p=0.628 for the open group; p=0.589 for combined groups). ASA classification was significantly associated with Charlson score (p=0.003) and on average, a lower ASA category (<3) was associated with a lower Clavien grade (p=0.001 for the RALC group; p=0.644 for the open group; p=0.016 for combined groups). The patients in the RALC group experienced a complication rate of 69.7% (23/33), which was lower than the complication rate of 83.3% (25/30) for those who had the open procedure (p=0.2).

Conclusion: RALC appears to offer a statistically significant decrease in blood loss (p=0.04) and post operative blood transfusions (p=0.006) in this study group. Larger series will need to be performed to validate these findings and further assess whether RALC is a viable alternative to the open cystectomy which is still considered the gold standard treatment for invasive or recurrent bladder cancer.

Poster #190

RACIAL VARIATION IN THE UTILIZATION OF HIGH-VOLUME SURGEONS AND HIGH-VOLUME HOSPITALS FOR RADICAL PROSTATECTOMY AMONG MEN WITH PROSTATE CANCER
Daniel Barocas¹, Darryl Gray², David Penson¹, Jay Fowke³, Stephen Kappa⁴, Jeffrey Blume⁵, Sharon Phillips⁵, Sam Chang¹, Michael Cookson¹ and Joseph Smith, Jr.¹
¹Vanderbilt University Medical Center, Department of Urologic Surgery, Nashville, TN; ²Center for Quality Improvement and Patient Safety, Agency for Healthcare Research and Quality, Rockville, MD; ³Vanderbilt University Medical Center, Division of Epidemiology, Nashville, TN; ⁴Vanderbilt University Medical Center, School of Medicine, Nashville, TN; ⁵Vanderbilt University Medical Center, Department of Biostatistics, Nashville, TN
(Presented By: Daniel Barocas)

Introduction: Differences in quality of care may contribute to racial variation in outcomes of men with prostate cancer. Quality indicators in men undergoing radical prostatectomy (RP) include surgeon and hospital volume. We compared African-American (AA) and Caucasian (C) men’s use of high-volume surgeons (HVSs) and high-volume hospitals (HVHs) for RP and determined whether differential use of HVSs and HVHs were associated with differences in short-term outcomes (in-hospital mortality and length of stay [LOS]).

Methods: We used public-access versions of the Healthcare Cost and Utilization Project’s State Inpatient Databases from NY, FL, and MD (1996–2007), because they included race, surgeon and hospital identifiers. Cases were identified by ICD–9–CM procedure codes. Surgeon and hospital volume were defined as the number of RPs performed within a calendar year, with quartiles defined by state and year. Use of HVSs and HVHs (i.e., highest quartile) was compared across race using logistic regression, adjusting for age, insurance, state and year of surgery. We fit regression models for in-hospital mortality, adjusting for age, LOS and comorbidity score; we then added terms for use of HVHs and HVSs to determine whether the effect of race on in-hospital mortality was attenuated by procedure volume. We did a similar set of linear regressions for LOS.
Results: There were 108,331 cases; 74.9% C, 12.9% AA, 10.1% Other and 2.2% missing. Fewer AA than C men utilized HVSs (59.6% vs. 70.2%, p<0.001) and HVHs (65.9% vs. 74.2%, p<0.001). Compared to C men, AA men had lower adjusted odds of utilizing HVSs (0.60, 95% CI [0.58, 0.62], p<0.001) and HVHs (0.63, [0.61, 0.65], p<0.001). AAs had higher in–hospital mortality than Cs (0.16% vs. 0.07%, p=0.004) and the effect was only slightly attenuated in multivariate analysis including use of HVHs and HVSs (mortality OR 1.88 and 1.71, respectively). AAs had longer LOS than Cs and a substantial proportion of the difference was apparently explained by underutilization of HVHs and HVSs (Coefficient 0.49 vs. 0.34).

Conclusion: As indicators of healthcare quality, utilization of HVSs and HVHs for RP varies by race. Although race and volume both influence in–hospital mortality (a rare event), differences in use of HVSs and HVHs explain only a small proportion of the effect of race, whereas they explained about a third of the difference in LOS between racial groups. These findings may identify a quality gap and some of its consequences.

Poster #191

FINANCIAL IMPLICATIONS OF ACTIVE SURVEILLANCE FOR PROSTATE CANCER: THE IMPACT OF DELAYED ACTIVE TREATMENT VERSUS INITIAL TREATMENT
Kirk Keegan¹, Marc Dall’Era² and Christopher Evans²
¹Vanderbilt University, Department of Urologic Surgery; ²University of California, Davis, CA
(Presented By: Kirk Keegan)

Introduction: Men diagnosed with low risk prostate cancer face various treatment options. Studies that evaluate the cost of these options are disparate and have not addressed the specific influence of active surveillance (AS) paradigms on health care costs. We seek to perform a cost and income analysis of an AS protocol for low risk prostate cancer.

Methods: Utilizing a theoretical cohort of 100 patients evaluated over 5 years, we calculated the health care costs for an AS model incorporating trends for time to active treatment. Total weighted relative value units (RVUs) were used to calculate the standard cost per RVU multiplied by the RVU value to arrive at the standard cost per treatment. Income was calculated as a proportion of professional and technical fees generated by each treatment.

Results: Based upon data from other AS series, 70% of the AS cohort completed the entire 5–year surveillance paradigm. 12% of patients underwent surgical treatment, 15% underwent radiation treatment, and 3% underwent androgen deprivation. Sensitivity analyses were performed to address a range of patients seeking active treatment, active treatment type, and frequency of biopsy. Calculated cost to complete 5 years of AS was $22,047. Costs were highest for those initiating active surveillance with subsequent image guided radiation treatment plus androgen deprivation and lowest for those completing the active surveillance protocol without active treatment. Professional fees for urologists were highest from those patients receiving lengthy AS with subsequent surgical treatment.

Conclusion: Treatment of prostate cancer is expensive. The initial costs of an AS protocol are low, however, they continue to increase throughout the course of AS. Particularly, there is a marked increase in treatment cost with delayed active treatment and in years when prostate biopsy is performed.
MULTIPARAMETRIC 3T MR IMAGING OF PROSTATE CANCER: HISTOPATHOLOGIC CORRELATION USING CUSTOMIZED MRI-BASED SPECIMEN MOLDS

Baris Turkbey¹, Haresh Mani², Vijay Shah¹, Marcelino Bernardo¹, Thomas Pohida³, Maria Merino², Ardeshir Rastinehad⁴, Compton Benjamin⁴, Peter Choyke¹ and Peter Pinto⁴

¹Molecular Imaging Program, NCI, NIH, Bethesda, MD; ²Laboratory of Pathology, NCI, NIH, Bethesda, MD; ³Division of Computational Bioscience, Center for Information Technology, NIH, Bethesda, MD; ⁴Urologic Oncology Branch, NCI, NIH, Bethesda, MD
(Presented By: Baris Turkbey)

Objective: The correlation between endorectal coil MRI and pathology has been limited by freehand cutting of the specimen. Herein, we describe a customized specimen mold that is based on data extracted from the MRI and correlate multi-parametric MRI with the resulting registered slices.

Material and Method: This prospective study includes 22 patients (mean age 59.3 years ranging between 52–74 years) with a mean PSA level of 5.7ng/mL (range, 0.49–ng/mL). MRI of the prostate was performed on a 3T scanner using 16-channel cardiac and endorectal coils. MRI protocol included triplane T2W TSE MRI, DW MRI, MRS, DCE MRI. Following imaging, patients had a robot-assisted prostatectomy and prostatectomy specimens were placed in customized 3D molds based on extracted features from their MRI and printed on a 3D printer. MRI images were correlated on slice by slice basis with annotated whole mount specimens obtained from the customized mold.

Results: Sensitivity, specificity, and ROC area-under-the-curve (AUC) values in the peripheral zone (PZ) for T2W MRI, DW MRI, MRS, DCE MRI were 0.66, 0.6, 0.26, 0.41 and 0.93, 0.93, 0.99 and 0.79, 0.76, 0.62, 0.7, respectively. Sensitivity, specificity and AUC values in the central gland (CG) for T2W MRI, DW MRI, MRS, DCE MRI were 0.41, 0.56, 0.23, 0.47 and 1.0, 0.97, 0.99 and 0.7, 0.765, 0.61, 0.73, respectively. Overall, sensitivity, specificity and AUC values for multi-parametric MRI in PZ and CG were 0.76, 0.89, 0.76, respectively. Sensitivity, specificity and AUC values were higher in larger lesions (>5mm).

Conclusion: Multi-parametric MRI of the prostate at 3T enables accurate tumor detection in most cases. Among MR sequences, DW MRI and DCE MRI are the two most helpful for tumor detection in the central gland. Employing a custom printed mold of the prostate improves co-registration of MRI with prostatectomy specimens.
**Poster Session II**

**Poster #193**

**GTX-758 LOWERS SERUM CONCENTRATIONS OF TOTAL AND FREE TESTOSTERONE IN HEALTHY MEN**
Ronald Morton, Gary Barnette, Michael Hancock, Jeffrey Kearbey, James Dalton and Mitchell Steiner
GTx, Inc., Memphis, TN
(Presented By: Mitchell Steiner)

**Background:** Advanced prostate cancer is commonly treated with androgen deprivation therapy (ADT). However, castrate levels of testosterone and estrogen can result in unintended side effects including hot flushes, gynecomastia, cardiovascular risk, osteoporosis and increased fracture risk. GTX–758 is an orally bioavailable, selective estrogen receptor alpha (ERα) agonist that inhibits luteinizing hormone secretion via feedback inhibition and thereby reduces testosterone to castrate levels. Herein we report the results of a proof of concept trial of GTX–758 in healthy volunteers.

**Methods:** Sixty healthy male volunteers (ages 18–40) were randomized to one of three GTX–758 treatment arms, 600mg, 1000mg, or 1,500mg. On days 1–10, men receiving 1500mg of GTX–758 were confined to the clinic and observed while taking GTX–758. Thereafter men were not observed while taking their study medication. Subject compliance was determined by statistical comparison of trough GTX–758 plasma concentrations achieved during the periods in which the subjects were observed and not observed. All men received oral GTX–758 for 56 days or until they demonstrated castrate levels of testosterone (<50ng/dL) on two consecutive measures. The primary endpoint was serum testosterone level. Key secondary endpoints include free testosterone and SHBG.

**Results:** Castration was not achieved in men treated with 600mg of GTX–758. At doses of 1000mg and 1500mg, castration was achieved in 10/14 and 11/17, respectively, of subjects who completed the study. In the 1500 mg cohort, 6 of the 17 subjects were found to be non-compliant with treatment and did not achieve castration. Ten of the 11 remaining (91%) subjects met the primary end point of castration with a total serum testosterone <50ng/dL. The median time to castration was 15.5 days with a range of 8–21 days. The median free testosterone level in compliant subjects was well below the castrate range at 0.23 pg/ml (range 0.15–.64 pg/ml). All men demonstrated significant increases in SHBG.

**Discussion:** GTX–758 is a selective ERα agonist that has demonstrated the ability to lower both total and free testosterone to castrate levels in healthy volunteers. Moreover, GTX–758 causes a dose dependent increase in sex hormone binding globulin (SHBG). The increase in SHBG results in a reduction in free testosterone to levels not commonly observed with currently employed ADT.

**Poster #194**

**PROSTATE ATYPIA: CLINICAL AND PATHOLOGIC VARIABLES ASSOCIATED WITH CANCER DIAGNOSIS ON REPEAT BIOPSY**
Ryan Kopp¹, J. Kellogg Parsons¹, Jonathan Shiau¹, Jessica Wang-Rodriguez², Kerrin Palazzi-Churas¹, Jonathan Silberstein³, Ithaar Derweesh¹ and Kyoko Sakamoto²
¹UCSD Division of Urology, San Diego, CA; ²VA San Diego Medical Center; ³Memorial Sloan-Kettering Cancer Center, New York, NY
(Presented By: Ryan Kopp)

**Introduction and Objectives:** The clinical and pathological significance of atypical glands suspicious for malignancy (atyopia) on prostate biopsy is unclear. We sought to identify risk factors associated with cancer diagnosis in patients with atypia on previous prostate biopsy, and to quantify patients with atypia who have higher-risk prostate cancer.

**Methods:** A cohort study of patients with atypia diagnosed on prostate biopsy who underwent repeat biopsy. We investigated clinical and pathologic characteristics of patients with atypia and identified variables associated with cancer diagnosis on repeat biopsy. Pathologic data were analyzed for patients who subsequently underwent radical prostatectomy.

**Results Obtained:** The final analytic cohort included 139 patients, 29% of whom had cancer on repeat biopsy. The majority of patients with cancer on repeat biopsy had low-risk pathologic features: 66% were Gleason 6, 20% Gleason 7, and 7% Gleason 8. There were no significant associations of age, race, family history, PSA, PSA density, total number of prior biopsies, or time to repeat biopsy with cancer diagnosis on repeat biopsy. Histological inflammation was more common in patients without cancer (70%) compared to those with cancer (41%) on repeat biopsy (p=0.003). Multivariate analysis demonstrated histological inflammation was independently associated with decreased probability of cancer on repeat biopsy (OR 0.15; 95% CI 0.04 to 0.57; p = 0.039). Of those patients diagnosed with cancer, 14 of 41 (34%) underwent radical prostatectomy; of these, 4 (29%) were upgraded on final pathology, 6 (43%) were Gleason sum ≥ 7, 3 (21%) were pT3a, and 1 (7%) had lymph node metastases.

**Conclusions:** Inflammation was independently associated with a significantly decreased risk of cancer on repeat biopsy. Patients with atypia may have high-risk pathologic features. Additional studies are needed to elucidate these associations.
Poster #195

ROBOTIC RADICAL PROSTATECTOMY FOR ELDERLY PATIENTS WITH HIGH RISK PROSTATE CANCER
Craig Rogers, Shyam Sukumar, Jesse Sammon, Firas Petros, James Peabody and Mani Menon
Vattikuti Urology Institute, Henry Ford Health System, Detroit, MI
(Presented By: Shyam Sukumar)

Introduction: The role of robotic radical prostatectomy (RP) for high−risk prostate cancer (CaP) is controversial, as is the role of RP in elderly men. We evaluate outcomes of elderly patients with high−risk CaP who have chosen robotic RP over radiation or hormonal therapy.

Methods: Between April 2001 and November 2009, 69 elderly patients (≥70 years) with high−risk CaP underwent robotic RP at our institution. High−risk CaP was defined using the D'Amico classification, PSA≥20 ng/ml, biopsy Gleason Score 8−10, or clinical stage ≥cT2C. Outcomes were retrospectively analyzed.

Results: Preoperative high−risk features were PSA>20: 11 patients (15.9%), biopsy Gleason score 8−10: 43 (62.3%), or clinical stage ≥cT2C: 25 (36.2%). Mean OR time was 176 min and mean EBL was 162cc. There were 4 complications (5.8%): urine leak (2) and ileus (2). No patients had a hospital stay over 3 days. On final pathology, 26 men (37.7%) had organ−confined disease with negative surgical margins and 27 (39.1%) had extracapsular extension with negative margins. One patient had positive lymph nodes (1.4%). Surgical margins were positive in 16 patients (23.2%) and microscopically positive in 13 (18.8%). Biochemical recurrence occurred in 9 patients (13%) at a mean follow up of 23 months. There were no metastases or cancer specific deaths.

Conclusion: Robotic RP is safe and feasible in select elderly patients with high−risk CaP. Advanced chronological age should not be an absolute contraindication for RP in these patients.

Poster #196

THE FATE OF MEN WITH INCIDENTAL PROSTATE CANCER DIAGNOSED AT THE TIME OF RADICAL CYSTECTOMY
Joshua Langston, J. Patrick Selph, Sean Sawh, James Ferguson, Ankur Manvar, Angela Smith, Matthew Raynor, Matthew Nielsen, Eric Wallen and Raj Pruthi
(Presented By: Joshua Langston)

Introduction: It has been estimated that 25−40% of men will be found to have incidental prostate cancer at the time of radical cystoprostatectomy for bladder cancer. Despite the high incidence of this finding, little is known about the outcomes of these patients with regard to prostate cancer−specific recurrence and mortality. This study evaluated the clinical outcomes of men with incidental prostate cancer at cystectomy.

Methods: We identified 208 men who underwent radical cystoprostatectomy for bladder cancer with curative intent between 1997−2003 allowing for at least 5 years of clinical follow−up. Of these men, 71 were found to have prostate cancer detected in the operative specimen (34%). From this group, 10 men were noted to have a prior diagnosis of prostate cancer and were therefore excluded from analysis. Biochemical (i.e. PSA) and clinical follow−up were retrospectively reviewed as was fate from bladder cancer.

Results: Of the 61 men, 9 were lost to follow−up before 5 years. Of the 52 remaining men, 14 men are known to have died from bladder cancer and another 4 men have had evidence of metastatic urothelial disease. No man has died from prostate cancer. Although all men had PSA follow−up for at least 2 years, only 26 (50%) had long−term PSA follow−up over 5 years. Fifty men (96%) have had undetectable PSA values, and 2 men (4%) had evidence of a detectable PSA: one man with a detectable PSA occurring 2 years after surgery with a subsequent PSADT of > 5 years—perhaps suggestive of residual benign prostate tissue. The second patient had a detectable PSA occurring 8 years after surgery with a current PSADT of 2 years. Neither has required intervention.

Conclusions: The finding of incidental prostate cancer does not seem to have any significant impact on patients’ short or long−term outcomes. PSA recurrence is rare and does not seem to have significant clinical implications.
**Poster #197**

**PROSTATE VOLUME IS AN IMPORTANT PREDICTOR OF HISTOPATHOLOGIC VARIABLES OF ONCOLOGIC IMPORTANCE IN PROSTATE CANCER**

Prasanna Sooriakumaran, Abhishek Srivastava, Sonal Grover, Youssef El-Douaihy, Sivaram Rajan, Robert Leung and Ashutosh Tewari

Weill Cornell Medical College, New York, NY

(Presented By: Prasanna Sooriakumaran)

**Introduction:** There is a paucity of data investigating the relationship between histopathological variables of oncologic importance and prostate volume, and we aimed to investigate this.

**Patients and Methods:** 2207 consecutive patients who underwent robotic−assisted radical prostatectomy (RARP) were studied. Preoperative demographic and both pre- and post-operative histopathological parameters were compared among the small prostate (<40cc), intermediate size (40−70cc), and large prostate (>70cc) groups.

**Results:** Patients with smaller prostates were younger, had slightly lower BMIs, and lower PSAs than those with smaller prostates (p<0.001). They also had worse histopathological criteria (Gleason, core positivity, and maximum percent cancer) on preoperative biopsy and had worse radical specimen Gleason sums (p<0.001), percent cancer (p<0.001), and pathological stage (p=0.016). 11.5% of men in the small prostate group suffered a positive surgical margin (PSM) compared to 8.3% and 5.6% in the intermediate and large prostate groups, respectively (p=0.008). Basilar, posterolateral, and multifocal PSMs were commoner in the small prostate group.

**Conclusions:** Younger men have smaller prostates and worse preoperative histopathological parameters despite lower PSAs. Men with small prostates undergoing RARP have worse final Gleason sums, tumour volume, extraprostatic extension (EPE), and PSM rates than those with larger prostates.

---

**Poster #198**

**USE OF A NOVEL ABSORBABLE BARBED SUTURE ENABLES A ‘SELF-CINCHING’ TECHNIQUE OF VESICO-URETHRAL ANASTOMOSIS DURING ROBOTIC PROSTATECTOMY AND IMPROVES ANASTOMOTIC TIMES**

Abhishek Srivastava, Prasanna Sooriakumaran, Sonal Grover, Sivaram Rajan, Swathi Roy, Robert Leung and Ashutosh Tewari

Weill Cornell Medical College, New York, NY

(Presented By: Abhishek Srivastava)

**Objective:** To demonstrate a novel technique of self−cinching anastomosis using a barbed and looped suture during robotic−assisted radical prostatectomy (RARP).

**Patients and Methods:** 150 consecutive patients underwent this novel self−cinching anastomotic technique using a barbed absorbable barbed suture following RARP for clinically localized prostate cancer. The results were then compared to 150 consecutive patients who underwent RARP by the same surgeon prior to this new technique. We examined whether this novel technique had any effects on posterior reconstruction time, vesico−urethral anastomosis time, and thus total reconstruction and operative time by inference. We also assessed continence rates at 6 weeks and 3 months.

**Results:** The barbed suture group had significantly shorter posterior reconstruction (40 seconds vs. 60 seconds; p= <0.001) and vesico−urethral anastomotic times (7 minutes vs. 12 minutes; p= <0.001). By inference, this meant that total reconstruction and operative times were also significantly less (8 minutes vs. 13.5 minutes; p= <0.001 and 106 minutes vs. 114.5 minutes; p= <0.001, respectively). Continence rates for barbed suture group versus control group at 6 week and 3 months were 65% vs. 56.3% (p=NS) and 80% vs. 73% (p=NS), respectively.

**Conclusion:** We have shown that this technique is feasible and improves posterior reconstruction and anastomotic times without any adverse effect on continence rates.
**Poster #199**

**ROBOTIC RADICAL PROSTATECTOMY, RETROGRADE APPROACH: A NOVEL TECHNIQUE THAT MIMICS THE OPEN APPROACH**

Youssef Tanagho and Rabii Madi
Urological Institute, Case Western Reserve University, Cleveland, OH
(Presented By: Youssef Tanagho)

**Introduction:** We present a video of a robotic radical prostatectomy (RobRP) performed in a novel fashion using a retrograde approach, in a manner similar to the open radical retropubic prostatectomy (RRP), and unlike the standard antegrade RobRP.

**Methods:** The bladder is dropped off the anterior abdominal wall. The endopelvic fascia is opened. The dorsal venous complex is controlled using a GS−21 suture. A back−bleeding stitch is placed on the anterior surface of the prostate. The lateral prostatic fascia is dissected sharply from the base of the prostate to its apex. Using sharp dissection, the neurovascular bundle (NVB) is dissected off the apex of the prostate. With the NVB secured, the urethra is incised at the apex of the prostate, with exposure of the foley catheter. The extracorporeal (proximal) end of the foley catheter is cut and is brought into the pelvis. This end is clipped using a hem−o−lok clip. The third arm of the robot is used to apply cephalad tension on the proximal end of the foley catheter, providing exposure of the urethra posteriorly. The urethra is incised posteriorly. The prostate is dissected off the rectum in a retrograde fashion using sharp dissection. The prostatic pedicles are controlled using hem−o−lok clips. Dissection is performed along the vesicoprostatic (VP) junction anteriorly until the foley catheter is encountered. The foley balloon is drained, and the distal end of the foley catheter is brought out through the VP incision. Gentle caudal traction is applied to both ends of the foley catheter using the third robotic arm, providing exposure of the VP junction posteriorly. Dissection along the VP junction is continued posteriorly, with exposure of the vas deferens and seminal vesicles. The vas deferens and seminal vesicles are isolated, and the vas deferens is cut after application of hem−o−lok clips. Hem−o−lok clips are used to control what remains of the prostatic pedicles. An endocatch bag is used to extract the specimen. The vesicourethral anastomosis is performed using a running 3’0 Maxon suture.

**Results:** A unilateral nerve−sparing RobRP is performed successfully using a retrograde approach.

**Conclusion:** The retrograde RobRP has the advantage of enabling early identification and isolation of the NVB. Moreover, given the increased similarity of this procedure to the open RRP, this novel robotic approach adds a sense of familiarity to the urologist accustomed to performing the open RRP.

**Poster #200**

**HIGH RISK PROSTATE CANCER FEATURES ON DIAGNOSIS IN AFRICAN AMERICAN MALES: ANALYSIS OF THE MODERN SEER DATABASE**

Shaheen Alanee, Stephanie Jarosek¹, Beth Virnig¹, Badrinath Konety² and Sean Elliott²
¹University of Minnesota, School of Public Health; ²University of Minnesota, Urologic Surgery Department
(Presented By: Shaheen Alanee)

**Introduction and Objectives:** Prostate cancer is the most frequently diagnosed cancer in males in the United States. There are confirmed racial differences in prostate cancer incidence, tumor characteristics at presentation and mortality rates in the United States between African Americans (AA) and Caucasian Americans (CA). No study has examined these trends using modern national SEER data, inclusive of PSA and Gleason score at diagnosis.

**Methods:** We conducted an analysis of a population based database of 3848 African−American (10.5%) and 32694 White (89.5%) prostate cancer cases diagnosed in the United States in 2004 and 2005. Tabular methods with chi square analysis and multivariate logistic regression were used to identify the odds of presenting with high risk PSA (≥20 ng/ml), Gleason score (8−10) or T stage (≥T2c) between AAs and CAs. Covariates included age, education, income, cancer registry and comorbidities measured by Charlson index.

**Results:** African American race was significantly associated with high PSA (≥20ng/ml) on presentation controlling for possible confounders (OR 2.172 CI 1.177−2.659, p<0.0001). Age modified the effect of race with the OR for presentation with high PSA among AA vs. CA being highest in the youngest men. In contrast, AAs were less likely to present with high risk T stage (OR 0.784 CI 0.658−0.958, p=0.0073) compared to whites; Gleason score showed no difference (OR 1.073 CI 0.966−1.192, P=0.1843).

**Conclusions:** Young AA males are the most at risk to present with high PSA. This risk was not due to differences in income or education. These results may inform efforts at screening young AA men.
THE RISK OF AGGRESSIVE PROSTATE CANCER AMONG HMO VS. FEE-FOR-SERVICE MEDICARE PATIENTS
Shaheen Alanee, Stephanie Jarosek¹, Beth Virnig¹, Badrinath Konety² and Sean Elliott³
¹University of Minnesota, School of Public Health, Minneapolis, MN; ²University of Minnesota, Urologic Surgery Department, Minneapolis, MN; ³University of Minnesota, Urologic Surgery Department and School of Public Health, Minneapolis, MN
(Presented By: Shaheen Alanee)

Introduction and Objectives: Cancer screening and diagnosis differ in managed care vs. fee-for-service delivery systems. This has been shown for breast cancer. We examine the odds of presenting with high risk prostate cancer when enrolled in Medicare health maintenance organizations (HMO) vs fee-for-service (FFS) Medicare.

Methods: We identified men newly diagnosed with prostate cancer in 2004–5 in the SEER-Medicare database. Prostate cancer characteristics at diagnosis (PSA level, clinical T stage and biopsy Gleason score) were compared with tabular methods and chi square analysis between men continuously enrolled in HMO vs. continuously enrolled in FFS for one year prior to diagnosis. Logistic regression analysis was used to examine the relationship between the type of health insurance and the odds of presenting with high risk PSA (≥ 20 ng/mL), high risk Gleason score(≥ 8), and high risk clinical T stage (≥ T2c) controlling for the covariates of age, race, education, income and SEER registry region.

Results: 9187 patients enrolled in HMO were compared to 33129 patients enrolled in FFS. The age and income levels differed little between the two groups. FFS patients showed a trend toward being less educated. Relative to FFS, Having HMO insurance was associated with the same odds of presenting with PSA ≥20ng/ml (OR=1.356, P=0.1360), lower odds of presenting with high risk Gleason score(≥ 8), and lower odds of presenting with high risk T stage (OR=0.784,P=0.0004).

Conclusions: Patients enrolled in HMO are less likely that FFS patients to present with high risk Gleason score and T stage. HMO and FFS patients have similar risk of presenting with high risk PSA. These may represent differences in screening practices. While patterns of care after diagnosis would be interesting, it is not possible to examine this in HMO patients using Medicare claims data.

PRETHERAPY ASSESSMENT AND POSTTHERAPY QUALITY OF LIFE IN MEN UNDERGOING DEFINITIVE TREATMENT FOR LOCALIZED PROSTATE CANCER
Karim Chamie¹, Natalia Sadetsky² and Mark S. Litwin¹
¹UCLA, Los Angeles, CA; ²UCSF, San Francisco, CA
(Presented By: Karim Chamie)

Purpose: Since all interventions for localized prostate cancer have a significant impact on health-related quality of life (HRQOL), pretherapy assessment of functional status remains an essential quality-of-care indicator. We sought to determine whether accurate pretherapy assessment plays a significant role in forecasting HRQOL after definitive treatment for prostate cancer.

Materials and Methods: We examined data from CaPSURE, to identify men who underwent treatment for their localized prostate cancer between 1995 and 2006. We restricted our analysis to subjects who completed the UCLA-PCI survey before and after therapy. We performed a multiple logistic regression for the outcome measure (decline in each of the six UCLA-PCI domains) on the predictor (whether the physician performed an assessment that was in agreement with patient-reported pretherapy status), while adjusting for clinical and sociodemographic characteristics.

Results: Of the 2,195 men included in the analysis, 64% (1411 patients) did not have pretherapy function documented. Of the 784, only 45% (354) had pretherapy physician assessments that were concordant with patient-reported status. On multiple logistic regression analysis, men who were not assessed were more likely to experience a decline in sexual function (OR 1.66; 95% CI 1.23–2.3), sexual bother (OR 1.46; 95% CI 1.09–1.97), and bowel function (OR 1.43; 95% CI 1.02–1.00) in their post-therapy UCLA-PCI scores than those who were assessed and concordant.

Conclusion: Pretherapy functional assessment of patients with localized prostate cancer is associated with less decline in HRQOL. This simple, yet mutable, process-of-care measure serves as a potential target to improve quality of care for patients with prostate cancer.
FLUTAMIDE WITH OR WITHOUT A POXVIRAL-BASED THERAPEUTIC CANCER VACCINE IN PATIENTS WITH NONMETASTATIC CASTRATION-RESISTANT PROSTATE CANCER (CRPC)

Ravi Madan, Marijo Bilusic, Christopher Heery, Philip Arlen, Andrea Apolo, William Dahut, Jeffry Schlom and James Gulley
National Cancer Institute, Bethesda, MD
(Presented By: Ravi Madan)

Background: PSA−TRICOM is an off−the−shelf, poxviral−based therapeutic cancer vaccine that targets PSA. A randomized, placebo−controlled phase II trial with PSA−TRICOM monotherapy demonstrated an 8.5 month overall survival advantage in metastatic CRPC (p= 0.0061) (Kantoff, J Clin Oncol 2010). A second NCI trial demonstrated similar overall survival and suggested that immunologic response to the vaccine was associated with improved survival (Gulley, Cancer Immunol Immunother, 2010).

Methods: This study is enrolling patients with non−metastatic CRPC. Patients are randomized to androgen receptor antagonist alone (flutamide) or flutamide plus PSA−TRICOM. Flutamide is given at the standard dose of 400 mg TID. PSA−TRICOM is given by monthly subcutaneous injections. Patients are stratified by PSA doubling time and prior therapy. Progression is based either on development of metastatic lesions or PSA rise. All patients are required to remain on testosterone suppression therapy while on trial.

Results: The first 26 patients are evaluated in this analysis. For flutamide alone (n=13), patients at enrollment had a median age is 64.7 years and Gleason Score is 8. For flutamide + PSA−TRICOM, the patients a median age is 67.1 years and Gleason score is 8. Median time to progression is 223 days for Flutamide + PSA−TRICOM (range 70–432) vs. 84 days for Flutamide alone (56–372). Progression for 11/12 flutamide alone patients and 9/10 flutamide + PSA−TRICOM patients has been by PSA only.

Conclusion: There is preliminary evidence of improved efficacy of Flutamide + PSA−TRICOM compared to Flutamide alone in patients with non−metastatic CRPC. This trial will continue to accrue a total of 62 patients. Patients will also be evaluated for immunologic response. This trial is part of our group’s programmatic approach to vaccines in the treatment of prostate cancer which includes trials of Sm−153 +/- vaccine in chemo−refractory mCRPC and a pending trial of vaccine with definitive radiation and hormone therapy in newly diagnosed, high risk prostate cancer.
OBJECTIVE: Active surveillance (AS) is becoming increasingly popular as a treatment option for men with indolent prostate cancer. One of the primary selection criteria for AS is a low Gleason score. Underestimation of disease severity could be detrimental, and patients at risk for Gleason upgrading would therefore be unsuitable for AS. We sought to identify risk factors that could more accurately predict Gleason upgrading in AS-eligible men.

METHODS: A retrospective cohort study of 413 AS-eligible patients from a prospective database of 1535 men who underwent robotic–assisted radical prostatectomy by a single surgeon from January 2005 to January 2009. These 413 patients were eligible for AS based stringent selection criteria consisting of Gleason sum ≤ 6, clinical stage ≤T2a disease, PSA ≤10ng/ml, ≤3 positive cores and ≤50% cancer present in a single core. Clinicopathologic parameters, including number of cores at initial biopsy, biopsy cancer volume, preoperative PSA, number of cancer-positive cores, body mass index, and prostate volume were recorded prospectively. Data were evaluated using chi-square and multivariate logistic regression analyses. Receiver operator characteristic curves (ROC) were constructed to determine the optimal cutoff values.

RESULTS: 169 of 413 AS-eligible patients (40.9%) had Gleason upgrading at final pathology following radical prostatectomy. On univariate analysis, BMI, PSA density, preoperative PSA, lower prostate volume and maximum percentage of cancer in biopsy cores were predictors for Gleason upgrading. On multivariate analysis, all variables, except for BMI and PSA density, fell out of significance. PSA density > 0.1ng/ml/cm3 and BMI >29kg/m2 are the optimal cutoff values based on ROC analysis.

* The odds ratio for PSA density was statistically transformed to reflect for an increase of 0.1ng/dL/g in PSA density.
<table>
<thead>
<tr>
<th>Name</th>
<th>Date</th>
<th>Time</th>
<th>Session</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abel, Edwin J.</td>
<td>12/9/10</td>
<td>1:55 p.m.</td>
<td>Podium #8</td>
<td></td>
</tr>
<tr>
<td>Abern, Michael R.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #27</td>
<td></td>
</tr>
<tr>
<td>Abern, Michael R.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #139</td>
<td></td>
</tr>
<tr>
<td>Adelberg, David</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #50</td>
<td></td>
</tr>
<tr>
<td>Agochukwu, Nnena</td>
<td>12/8/10</td>
<td>7:50 p.m.</td>
<td>Podium #3</td>
<td></td>
</tr>
<tr>
<td>Alanee Abdullah, Shaheen R.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #7</td>
<td></td>
</tr>
<tr>
<td>Alanee Abdullah, Shaheen R.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #171</td>
<td></td>
</tr>
<tr>
<td>Alnazzar, Mehrdad</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #6</td>
<td></td>
</tr>
<tr>
<td>Alkateeb, Sultan</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #101</td>
<td></td>
</tr>
<tr>
<td>Alva, Ajjai</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #67</td>
<td></td>
</tr>
<tr>
<td>Alzahrani, Ali</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #4</td>
<td></td>
</tr>
<tr>
<td>Anderson, Christopher B.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #130</td>
<td></td>
</tr>
<tr>
<td>Anderson, Mark</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #108</td>
<td></td>
</tr>
<tr>
<td>Asher, Kevin</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #102</td>
<td></td>
</tr>
<tr>
<td>Autran Gomez, Ana Maria</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #124</td>
<td></td>
</tr>
<tr>
<td>Babaian, Kara N.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #153</td>
<td></td>
</tr>
<tr>
<td>Barocas, Daniel A.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #190</td>
<td></td>
</tr>
<tr>
<td>Bassett, Jeffrey</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #63</td>
<td></td>
</tr>
<tr>
<td>Benjamin, Jr., Compton J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #51</td>
<td></td>
</tr>
<tr>
<td>Biehn Stewart, Suzanne</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #3</td>
<td></td>
</tr>
<tr>
<td>Biehn Stewart, Suzanne</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #11</td>
<td></td>
</tr>
<tr>
<td>Biehn Stewart, Suzanne</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #42</td>
<td></td>
</tr>
<tr>
<td>Boorjian, Stephen A.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #31</td>
<td></td>
</tr>
<tr>
<td>Boris, Ronald S.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #138</td>
<td></td>
</tr>
<tr>
<td>Bostrom, Peter J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #59</td>
<td></td>
</tr>
<tr>
<td>Brooks, Michael</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #125</td>
<td></td>
</tr>
<tr>
<td>Bylund, Jason R.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #135</td>
<td></td>
</tr>
<tr>
<td>Campbell, Steven C.</td>
<td>12/10/10</td>
<td>10:30 a.m.</td>
<td>Podium #10</td>
<td></td>
</tr>
<tr>
<td>Chamie, Karim</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #43</td>
<td></td>
</tr>
<tr>
<td>Chamie, Karim</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #54</td>
<td></td>
</tr>
<tr>
<td>Chamie, Karim</td>
<td>12/10/10</td>
<td>11:05 a.m.</td>
<td>Podium #12</td>
<td></td>
</tr>
<tr>
<td>Chu, David</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #1</td>
<td></td>
</tr>
<tr>
<td>Chung, Paul</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #48</td>
<td></td>
</tr>
<tr>
<td>Collins, Sean</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #182</td>
<td></td>
</tr>
<tr>
<td>Colquhoun, Alexandra</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #45</td>
<td></td>
</tr>
<tr>
<td>Colquhoun, Alexandra</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #173</td>
<td></td>
</tr>
<tr>
<td>Cooperberg, Matthew R.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #183</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Date</td>
<td>Time</td>
<td>Type</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>------------</td>
<td>------------</td>
<td></td>
</tr>
<tr>
<td>Cost, Nicholas</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #77</td>
<td></td>
</tr>
<tr>
<td>Davies, Judson D.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #156</td>
<td></td>
</tr>
<tr>
<td>De Castro, Guarionex J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #75</td>
<td></td>
</tr>
<tr>
<td>Dickstein, Rian J.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #109</td>
<td></td>
</tr>
<tr>
<td>Dorin, Ryan P.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #52</td>
<td></td>
</tr>
<tr>
<td>Eldefrawy, Ahmed</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #16</td>
<td></td>
</tr>
<tr>
<td>Ercole, Barbara</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #189</td>
<td></td>
</tr>
<tr>
<td>Espinoza, Brigitte</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #126</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #151</td>
<td></td>
</tr>
<tr>
<td>Feifer, Andrew</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #187</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>11:15 a.m.</td>
<td>Podium #13</td>
<td></td>
</tr>
<tr>
<td>Feuerstein, Michael A.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #137</td>
<td></td>
</tr>
<tr>
<td>Fishman, Andrew I.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #132</td>
<td></td>
</tr>
<tr>
<td>Fitzgerald, John P.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #106</td>
<td></td>
</tr>
<tr>
<td>Fleshner, Neil</td>
<td>12/10/10</td>
<td>11:35 AM</td>
<td>Podium #15</td>
<td></td>
</tr>
<tr>
<td>George, Arvin</td>
<td>12/10/10</td>
<td>9:40 a.m.</td>
<td>Podium #9</td>
<td></td>
</tr>
<tr>
<td>Godfrey, Mark</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #93</td>
<td></td>
</tr>
<tr>
<td>Gorin, Michael</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #146</td>
<td></td>
</tr>
<tr>
<td>Grover, Sonal</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #44</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #186</td>
<td></td>
</tr>
<tr>
<td>Gulley, James</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #15</td>
<td></td>
</tr>
<tr>
<td>Gupta, Amit</td>
<td>12/9/10</td>
<td>10:35 a.m.</td>
<td>Podium #5</td>
<td></td>
</tr>
<tr>
<td>Hamilton, Rob</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #8</td>
<td></td>
</tr>
<tr>
<td>Hayn, Matthew H.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #86</td>
<td></td>
</tr>
<tr>
<td>Heney, Niall M.</td>
<td>12/9/10</td>
<td>9:55 a.m.</td>
<td>Podium #7</td>
<td></td>
</tr>
<tr>
<td>Huang, Xuan</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #20</td>
<td></td>
</tr>
<tr>
<td>Jurewicz, Michael</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #166</td>
<td></td>
</tr>
<tr>
<td>Karam, Jose A.</td>
<td>12/9/10</td>
<td>10:25 a.m.</td>
<td>Podium #4</td>
<td></td>
</tr>
<tr>
<td>Kates, Max</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #78</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #81</td>
<td></td>
</tr>
<tr>
<td>Kauffman, Eric C.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #96</td>
<td></td>
</tr>
<tr>
<td>Keegan, II, Kirk A.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #191</td>
<td></td>
</tr>
<tr>
<td>Keto, Christopher</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #49</td>
<td></td>
</tr>
<tr>
<td>Kim, Simon</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #80</td>
<td></td>
</tr>
<tr>
<td>Klein, Eric A.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #14</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Date</td>
<td>Time</td>
<td>Session</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>------------</td>
<td>--------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Koo, Sandra J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #175</td>
<td></td>
</tr>
<tr>
<td>Kopp, Ryan</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #82</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #95</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #98</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #148</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #157</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #194</td>
<td></td>
</tr>
<tr>
<td>Kreshover, Jessica</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #164</td>
<td></td>
</tr>
<tr>
<td>Kutikov, Alexander</td>
<td>12/8/10</td>
<td>7:30 p.m.</td>
<td>Podium #1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #177</td>
<td></td>
</tr>
<tr>
<td>Lake, Brad</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #35</td>
<td></td>
</tr>
<tr>
<td>Langston, Joshua</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #29</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #161</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #196</td>
<td></td>
</tr>
<tr>
<td>Lee, Eugene K.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #121</td>
<td></td>
</tr>
<tr>
<td>Levey, Helen R.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #115</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #152</td>
<td></td>
</tr>
<tr>
<td>Lewinshtein, Daniel</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #99</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #165</td>
<td></td>
</tr>
<tr>
<td>Lightfoot, Andrew J.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #103</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #123</td>
<td></td>
</tr>
<tr>
<td>Liu, Jen-Jane</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #57</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #122</td>
<td></td>
</tr>
<tr>
<td>Liu, Joceline</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #127</td>
<td></td>
</tr>
<tr>
<td>Logan, Joshua E.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #28</td>
<td></td>
</tr>
<tr>
<td>Lotan, Yair</td>
<td>12/10/10</td>
<td>11:25 a.m.</td>
<td>Podium #14</td>
<td></td>
</tr>
<tr>
<td>Lowrance, William T.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #179</td>
<td></td>
</tr>
<tr>
<td>Madan, Ravi</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #203</td>
<td></td>
</tr>
<tr>
<td>Makarov, Danil Victor</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #40</td>
<td></td>
</tr>
<tr>
<td>Margel, David</td>
<td>12/9/10</td>
<td>10:45 a.m.</td>
<td>Podium #6</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #71</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #104</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #162</td>
<td></td>
</tr>
<tr>
<td>Mehrazin, Reza</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #39</td>
<td></td>
</tr>
<tr>
<td>Messing, Edward M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #65</td>
<td></td>
</tr>
<tr>
<td>Miocinovic, Ranko</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #163</td>
<td></td>
</tr>
<tr>
<td>Moreira, Daniel</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #167</td>
<td></td>
</tr>
<tr>
<td>Morgan, Todd M.</td>
<td>12/8/10</td>
<td>7:40 p.m.</td>
<td>Podium #2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #92</td>
<td></td>
</tr>
<tr>
<td>Navai, Neema</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #61</td>
<td></td>
</tr>
<tr>
<td>Nepple, Kenneth G.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #85</td>
<td></td>
</tr>
<tr>
<td>Ng, Casey K.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #18</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #155</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Date 1</td>
<td>Time</td>
<td>Poster #</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------</td>
<td>--------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Okhunov, Zhamshid H.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#91</td>
<td></td>
</tr>
<tr>
<td>O’Malley, Rebecca L.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#144</td>
<td></td>
</tr>
<tr>
<td>Pantuck, Allan J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#22</td>
<td></td>
</tr>
<tr>
<td>Park, Jong-wook</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#55</td>
<td></td>
</tr>
<tr>
<td>Parr, Ryan</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#41</td>
<td></td>
</tr>
<tr>
<td>Patel, Amit R.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#79</td>
<td></td>
</tr>
<tr>
<td>Petros, Firas G.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#134</td>
<td></td>
</tr>
<tr>
<td>Petrovics, Gyorgy</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#26</td>
<td></td>
</tr>
<tr>
<td>Pierorazio, Phillip M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#33</td>
<td></td>
</tr>
<tr>
<td>Pokala, Naveen</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#25</td>
<td></td>
</tr>
<tr>
<td>Porten, Sima P.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#188</td>
<td></td>
</tr>
<tr>
<td>Pouliot, Frederic</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#24</td>
<td></td>
</tr>
<tr>
<td>Power, Nicholas</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#88</td>
<td></td>
</tr>
<tr>
<td>Prasad, Sandip M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#32</td>
<td></td>
</tr>
<tr>
<td>Psutka, Sarah P.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#97</td>
<td></td>
</tr>
<tr>
<td>Rais-Bahrami, Sorough</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#5</td>
<td></td>
</tr>
<tr>
<td>Raj, Ganesh V.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#143</td>
<td></td>
</tr>
<tr>
<td>Ramos, Luis</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#172</td>
<td></td>
</tr>
<tr>
<td>Rao, Manoj V.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#105</td>
<td></td>
</tr>
<tr>
<td>Rastinehad, Ardeshr</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#21</td>
<td></td>
</tr>
<tr>
<td>Resnick, Matthew J.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#110</td>
<td></td>
</tr>
<tr>
<td>Rosevear, Henry M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#89</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#116</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#117</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#120</td>
<td></td>
</tr>
<tr>
<td>Ross, Ashley E.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#154</td>
<td></td>
</tr>
<tr>
<td>Roy, Ornob</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#94</td>
<td></td>
</tr>
<tr>
<td>Sawh, Sean</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#64</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#118</td>
<td></td>
</tr>
<tr>
<td>Selph, J. Patrick</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#119</td>
<td></td>
</tr>
<tr>
<td>Sesterhenn, Isabel A.M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#19</td>
<td></td>
</tr>
<tr>
<td>Shah, Galaxy</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>#181</td>
<td></td>
</tr>
<tr>
<td>Sharad, Shashwat</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>#13</td>
<td></td>
</tr>
<tr>
<td>Author</td>
<td>Date</td>
<td>Time</td>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>------------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Shore, Neal D.</td>
<td>12/10/10</td>
<td>3:35 PM</td>
<td>Podium #17</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #10</td>
<td></td>
</tr>
<tr>
<td>Siddiqui, Mohammad M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #62</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #112</td>
<td></td>
</tr>
<tr>
<td>Silberstein, Jonathan</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #23</td>
<td></td>
</tr>
<tr>
<td>Simhan, Jay</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #84</td>
<td></td>
</tr>
<tr>
<td>Skolarus, Ted A.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #176</td>
<td></td>
</tr>
<tr>
<td>Smaldone, Marc Christopher</td>
<td>12/10/10</td>
<td>10:55 AM</td>
<td>Podium #11</td>
<td></td>
</tr>
<tr>
<td>Sooriakumaran, Prasanna</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #37</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #107</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #198</td>
<td></td>
</tr>
<tr>
<td>Sorbellini, Maximiliano</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #68</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #72</td>
<td></td>
</tr>
<tr>
<td>Srivastava, Abhishek</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #38</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #198</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #204</td>
<td></td>
</tr>
<tr>
<td>Steiner, Mitchell S.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #193</td>
<td></td>
</tr>
<tr>
<td>Stroup, Sean P.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #178</td>
<td></td>
</tr>
<tr>
<td>Sukumar, Shyam</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #180</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #195</td>
<td></td>
</tr>
<tr>
<td>Tan, Nelly</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #159</td>
<td></td>
</tr>
<tr>
<td>Tanagho, Youssef S.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #199</td>
<td></td>
</tr>
<tr>
<td>Thomas, II, Jean-Alfred</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #160</td>
<td></td>
</tr>
<tr>
<td>Thompson, III, Ian M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #47</td>
<td></td>
</tr>
<tr>
<td>Thorner, Daniel</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #107</td>
<td></td>
</tr>
<tr>
<td>Tollefson, Matthew K.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #114</td>
<td></td>
</tr>
<tr>
<td>Trotter, Greg</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #46</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #174</td>
<td></td>
</tr>
<tr>
<td>Troyer, Dean</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #34</td>
<td></td>
</tr>
<tr>
<td>Turkbey, Baris</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #192</td>
<td></td>
</tr>
<tr>
<td>Umbreit, Eric</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #113</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #136</td>
<td></td>
</tr>
<tr>
<td>Waingankar, Nikhil</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #129</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #147</td>
<td></td>
</tr>
<tr>
<td>Weight, Christopher J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #87</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #184</td>
<td></td>
</tr>
<tr>
<td>Welty, Christopher J.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #9</td>
<td></td>
</tr>
<tr>
<td>Whitson, Jared M.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #90</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>11:45 a.m.</td>
<td>Podium #16</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #131</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Date</td>
<td>Time</td>
<td>Poster #</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>--------------</td>
<td>-----------</td>
<td>-----------</td>
<td></td>
</tr>
<tr>
<td>Williams, Andrew K.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #158</td>
<td></td>
</tr>
<tr>
<td>Williams, Heinric</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #140</td>
<td></td>
</tr>
<tr>
<td>Williams, Michael B.</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #74</td>
<td></td>
</tr>
<tr>
<td>Wilson, Clark</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #70</td>
<td></td>
</tr>
<tr>
<td>Woldrich, Jeffery M.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #128</td>
<td></td>
</tr>
<tr>
<td>Woodruff, Daniel Y.</td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #133</td>
<td></td>
</tr>
<tr>
<td>Yaacoub, Ramy</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #56</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>12/10/10</td>
<td>4:00 p.m.</td>
<td>Poster #150</td>
<td></td>
</tr>
<tr>
<td>Zehnder, Pascal</td>
<td>12/9/10</td>
<td>4:00 p.m.</td>
<td>Poster #73</td>
<td></td>
</tr>
</tbody>
</table>
The following urologic oncology fellowship programs have earned the credentials of the Society of Urologic Oncology:

**Division of Urologic Oncology, Fox Chase Cancer Center**
Program Director: David Y.T. Chen, MD
Department of Surgical Oncology
333 Cottman Avenue
Philadelphia, PA 19111
Phone: (215) 728-2548
david.chen@fccc.edu

**Duke University Medical Center**
Program Director: Thomas J. Polascik, MD
Associate Professor, Division of Urologic Surgery
PO Box 2804, Room 1080
Yellow Zone Duke South
Durham, NC 27710
Phone: (919) 684-4946
polas001@mc.duke.edu

**Keck School of Medicine – University of Southern California**
Program Director: Eila Skinner, MD; Professor of Clinical Urology
1441 Eastlake Avenue, MS 74, Suite 7416
Los Angeles, CA 90089
Phone: (323) 865-3705
Fax: (323) 865-0120
skinner@hsc.usc.edu

**Mayo Clinic Cancer Center, Mayo School of Graduate Medical Education**
Program Director: Bradley C. Leibovich, MD
Associate Professor of Urology
Mayo Clinic
200 First Street, SW
Rochester, MN 55905-2981
Phone: (507) 284-3981
Fax: (507) 284-3981
leibovich.bradley@mayo.edu

**Massachusetts General Hospital**
Program Director: Aria F. Olumi, MD
Associate Professor, Department of Urology
55 Fruit St., Yawkey Building 7E
Boston, MA 02114
Phone: (617) 643-0237
Fax: (617) 643-4019
aolumi@partners.org

**Moffitt Cancer Center**
Program Director: Wade Sexton, MD
12092 Magnolia Drive
Suite 4035
Tampa, FL 33612
Phone: (813) 745-8535 (Jackie Campbell, Fellowship Coordinator)
Fax: (813) 745-5996
wade.sexton@moffitt.org
jackie.campbell@moffitt.org

**North Shore Long Island Jewish Health System**
Program Director: Manish Vira, MD
450 Lakeville Road, Suite M41
New Hyde Park, NY 11040
Phone (516) 734-8500
Fax (516) 734-8537
mvira@nslhs.edu

**Northwestern University Feinberg School of Medicine**
Program Director: Shilajit Kundu, MD
Tarry 16-703
303 E Chicago Avenue
Chicago IL 60611
Phone (312) 695-6125
Fax (312) 908-7275
skundu@nmff.org

**Roswell Park Cancer Institute**
Program Director: James L. Mohler, MD
Elm and Carlton Streets
Buffalo, NY 14263
Phone: (716) 845-3389
Fax: (716) 845-3300
james.mohler@roswellpark.org

**University of Colorado at Denver Health Sciences Center**
Program Director: Shandra S. Wilson, MD
4200 East Ninth Avenue, Box C-319
Room 4515
Denver, CO 80262
Phone: (303) 315-8972
Fax: (303) 315-7611
shandra.wilson@UCHSC.edu

**University of Kansas Medical Center**
Program Director: Jeffrey M. Holzbeierlein, MD
3901 Rainbow Blvd.
Mail Stop 3016
Kansas City, KS 66160
Phone: (913) 588-7571
Fax: (913) 588-0603
jholzbeierlein@kumc.edu
University of Pittsburgh
Program Director: Joel Nelson, MD; Professor and Chair
Dept. of Urology
5200 Centre Avenue, Suite 209
Pittsburgh, PA 15232
Phone: (412) 605-3020
Fax: (412) 605-3030
nelsonjb@upmc.edu

University of Toronto – Uro-Oncology Fellowship Program, Division of Urology
Program Director: Neil Fleshner, MD
610 University Avenue, Room 3-120
Toronto, ON M4G 2M9
Canada
Phone: (416) 946-2899
neil.fleshner@uhn.on.ca

University of Western Ontario, Uro-Oncology Fellowship Program
Program Director: Joseph Chin, MD
800 Commissioner Road East
Suite C3-120C
London, Ontario N6A 4G5
Canada
Phone: (519) 685-8451
joseph.chin@lhsc.on.ca

University of Texas Health Science Center, Department of Urology
Program Director: Dipen Parekh, MD; Associate Professor
Director of Robotic Surgery, University of Texas Health Science Center, Dept. of Urology
7703 Floyd Curl Drive, MC 7845
San Antonio, TX 78229-3900
Phone: (210) 567-5644
Fax: (210) 567-6868
parekhdm@uthscsa.edu
Fellowship Coordinator: Stephanie Radassao, MBA
Academic Program Coordinator, Urology
Phone: (210) 567-5644
Fax: (210) 567-5977
radassao@uthscsa.edu

University of Miami School of Medicine, Department of Urology
Program Director: Mark S. Soloway, MD
PO Box 016960
Miami, FL 33101
Phone: (305) 243-6596
msoloway@miami.edu

Urology Department, University of Washington Medical Center
Program Director: Daniel W. Lin, MD
Department of Urology
Box 356510, BB-1115
University of Washington
Seattle, WA 98195
Phone: (206) 543-4740
dlin@u.washington.edu
Assistant Director: Paul H. Lange, MD
Box 356510, BB-1115
Seattle, WA 98195
Phone: (206) 543-3918
lange@u.washington.edu

University of Chicago Medical Center, Section of Urology
Program Director: Gary D. Steinberg, MD
1500 East Medical Center Drive
3875 Taubman
Ann Arbor, MI 48109
Phone: (734) 763-9269
davwood@umich.edu

Urology Department, University of Michigan
Program Director: David Peter Wood, Jr., MD
Professor of Urology
1500 East Medical Center Drive
3875 Taubman
Ann Arbor, MI 48109
Phone: (734) 763-9269
davwood@umich.edu

Urologic Oncology Program, National Cancer Institute
Program Director: Peter Pinto, MD
National Institutes of Health, Bldg. 10, CRC, Room 2-5940
10 Center Drive
Bethesda, MD 20892
Phone: (301) 496-6353
Fax: (301) 402-0922
pintop@mail.nih.gov

Urology Department, Memorial Sloan Kettering Cancer Center
Program Director: Joel Sheinfeld, MD
1275 York Ave.
New York, NY 10021
Phone: (212) 639-2593
sheinfej@mskcc.org

Urology Department, MD Anderson Cancer Center
Program Director: Ashish M. Kamat, MD
University of Texas MD Anderson Cancer Center
1515 Holcombe Blvd. Unit 1373
Houston, TX 77030
Phone: (713) 792-3250
akamat@mdanderson.org
Urology Department, UCLA Medical Center  
Program Director: Arie Belldegrun, MD  
UCLA School of Medicine  
66-118 CHS 173818  
10833 Le Conte Ave.  
Los Angeles, CA 90095  
Phone: (310) 206-1434 or (310) 825-5056  
abeldegrun@mednet.ucla.edu

Urology Department, Indiana University  
Program Director: Stephen Beck, MD  
Indiana Cancer Pavilion/Dept. of Urology  
535 N Barnhill, Suite 420  
Indianapolis, IN 46202  
Phone: (317) 278-9272  
sdwbeck@iupui.edu  
Fellowship Contact: Tricia L. Wilson  
twilson2@iupui.edu

Urologic Oncology Program, University of California - San Francisco  
Program Director: Maxwell V. Meng, MD  
University of California - San Francisco  
Department of Urology  
1600 Divisadero St. Room 632  
San Francisco, CA 94143-1695  
Phone: (414) 353-7096  
mmeng@uro.ucsf.edu

UT Southwestern Medical Center at Dallas  
Program Director: Ganesh V. Raj, MD, PhD  
5323 Harry Hines Blvd.  
Dallas, TX 75390  
Phone: (214) 648-8532  
Fax: (214) 648-8786  
ganesh.raj@utsouthwestern.edu

Vanderbilt University Program, Department of Urologic Surgery  
Program Director: Michael S. Cookson, MD  
Vanderbilt University  
A1302 MCN-Dept. of Urologic Surgery  
1161 21st Avenue S  
Nashville, TN 37232  
Phone: (516) 322-2101  
michael.cookson@vanderbilt.edu

Virginia Mason Medical Center  
Program Director: Christopher Robert Porter, MD  
1100 9th Avenue  
C7-URO  
Seattle, WA 98101  
Phone: (206) 341-0560  
Fax: (206) 223-7650  
urocrp@vmmc.org

Washington University  
Division of Urology  
4960 Children’s Place, Campus Box 8242  
St. Louis, MO 63110  
Phone: (314) 362-8295  
Fax: (314) 454-5244  
Program Director: Adam S. Kibel, MD  
kibela@wustl.edu

The **Society of Urologic Oncology (SUO)** was created in 1984 to include members interested in the care of patients with malignant genitourinary disease. The SUO develops educational and research initiatives, studies in urologic oncology, and provides physician statements representing state-of-the-art assessments of these issues to other organizations.

For more information, visit [www.suonet.org](http://www.suonet.org).

The **National Cancer Institute (NCI)** is the government’s primary agency for conducting and supporting research in cancer causes, diagnosis, prevention, and treatment. In support of the entire community of cancer researchers, NCI employs its funding mechanisms, organizations, and networks to support basic, translational, and clinical research, and to invest in extraordinary opportunities to further progress made possible by previous discoveries.

For more information, visit [www.cancer.gov](http://www.cancer.gov).
Mark Your Calendars

SUO-SBUR 2011 Joint Meeting
May 14, 2011
Washington, DC

SUO 2011 Annual Meeting
May 14, 2011
Washington, DC

SUO 2011 Annual Meeting
December XX – XX, 2011
Hyatt Regency Bethesda and NIH Natcher Conference Center
Bethesda, MD