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Needs
The goal of this meeting is 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 urologic oncology.

Objectives
Following participation in this program, attendees will be able to:
• Describe recent advances in robotic and minimally invasive therapies for prostate, kidney and bladder cancer.
• Recognize new methods for active surveillance and focal therapy for patients with localized prostate cancer.
• Report recent advances in targeted systemic therapy of advanced kidney cancer.
• Assess new biomarkers for screening and other predictive markers for bladder cancer.
• Use recent advances in proton beam and brachytherapy for localized prostate cancer.
• Apply current thinking about the role of the urologic surgeon in the management of patients with kidney cancer who present with metastatic kidney cancer with their kidney in place.
• Recognize recent advances in surgical treatment of patients with localized bladder cancer.
• Describe new approaches for advances adjuvant therapy of advanced kidney cancer.
• Describe new approaches in the role of finasteride in prevention of prostate cancer.
• Recognize new strategies to enhance the role of intravesical chemotherapy in superficial bladder cancer.
• Apply recent advances in management of complications in female cystectomy.

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

CME 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 educational activity for a maximum of 18.75 AMA PRA Category 1 Credits™. Physicians should only claim 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.

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.

Meals
A continental breakfast, lunch and mid-morning snack on both days of the meeting are included in the registration fee.

Young Urologic Oncologist Dinner
Date: Wednesday, December 3, 2008
Time: 6:00 p.m. - 9:30 p.m.
Location: Cabinet/Judiciary Suite; Hyatt Regency Bethesda
Attire: Business Casual
Membership in the YUO Section of the Society of Urologic Oncology consists of fellows, scientists, and board certified or eligible physicians who are members of the SUO and have some post-residency training in urologic oncology. Membership is limited to the first 7 years after completion of fellowship.

SUO Dinner at the Hyatt Regency Bethesda
Date: Thursday, December 4, 2008
Time: 7:00 p.m. – 10:00 p.m.
Attire: Business casual attire is appropriate
Enjoy dinner with friends and colleagues at the Hyatt Regency Bethesda.
THURSDAY, DECEMBER 4, 2008

7:00 a.m. – 8:00 a.m.  Continental Breakfast and Registration

8:00 a.m. – 8:05 a.m.  Introduction
Ralph W. deVere White, MD
President, SUO
W. Marston Linehan, MD
Past President, SUO and Program Co-Director

8:05 a.m. – 9:05 a.m.  Bladder Cancer I:
Bernard H. Bochner, MD
Memorial Sloan-Kettering Cancer Center

8:05 a.m. – 8:08 a.m.  Introduction and Overview: Current State of Bladder Cancer Prognostic Markers and Tools
Bernard H. Bochner, MD
Memorial Sloan-Kettering Cancer Center

8:08 a.m. – 8:18 a.m.  Predictive Models
Michael Kattan, PhD
Cleveland Clinic

8:18 a.m. – 8:28 a.m.  Role of Biomarkers to Predict Outcomes and Response to Therapy
Yair Lotan, MD
University of Texas Southwestern Medical Center

8:28 a.m. – 8:38 a.m.  Novel Molecular Characteristics: Diagnostic and Therapeutic Implications
Ellen C. Zwarthoff, PhD
Erasmus University of Amsterdam

8:38 a.m. – 9:05 a.m.  Panel Discussion
Moderator: Bernard H. Bochner, MD
Memorial Sloan-Kettering Cancer Center
Panel: Michael Kattan, PhD
Yair Lotan, MD
Ellen C. Zwarthoff, PhD

9:05 a.m. – 10:05 a.m.  Prostate Cancer I: Alternatives to Standard Therapy for Low Risk Disease
Moderator: Peter Scardino, MD
Memorial Sloan-Kettering Cancer Center

9:05 a.m. – 9:20 a.m.  Update on Active Surveillance: Minisymposium on Focal Therapy
Laurence Klotz, MD
Sunnybrook Medical Science Centre
9:20 a.m. – 9:35 a.m.  Focal Therapy - Promises and Controversies  
J. Stephen Jones, MD  
Cleveland Clinic Foundation

9:35 a.m. – 10:05 a.m.  Panel Discussion  
Peter Scardino, MD  
Laurence Klotz, MD  
J. Stephen Jones, MD

10:05 a.m. – 10:25 a.m.  Break

10:25 a.m. – 10:50 a.m.  Stage I Seminoma: How Does New Data Affect Treatment Recommendations?  
Dean Bajorin, MD  
Memorial Sloan-Kettering Cancer Center

10:50 a.m. – 12:00 p.m.  Kidney Cancer  
Moderators:  
Brian Rini, MD  
Cleveland Clinic  
Jeffrey A. Sosman, MD  
Vanderbilt-Ingram Cancer

10:50 a.m. – 10:55 a.m.  Case Presentation: Locally Advanced RCC of Borderline Respectability  
Brian Rini, MD  
Cleveland Clinic

10:55 a.m. – 11:10 a.m.  Neoadjuvant Targeted Therapy Prior to Nephrectomy  
W. Kimryn Rathmell, MD, PhD  
University of North Carolina

11:10 a.m. – 11:25 a.m.  Panel Discussion: Pros and Cons of Targeted Systemic Therapy Prior to Nephrectomy  
Panel:  
Christopher Wood, MD, FACS  
Allen Pantuck, MD, MS, FCLA  
Peter Pinto, MD  
W. Kimryn Rathmell, MD  
Brian Rini, MD  
Jeffrey A. Sosman, MD

11:25 a.m. – 11:30 a.m.  Case Presentation: Metastatic RCC Patient s/p Nephrectomy who Received Sutent  
Brian Rini, MD  
Cleveland Clinic

11:30 a.m. – 11:45 a.m.  Consolidation Surgery After Targeted Therapy  
Steve Campbell, MD  
Cleveland Clinic

11:45 a.m. – 12:00 p.m.  Panel Discussion: The Role of Consolidative Surgery in the Modern Era  
Panel:  
Christopher Wood, MD, FACS  
Allen Pantuck, MD, MS, FCLA  
Peter Pinto, MD  
W. Kimryn Rathmell, MD  
Stephen Campbell MD  
Brian Rini, MD  
Jeffrey A. Sosman, MD
12:00 p.m. – 12:10 p.m. Funding Opportunities for Urologic Oncology (*CME not provided)
Leo Giamballesi, PhD
Director of Research, American Urological Association

12:10 p.m. – 1:30 p.m. Lunch

1:30 p.m. – 1:40 p.m. SUO Huggins Medal Presentation
Ian Thompson, MD
University of Texas, San Antonio
Presented by: Ralph W. deVere White, MD
President, SUO

1:40 p.m. – 2:00 p.m. Huggins Medal Lecture: Clinical Trials in Urology
Ian Thompson, MD
University of Texas, San Antonio

2:00 p.m. – 3:00 p.m. Prostate Cancer II: Advances in Biology and Genetics
Moderator: Adam Kibel, MD
Washington Univ. Medical School

2:00 p.m. – 2:15 p.m. Update on XMRV
Eric Klein, MD
Cleveland Clinic

2:15 p.m. – 2:30 p.m. Genetic Screening for Prostate Cancer
William Catalona, MD
NMFF Urology

2:30 p.m. – 2:45 p.m. Finasteride and High Grade Disease
Ian Thompson, MD
University of Texas-San Antonio

2:45 p.m. – 3:00 p.m. Panel Discussion
Panel: Adam Kibel, MD
Eric Klein, MD
William Catalona, MD
Ian Thompson, MD

3:00 p.m. – 4:00 p.m. Bladder Cancer II: Novel Therapeutic Strategies
Moderator: Seth P. Lerner, MD
Baylor College of Medicine

3:00 p.m. – 3:15 p.m. “BC2001” a 350+ Patient Phase III Trial Comparing TURBT – Plus XRT with & without Synchronous Mitomycin C & 5-FU
Nicholas James, BSc, MB, BS, FRCP, FRCR, PhD
Queen Elizabeth Hospital

3:15 p.m. – 3:30 p.m. Strategies to Enhance Efficacy of Intravesical Chemotherapy
Jessie L-S Au, PharmD, PhD
Ohio State University
3:30 p.m. – 3:45 p.m.  Novel Therapeutic Strategies in Clinical Trials  
James McKiernan, MD  
Squier Urological Clinic

3:45 p.m. – 4:00 p.m.  Discussion / Questions  
Moderator: Seth Lerner, MD  
Baylor College of Medicine  
Panel: Nicholas James, BSc, MB, BS, FRCP, FRCR, PhD  
Jessie L-S Au, PharmD, PhD  
James McKiernan, MD

4:00 p.m. – 6:00 p.m.  Poster Session I: Prostate, Kidney, Bladder, Penile and Testis Cancer: Clinical and Basic Research

**Poster #1**  
**UPREGULATION OF TRAG3 (TAXOL RESISTANCE ASSOCIATED GENE 3) IS ASSOCIATED WITH ADVANCED BLADDER CANCER (BCA)**  
Jose Karam, MD¹, Sandra Huang¹, Jinhai Fan¹, Jennifer Stanfield¹, Roger Schultz², Rey-Chen Pong³, Xiankai Sun³, Xian-Jin Xie³, Arthur Sagalowsky⁴ and Jer-Tsong Hsieh⁴ (Presented By: Jose Karam)  
¹Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas; ²Department of Pathology, University of Texas Southwestern Medical Center, Dallas, Texas; ³Department of Radiology, University of Texas Southwestern Medical Center, Dallas, Texas; ⁴Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, Texas

**Poster #2**  
mTOR ACTIVATION IN THE PRIMARY TUMOR OF PATIENTS WITH METASTATIC CLEAR CELL RENAL CELL CARCINOMA (CC-RCC)  
Alexander Kutikov, MD³, Tasha Morrison¹, Elizabeth P. Henske, MD¹, Min Huang, MD², Tahseen Alsaleem, MD² and Robert G. Uzzo, MD³ (Presented By: Alexander Kutikov)  
¹Department of Medical Oncology, Fox Chase Cancer Center, Philadelphia, PA; ²Department of Pathology, Fox Chase Cancer Center, Philadelphia, PA; ³Department of Urologic Oncology, Fox Chase Cancer Center, Philadelphia, PA

**Poster #3**  
BLADDER TUMOR INFILTRATING MATURE DENDRITIC CELLS AND MACROPHAGES AS PREDICTORS OF RESPONSE TO BACILLUS CALMETTE-GUERIN IMMUNOTHERAPY  
Cherifa Ayari, MSc, Hélène LaRue, PhD, Hélène Hovington, BSc, Marc Decobert, PhD, François Harel, MSc, Alain Bergeron, PhD, Bernard Têtu, MD, Louis Lacombe, MD and Yves Fradet, MD (Presented By: Cherifa Ayari)  
Laval University Cancer Research Centre Hôtel-Dieu De Québec-CHUQ

**Poster #4**  
NAD(P)H OXIDASE REGULATORY SUBUNIT P22PHOX IS OVER-EXPRESSED IN HUMAN RENAL CELL CARCINOMA AND UP-REGULATES EXPRESSION OF HIF-2α TARGET GENES  
Karen Block, PhD, David New, BS, Assaad Eid, PhD, Yves Gorin, PhD, Amanda Reed, MD, Goutam Gosh-Choudhury, PhD, Hanna E Abboud, MD and Dipen Parekh, MD (Presented By: Karen Block)  
¹UTHSCSA San Antonio, TX

**Poster #5**  
APILOT STUDY OF FDG-PET/CT FOR DETECTING OCCULT METASTATIC BLADDER CARCINOMA  
Matthew Katz, MD³, Farrokh Deshdashti, MD², Aleksandra Klim, RN³, Robert Grubb, MD³, Peter Humphrey, MD, PhD¹, Feng Gao, PhD¹, Cary Siegel, MD³, Barry Siegel, MD² and Adam Kibel, MD³ (Presented By: Matthew Katz)  
¹Washington University School of Medicine, Department of Pathology, St. Louis, MO; ²Washington University School of Medicine, Department of Radiology, St. Louis, MO; ³Washington University School of Medicine, Department of Surgery, Division of Urology; ⁴Washington University School of Medicine, Division of Biostatistics, St. Louis, MO; ⁵Washington University School of Medicine, Division of Urologic Surgery, St. Louis, MO

*Continues on next page*
**Poster # 6**

**LITIX WITH TALAPORFIN SODIUM (LS11) IN PROSTATE CANCER XENOGRAFTS**

Todd Morgan, MD¹, Theodore Koreckij, MD¹, Holly Nguyen, BA¹, Tianna Stubblefield, BA¹, Michiyo Dalos, BA¹, Julene Christophersen, BA², James Chen, MD³, Eva Corey, PhD¹ and Robert Vessella, PhD¹

(Presented By: Todd Morgan)

¹University of Washington, Seattle, WA; ²Light Sciences Oncology, Bellevue, WA

**Poster # 7**

**THE SRC INHIBITOR AZD0530 INDUCES GROWTH INHIBITION AND MIGRATORY ARREST OF HUMAN BLADDER CANCER CELL LINES**

Jay Shah, MD, Jennifer Nguyen, Robert Svatek, MD, Arlene Siefker-Radtke, MD, Colin Dinney, MD and David McConkey, PhD (Presented By: Jay Shah)

MD Anderson Cancer Center, Houston, TX

**Poster # 8**

**THE MITOTIC SPINDLE APPARATUS INHIBITOR AZD4877 HOLDS PROMISE AS A NOVEL THERAPEUTIC OPTION AGAINST HUMAN BLADDER CANCER**

Jay Shah, MD, Lauren Marquis, BA, Robert Svatek, MD, John Papadopoulos, MD, Arlene Siefker-Radtke, MD, Colin Dinney, MD and David McConkey, PhD (Presented By: Jay Shah)

MD Anderson Cancer Center, Houston, TX

**Poster # 9**

**CYP17 POLYMORPHISMS AND PROSTATE CANCER RISK AND MORTALITY**

Jonathan L. Wright¹,², Daniel W. Lin¹,², Erika M. Kwon³, Suzanne Kolb³, Ziding Feng⁴, Joseph Koopmeiners³, Elaine A. Ostrander⁵, Janet L. Stanford⁵⁻⁶ (Presented By: Jonathan Wright)

¹Department of Urology, University of Washington School of Medicine, Seattle, WA; ²Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA; ³Department of Biostatistics, University of Washington School of Public Health, Seattle, WA; ⁴Cancer Genetics Branch, National Human Genome Research Institute, Bethesda, MD; ⁵Department of Epidemiology, University of Washington School of Public Health, Seattle, WA

**Poster # 10**

**COMBINED EXPRESSION OF B7-H1 AND PD-1 AMONG PATIENTS WITH CLEAR CELL RENAL CELL CARCINOMA**

Paul Crispen, MD, Xavier Frigola, Christine Lohse, MS, Yuri Sheinin, MD, PhD, Susan Kuntz, MS, Bradley Leibovich, MD, Michael Blute, MD and Eugene Kwon, MD (Presented By: Paul Crispen)

Mayo Clinic, Rochester, MN

**Poster # 11**

**EFFECT OF DIETARY OMEGA-3 FATTY ACIDS ON GENE EXPRESSION PROFILES IN PROSTATE CANCER XENOGRAFTS**

Ramdev Konijeti, MD¹, Naoko Kobayashi, PhD¹, R. James Barnard, PhD² and William J. Aronson, MD¹

(Presented By: Ramdev Konijeti)

¹Department of Urology, David Geffen School of Medicine at UCLA, Los Angeles, California; ²Department of Physiological Science, University of California, Los Angeles, Los Angeles, CA

**Poster # 12**

**RESVERATROL ALTERS PROSTATE CANCER XENOGRAFT GROWTH**

Joseph Klink, MD¹, Susan Poulton², Michael Potter, BS³, Jayakrishnan Jayachandran, MD², Salvatore Pizzo, MD, PhD² and Stephen Freedland, MD¹ (Presented By: Joseph Klink)

¹Duke University and Durham VAMC, Durham, NC; ²Duke University, Durham, NC

**Poster # 13**

**CLINICAL UTILITY OF PCA3 AND TMPRSS2:ERG GENE FUSION URINE ASSAYS TO PREDICT PROSTATE BIOPSY OUTCOME**

Jonathan Silberstein, MD³, Shiela Aubin, PhD², Day John, PhD¹, Blase Amy¹, Christensen Kimberly³, Williamsen Sarah¹, Meike Jessica¹, Weber Art¹, Kashefi Carol, MD³, Rittenhouse J Ack, PhD⁴ and Sakamoto Kyoko, MD¹ (Presented By: Jonathan Silberstein)

¹Genprobe; ²Genprobe, San Diego, CA; ³UCSD; ⁴UCSD San Diego, CA
Program Schedule

Poster # 14
THE TRANSCRIPTIONAL REPRESSOR, ZEB1, REGULATES EPITHELIAL TO MESENCHMAL TRANSITION IN BLADDER CANCER
Robert Svatek, Jay Shah, MD, Woonyoung Choi, PhD, Keith Fournier, MD, David McConkey, PhD and Colin Dinney, MD (Presented By: Robert Svatek)
MD Anderson Cancer Center

Poster # 15
COMPARISON OF PRIMARY AND METASTATIC TO LYMPH NODE CELL LINES FROM THE SAME PATIENTS
Kiranpreet Khurana, Nick W. Liu, BS, Ariel Reinish, Youfeng Yang, PhD, Vladimir Valera, PhD, Cathy Vocke, PhD, Peter A. Pinto, MD, W. Marston Linehan, MD and Gennady Bratslavsky, MD (Presented By: Kiranpreet Khurana)
Bethesda, MD

Poster # 16
IMIDAZOQUINOINE DRUG THERAPY INCREASES LYMPHOCYTIC INFILTRATION/ACTIVATION AND INDUCES CANCER CELL DEATH IN PRIMARY TUMORS OF A VARIOUS CELL LINE MORPHOLOGY-MODEL
Eric Kauffman, MD, Huixian Liu, PhD, Michael J. Schwartz, MD, Ming-Ming Lee, BA and Douglas S. Scherr, MD (Presented By: Eric Kauffman)
Weill Medical College of Cornell University, New York, NY

Poster # 17
IMPACT OF ISCHEMIA AND TISSUE PROCUREMENT CONDITIONS ON GENE EXPRESSION IN A VARIOUS CELL LINE MORPHOLOGY-MODEL
Nick Liu, MEng, BS¹, Kiranpreet Khurana, BS², Olga Aprlekova, PhD², Robert Worrell, PhD², Jack Liu, MD², John Gillespie, MD², Youfeng Yang, MS², Ramaprasad Srinivasan, MD², Charles Bechert, MD², Maria Merino, MD², Peter Pinto, MD², W. Marston Linehan, MD² and Gennady Bratslavsky, MD² (Presented By: Nick Liu)
¹National Cancer Institute, Bethesda, MD; ²Surgical Pathology, National Cancer Institute, Bethesda, MD

Poster # 18
INTRATUMORAL INJECTION OF 17AAG IN A PROSTATE CANCER XENOGRAFT RESULTS IN DECREASED TUMOR GROWTH
Mehrdad Alemozaffar, Shinji Tsutsumi, PhD, Len Neckers, PhD and Peter Pinto, MD (Presented By: Mehrdad Alemozaffar)
UOB, NCI

Poster # 19
DISSEMINATED TUMOR CELLS IN PROSTATE CANCER
Theodore Koreckij, MD¹, Paul Lange, MD¹, Todd Morgan, MD¹, Ilona Holcomb, PhD², William Ellis, MD¹, Dan Lin, MD¹, Mike Porter, MD¹, Ian Galleher¹, Bryce Lakely¹, Marty Kinnunen¹, Roger Coleman², Ilsa Coleman², Deanna Gonzales¹ and Robert Vessella, PhD³ (Presented By: Theodore Koreckij)
¹University of Washington, Seattle; ²Fred Hutchinson Cancer Research Center, Seattle, WA

Poster # 20
BLADDER CANCER-ASSOCIATED GENE EXPRESSION SIGNATURES IDENTIFIED BY PROFILING OF EXFOLIATED UROTHELIA
Patrick Villicana, MD, Charles Rosser, MD, Li Liu, Yijun Sun, Molly McCuller, Stacy Porvasnik and Steve Goodison (Presented By: Patrick Villicana)
University of Florida, Gainesville, FL

Poster # 21
PATTERNS OF RNA EXPRESSION ARE DEPENDANT ON EXTRACELLULAR MATRIX IN A VARIOUS CELL LINE MORPHOLOGY-MODEL
Mikhail Dozmorov, PhD, Kimberly Kyker, PhD, Jonathan Heinlen, MD, Daniel Culkin, MD and Robert Hurst, PhD (Presented By: Jonathan Heinlen)
University of Oklahoma College of Medicine, Oklahoma City, OK

Continues on next page
ALTERATIONS IN GENE EXPRESSION OF BLADDER PAPILLOMA CELLS INDUCED BY A MALIGNANCY-REMODELED EXTRACELLULAR MATRIX UP-REGULATES INFLAMMATION AND IMMUNE TOLERANCE
Mikhail Dozmorov, PhD, David Buethe, MD, Paul Hauser, PhD, Robert Hurst, PhD and Daniel Culkin, MD (Presented By: David Buethe)
University of Oklahoma Health Science Center, Department of Urology

DIFFERENTIAL NOTCH-1 EXPRESSION IN UROTHELIAL CARCINOMA
Chen Lang, MD¹, Guliz A. Barkan, MD², Alex Gorbonos, MD³, Debra J. Magnuson⁴, Gladell P. Paner, MD², Clodia Osipo, PhD¹, Lucio Miele, MD, PhD⁷ and Marcus L. Quek, MD¹ (Presented By: Chen Lang)
¹Department of Urology, Loyola University Medical Center, Maywood, IL; ²Department of Pathology, Loyola University Medical Center, Maywood, IL; ³Oncology Institute, Loyola University Medical Center, Maywood, IL; ⁴Office of Research Services, Loyola University Medical Center, Maywood, IL

A NEW MECHANISM FOR THE REGULATION OF ANDROGEN RECEPTOR IN PROSTATE CANCER
Hongyun Li, MD, PhD, Linda Xu, PhD, Katsuki Masuda, MD, PhD, Maria Eliza Raymundo, MD, David McLeod, MD, Albert Dobi, PhD and Shiv Srivastava, PhD (Presented By: Maria Eliza Raymundo)
CPDR-USUHS, Rockville, MD

ERG ACTIVATES C-MYC AND INTERFERES WITH PROSTATE DIFFERENTIATION GENES IN PROSTATE CANCER
Albert Dobi, PhD¹, Chen Sun, MD, PhD², Ahmed Mohamed, MD, PhD², Bungo Furusato, MD², Shyh-Han Tan, PhD², Rajesh Thangapazham, PhD², Hongyun Li, MD, PhD², Syed Shaheduazzaman, PhD², Eric Whitman, MD², Dorotha Hawskworth, MD², Taduru Sreenath, PhD², Gyorgy Petrovics, PhD², Isabell Sesterhenn, MD³, David McLeod, MD² and Shiv Srivastava, PhD² (Presented By: Albert Dobi)
¹CPDR/USU; ²CPDR/USU Rockville, MD; ³AFIP/Washington, DC

DISCOVERY OF NEUROPEPTIDE Y AND SMOC PROTEIN IN POST-DRE URINE AND EVALUATION OF SECRETORY PROTEIN PANEL AS POTENTIAL PREDICTORS OF BIOPSY RESULT FOR PROSTATE CANCER
Kee-Hong Kim, PhD¹, Amina Ali, MSc¹, Jaroslaw Tuszynski, PhD², Daniel Yen, PhD², Gyorgy Petrovics, PhD², Albert Dobi, PhD¹, Sreenath Taduru, PhD², David McLeod, MD² and Shiv Srivastava, PhD¹ (Presented By: Kee-Hong Kim)
¹CPDR, Rockville, MD; ²SAIC, McLean, VA; ³CPDR/WRAMC, Rockville, MD

THERAPY-INDUCED SENESCENCE RESPONSE AND DIFFERENTIAL GENE EXPRESSION IN PROSTATE CANCER CELLS WITH VARIABLE METASTATIC POTENTIAL
Badar Mian, MD¹, Ross Bauer, MD², Eugenia Broude, PhD³, Olga Berezovska, PhD³, Gennady Glinsky, PhD³, Ralph Buttyan, PhD³ and Igor Roninson, PhD³ (Presented By: Badar Mian)
¹Albany Medical College and Stratton VAMC, NY; ²Albany Medical College; ³Ordway Research Institute

EFFECT OF METFORMIN ON PROSTATE TUMOR PROGRESSION
Mireia Musquera, MD, PhD, Ahmed Q. Haddad, MD, PhD, Vasundara Venkateswaran, PhD, Neil E. Fleschner, MD and Laurence Klotz, MD (Presented By: Mireia Musquera)
University of Toronto

THE EFFECT OF PROTOCADHERIN-PC (PCDH-PC) EXPRESSION ON THE INVASIVE PHENOTYPE OF PROSTATE CANCER (PCA) CELLS
Bilal Chughtai, MD, Elina Levina, PhD¹, Stephane Terry, PhD¹, Francis Vacherot, PhD¹, Alexandre de la Taille, PhD¹, Badar Mian, MD² and Ralph Buttyan, PhD¹ (Presented By: Bilal Chughtai)
¹Ordway Research, Albany NY; ²Albany Medical Center, Albany, NY
**Poster # 30**

**INFLUENCE OF SERUM TESTOSTERONE LEVEL ON SURVIVAL IN MEN TREATED WITH IMMEDIATE VS. DEFERRED ANDROGEN DEPRIVATION FOR NODE-POSITIVE PROSTATE CANCER AFTER RADICAL PROSTATECTOMY & PELVIC LYMPHADENECTOMY**

Eric A. Singer, MD, MA², Dragan J. Golijanin, MD², Yu-Hui Chen, MS¹, Judith Manola, MS¹, Ganesh S. Palapattu, MD² and Edward M. Messing, MD² (Presented By: Eric A. Singer)

¹Dana-Farber Cancer Institute, Boston, MA; ²University of Rochester Medical Center, Rochester, NY

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**Poster # 31**

**RESULTS OF LIMITED AND EXTENDED ROBOTIC LYMPHADENECTOMY FOR PROSTATE CANCER**

Ronney Abaza, MD (Presented By: Ahmad Shabsigh)

Ohio State University Medical Center; James Cancer Hospital, Columbus, OH

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**Poster # 32**

**EXTENDED LYMPH NODE DISSECTION DURING ROBOTICALLY-ASSISTED RADICAL PROSTATECTOMY – INITIAL EXPERIENCE**

Darren Katz, MD, Guilherme Godoy, MD, Lucas Nogueira, MD, David Yee, MD, Matthew Kaag, MD, Timothy Masterson, MD and Jonathan Coleman, MD (Presented By: Darren Katz)

Memorial Sloan-Kettering Cancer Center, New York, NY

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**Poster # 33**

**OUTPATIENT PROSTATECTOMY: TOO MUCH TOO SOON OR JUST WHAT THE PATIENT ORDERED**

Aaron Martin, MD, MPH, Rafael Nunez, MD, Jack Andrews, George Martin, MD, Paul Andrews, MD and Erik Castle, MD (Presented By: Aaron Martin)

Mayo Clinic, Phoenix, AZ

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**Poster # 34**

**INFLUENCE OF OBESITY ON SURVIVAL IN MEN TREATED WITH IMMEDIATE VERSUS DEFERRED ANDROGEN DEPRIVATION THERAPY FOR NODE-POSITIVE PROSTATE CANCER AFTER RADICAL PROSTATECTOMY AND PELVIC LYMPHADENECTOMY**

Dragan J. Golijanin, MD², Eric A. Singer, MD, MA², Yu-Hui Chen, MS¹, Judith Manola, MS¹, Ganesh S. Palapattu, MD² and Edward M. Messing, MD² (Presented By: Dragan J. Golijanin)

¹Dana-Farber Cancer Institute, Boston, MA; ²University of Rochester Medical Center, Rochester, NY

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**Poster # 35**

**COMPETING CAUSES OF DEATH IN MEN WITH PROSTATE CANCER: RESULTS FROM CAPSURE**

Cole Davis, MD, Peter Carroll, MD, MPH, Natalia Sadetsky, PhD, Eric Elkin, MPH and Maxwell Meng, MD (Presented By: Cole Davis)

University of California, San Francisco, CA

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**Poster # 36**

**EFFECT OF HURRICANE KATRINA ON RACIAL DISPARITY IN PROSTATE CANCER TREATMENT IN SOUTHEASTERN LOUISIANA**

Sean Collins, MD², Joseph Su, PhD², Scott Delacroix, MD¹, Fontham Elizabeth, PhD³, Simonsen Neal, DPh³, Schroeder Jane, DPh³, Wu Xiao, DPh³, Michel Merle, DPh³, Jeannette Bensen, DPh³ and James Mohler, MD¹,³ (Presented By: Sean Collins)

¹Buffalo, NY; ²Louisiana State University Health Science Center, New Orleans; ³LSUHSC New Orleans; ⁴Roswell Park Cancer Center; ⁵UNC Chapel Hill, NC

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**Poster # 37**

**THE ASSOCIATION OF OBESITY AND PROSTATE TUMOR INFLAMMATORY INFILTRATE IN MEN UNDERGOING RADICAL PROSTATECTOMY**

Lionel L. Bañez, MD¹, Jayakrishnan Jayachandran, MD², Joseph C. Klink, MD², Amy Lark, MD², Leah Gerber, MS², Robin T. Vollmer, MD² and Stephen J. Freedland, MD² (Presented By: Lionel L. Bañez)

¹Division of Urological Surgery, the Duke Prostate Center, Duke University Medical Center and Urology Section, Veterans Affairs Medical Center, Durham, NC; ²Division of Urological Surgery, the Duke Prostate Center, Duke University Medical Center and Urology Section, Durham Veterans Affairs Medical Center, Durham, NC; ³Departments of Pathology, Duke University Medical Center and Durham Veterans Affairs Medical Center, Durham, NC
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<td>¹University of Pittsburgh School of Medicine, Department of Radiation Oncology, Pittsburgh, PA; ²University of Pittsburgh School of Medicine, Department of Urology, Pittsburgh, PA</td>
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<td>¹Northern Institute of Urology, Traverse City, MI; ²University of Laval, Quebec, QC; ³University of Laval, Quebec, QC; ⁴University of Laval, Quebec, QC, Canada; ⁵University of Michigan, Ann Arbor, MI; ⁶University of Laval, Quebec, QC</td>
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<tr>
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<td>¹Fox Chase Cancer Center, Philadelphia, PA; ²Mayo Clinic, Rochester, MN</td>
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<td>¹Division of Urological Surgery, the Duke Prostate Center, Duke University Medical Center and Urology Section, Veterans Affairs Medical Center, Durham, NC; ²Medical College of Georgia and Urology Section, Veterans Affairs Medical Center, Augusta, GA; ³Stanford University and Urology Section, Veterans Affairs Palo Alto Health Care System, Palo Alto, CA; ⁴University of Alabama, Birmingham, AL; ⁵University of California Los Angeles and Urology Section, Greater Los Angeles Healthcare System, Los Angeles, CA; ⁶University of California San Diego, San Diego, CA</td>
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Joseph Klink, MD¹, Jayakrishnan Jayachandran, MD¹, Lionel Banez, MD¹, Leah Gerber, MS², Amy Lark, MD¹, Robin Vollmer, MD¹ and Stephen Freedland, MD¹ (Presented By: Joseph Klink)  
¹Duke University and Durham VAMC, Durham, NC; ²Duke University, Durham, NC; ³Durham VAMC, Durham, NC

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Department of Urology, Eastern Virginia Medical School, Norfolk, VA

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Kenneth Nepple, MD, Stephen Hillis, PhD², Terry Wahls, MD² and Fadi Joudi, MD¹ (Presented By: Kenneth Nepple)  
¹University of Iowa and VA, Iowa City, IA; ²VA, Iowa City, IA

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¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Psychiatry, Memphis, TN; ³University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

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¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²Cleveland Clinic, Dept. of Quantitative Health Science, Cleveland, OH

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<td>University of Toronto, University Health Network; Department of Biostatistics; University of Toronto, University Health Network, Department of Pathology; University of Toronto, University Health Network, Department of Radiology; University of Toronto, University Health Network, Department of Urology</td>
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<td>Samsung Medical Center, Seoul, Korea; Korea Cancer Center Hospital, Seoul, Korea</td>
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<td>University of Toronto, University Health Network; Department of Pathology and Molecular Medicine, McMaster University, Hamilton, ON, Canada; Medical director of Radiation Oncology Services, Toronto-Sunnybrook Regional Cancer Centre; University of Toronto, University Health Network, Department of Pathology, Princess Margaret and Toronto General Hospital; University of Toronto, University Health Network, Department of Urology, Princess Margaret and Toronto General Hospital</td>
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<td>Department of Surgery, Veterans Affairs Medical Centers, Duke University School of Medicine, Durham, North Carolina; Department of Surgery, Veterans Affairs Medical Centers, Department of Pathology, Duke University School of Medicine, Durham, North Carolina; Department of Urology, Stanford University Medical Center and Urology Section, Department of Surgery, Veterans Affairs Medical Centers, Palo Alto; Department of Urology, University of California at Los Angeles Medical Center, Los Angeles, Veterans Affairs Medical Centers, West Los Angeles; Urology Section, Division of Surgery, Veterans Affairs Medical Centers and Division of Urologic Surgery, Department of Surgery, Medical College of Georgia, Augusta, GA; Division of Urology, Department of Surgery, University of California at San Diego Medical Center, San Diego, CA; Division of Urology, Department of Surgery, University of Alabama at Birmingham, Birmingham, AL</td>
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¹WRAMC Washington, DC; ²CPDR Rockville, MD; ³AFIP Washington, DC

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Jean-Alfred Thomas, MD¹, Lionel Bañez, MD², Kelly Anderson³, Loretta Taylor³, Lea Gerber, MS⁴, Nancy Crowe³, Tiffiny Anderson³, Catherine Royal³, Delores Grant³ and Stephen Freedland, MD² (Presented By: Jean-Alfred Thomas)  
¹Department of Surgery, Veterans Affairs Medical Centers, Duke University School of Medicine, Durham, NC; ²Department of Surgery, Veterans Affairs Medical Centers, Department of Pathology, Duke University School of Medicine, Durham, NC; ³Department of Surgery, Veterans Affairs Medical Centers, Durham, NC; ⁴Department of Surgery, Duke University School of Medicine, Durham, NC

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¹UCSF, San Francisco, CA; ²University of California, Davis, CA

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Michael Feuerstein, MD¹, Tipu Nazeer, MD², Hugh Fisher, MD³, Ronald Kaufman, Jr., MD³ and Badar M. Mian, MD⁴ (Presented By: Michael Feuerstein)  
¹Albany Medical College Albany, NY; ²Albany Medical College and Stratton V.A. Medical Center, Albany, NY; ³Albany Medical College, Albany, NY; ⁴Albany Medical College and Stratton V.A. Medical Center, Albany, NY
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University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN

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Sameer Deshmukh, BSE and James Mohler, MD (Presented By: Sameer Deshmukh)  
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¹Department of Pathology, Loyola University Medical Center, Maywood, IL; ²Department of Urology, Loyola University Medical Center, Maywood, IL

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¹Department of Urology, Stanford University Medical Center, Palo Alto, CA; ²Department of Urology, University of California at Los Angeles Medical Center, Los Angeles, CA; ³Division of Urologic Surgery and the Duke Prostate Center, Department of Surgery, Duke University Medical Center, Durham, NC; ⁴Division of Urology, Department of Surgery, University of Alabama at Birmingham, Birmingham, AL; ⁵Division of Urology, Department of Surgery, University of California at San Diego Medical Center, San Diego, CA; ⁶Section of Urology, Department of Surgery, The Medical College of Georgia, Augusta, GA

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¹Division of Urologic Surgery, Duke Prostate Center, Duke University Medical Center, Durham, NC; ²Durham Veterans Administration Hospital, Durham, NC; ³North Carolina Central University
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| Poster # 81 | PERI-PROSTATIC LIDOCAINE ANESTHETIC BLOCK IMPROVES CANCER DETECTION DURING TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY               | Christopher DiBlasio, MD¹, Reza Mehrazin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, MD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ | Presented By: Christopher DiBlasio                                                                 |

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Christopher DiBlasio, MD¹, Reza Mehrazin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ (Presented By: Christopher DiBlasio)

¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

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NOMOGRAM TO PREDICT PROSTATE CANCER DIAGNOSIS ON TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY IN A CONTEMPORARY SERIES

Christopher DiBlasio, MD¹, Michael Maddox, MD¹, Reza Mehrazin, MD¹, John Malcolm, MD¹, Changhong Yu, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹, Robert Wake, MD¹ and Michael Kattan, PhD² (Presented By: Christopher DiBlasio)

¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

Poster # 84

PROSTATE EVASIVE ANTERIOR TUMOR SYNDROME

Nathan Lawrentschuk, MB, BS, FRACS¹, Masoom Haider, MD², Alex Zlotta, MD, PhD³, Antonio Finelli, MD, MPH, FRCS³, John Trachtenberg, MD, FRCS³, Ants Toi, MD, FRCP², Andy Evans, MD, PhD² and Neil Fleshner, MD, MPH, FRCS³ (Presented By: Nathan Lawrentschuk)

¹University of Toronto, University Health Network; ²University of Toronto, Department of Radiology, University Health Network, Princess Margaret and Toronto General Hospital; ³University of Toronto, Department of Urology, University Health Network, Princess Margaret and Toronto General Hospital; ⁴University of Toronto, Department of Pathology, University Health Network, Princess Margaret and Toronto General Hospital

Poster # 85

64-SLICE MULTIDETECTOR CT VERSUS MRI FOR PREOPERATIVE ASSESSMENT OF SEMINAL VESICLE INVASION IN PROSTATE CANCER: A PROSPECTIVE STUDY

Peter Liodakis, MB, BS², Damien Bolton, MD, FRACS², Steven Esler, FRANZCR³, D. Ranatunga, FRANZCR³, K. Kuswanto, FRANZCR³ and Nathan Lawrentschuk, MB, BS FRACS¹ (Presented By: Nathan Lawrentschuk)

¹University of Melbourne, Victoria, Australia; ²University of Melbourne, Department of Surgery, Austin Hospital, Melbourne Australia; ³University of Melbourne, Department of Radiology, Austin Hospital, Melbourne, Australia

Poster # 86

THE ASSOCIATION BETWEEN STATIN USE AND BIOCHEMICAL RECURRENCE FOLLOWING RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE

Robert Hamilton, MD, MPH¹, Lionel Banez, MD², William Aronson, MD³, Joseph Presti Jr., MD⁴, Martha Terris, MD⁵, Christopher Amling, MD⁶, Christopher Kane, MD⁷ and Stephen Freedland, MD⁸ (Presented By: Robert Hamilton)

¹University of Toronto; ²Duke University; ³UCLA; ⁴Stanford University; ⁵Medical College of Georgia; ⁶University of Alabama at Birmingham; ⁷UCSF

Poster # 87

PREOPERATIVE PSA KINETICS DO NOT PREDICT PATHOLOGIC UPGRADING IN CONTEMPORARY PATIENTS DIAGNOSED WITH GLEASON 6 PROSTATE CANCER

L. Spencer Krane, MD, Sameer Siddiqui, MD, Nilesh Patil, MD, Sanjeev Kaul, MD, Mahendra Bhandari, MD and Mani Menon, MD (Presented By: L. Spencer Krane)

Henry Ford Health Systems, Vattikuti Urology Institute, Detroit, MI

Poster # 88

INITIAL EXPERIENCE AND FEASIBILITY OF TARGETED TRANSRECTAL ULTRASOUND – MAGNETIC RESONANCE IMAGE FUSION GUIDED PROSTATE BIOPSY

Bradford Wood, MD, Jochen Kruecker, PhD, Sheng Xu, PhD, Juan Proano, MD, Julia Locklin, RN, MS, CCR, Ismail Turkbey, MD, Peter Choyke, MD and Peter Pinto, MD (Presented By: Juan Proano)
Poster # 89
TRANSRECTAL CONTRAST-ENHANCED ULTRASOUND OF THE PROSTATE: COMPARISON WITH WHOLE-MOUNT PROSTATECTOMY SPECIMENS IN 23 PATIENTS
Joseph Zola, MD, Cyrillo Araujo, MD, Ethan Halpern, MD, Fleming Forsberg, PhD, Peter McCue, MD and Edouard Trabulsi, MD (Presented By: Joseph Zola)
TJUH, Philadelphia, PA

Poster # 90
PROSTATE VOLUMES ARE INDEPENDENT PREDICTORS OF PROSTATE CANCER AND HIGH GRADE DISEASE ON PROSTATE NEEDLE BIOPSY
Todd Morgan, MD¹, Jonathan Wright, MD¹, Anthony Woodruff, MD² and Christopher Porter, MD² (Presented By: Todd Morgan)
¹University of Washington, Seattle, WA; ²Virginia Mason Medical Center, Seattle, WA

Poster # 91
PREDICTIVE VALUE OF AN UNDETECTABLE ULTRASENSITIVE PSAAFTER RADICAL PROSTATECTOMY
Jeffrey La Rochelle, MD, Stephen Riggs, MD, Brian Calimlim, BS, Robert Reiter, MD and Jean deKernion, MD (Presented By: Jeffrey La Rochelle)
UCLA

Poster # 92
EVALUATION OF THE INCIDENCE OF A SECOND UROLOGIC MALIGNANCY (BLADDER CANCER AND KIDNEY CANCER) IN MEN WITH A DIAGNOSIS OF PROSTATE CANCER
Angela Smith, Matthew Coward, Douglas Kelly, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

Poster # 93
LYMPH NODE DENSITY IS STRONGLY ASSOCIATED WITH DISEASE-SPECIFIC SURVIVAL IN PATIENTS UNDERGOING NODAL DISSECTION FOR PENILE CANCER
Robert Svatek, Paul Hegarty, MD, Jordan Kincaid, Kris Gaston, MD, Phillipe Spiess, MD, L.C. Pagliaro, MD and Curtis Pettaway, MD (Presented By: Robert Svatek)
MD Anderson, Houston, TX

Poster # 94
PET/CT TO IDENTIFY PENILE SQUAMOUS CELL CARCINOMA (SCCA) METASTATIC LYMPH NODES: FRIEND OR FOE
Matthew Collins, MD², Hadyn Williams, MD³, Ronald Lewis, MD² and James Brown, MD² (Presented By: Matthew Collins)
¹Dept. of Radiology, Medical College of Georgia, Augusta, GA; ²Dept. of Urology, Medical College of Georgia, Augusta, GA

Poster # 95
PENILE CARCINOMA: RESULTS FROM THE CALIFORNIA CANCER REGISTRY
Jonathan Silberstein, MD¹, Sydney Saltzstein, MD, MPH², Christopher Kane, MD² and Tracey Downs, MD² (Presented By: Jonathan Silberstein)
¹UCSD, San Deigo, CA; ²UCSD, San Diego, CA

Poster # 96
CLINICAL OUTCOMES IN CLINICAL STAGE III NSGCT PATIENTS WHO ACHIEVE A COMPLETE RADIOGRAPHIC RESPONSE TO CHEMOTHERAPY AT THE SITE OF EXTRA-RETROPERITONEAL DISEASE
Timothy A. Masterson, MD, Brett S. Carver, MD, Robert J. Motzer, MD, George J. Bosl, MD and Joel Sheinfeld, MD (Presented By: Timothy A. Masterson)
MSKCC, New York, NY

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 occurring from previous page

Poster # 97  SECOND OPINION PATHOLOGY IN TERTIARY CARE OF PATIENTS WITH UROLOGIC MALIGNANCIES  
Robert Wayment, MD¹, Bourne Andrew, MD¹, Kay Paul, MD, PhD² and Thomas Tarter, MD, PhD¹ (Presented By: Thomas Tarter)  
¹Southern Illinois University School of Medicine, Springfield, IL; ²St. Johns Hospital, Springfield, IL

Poster # 98  THE IMPACT OF A MULTIDISCIPLINARY APPROACH IN THE MANAGEMENT OF UROLOGIC MALIGNANCIES: DOES IT INFLUENCE DIAGNOSTIC AND TREATMENT DECISIONS?  
Angela Smith, Matthew Coward, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

Poster # 99  URACHAL ADENOCARCINOMA DURING PREGNANCY: A MULTIDISCIPLINARY-APPROACH  
Anthony Huong, MD¹, Marium Holland, MD², Jerrie Refuerzo, MD², Joan Mastrobattista, MD², Michael Frumovitz, MD² and Steven Canfield, MD¹ (Presented By: Anthony Huong)  
¹Department of Surgery, Division of Urology, University of Texas Medical School at Houston, Houston, TX; ²Department of Obstetrics, Gynecology, and Reproductive Science/Maternal Fetal Medicine, University of Texas Medical School at Houston, Houston, TX

Poster # 100  DUPLICATE RESEARCH PRESENTATIONS IN PROSTATE CANCER AT THE AUA AND EAU ANNUAL MEETINGS  
Lawrence Yeung, George Pop, David Ball, Susan Fesperman, Johannes Vieweg and Philipp Dahm (Presented By: Lawrence Yeung)  
University of Florida, Gainesville, FL

7:00 p.m. – 7:30 p.m.  SUO Reception  
Location: Hyatt Regency Bethesda

7:30 p.m.  SUO Dinner  
Location: Hyatt Regency Bethesda
FRIDAY, DECEMBER 5, 2008

6:00 a.m. – 7:30 a.m.  Industry Sponsored Breakfast Symposium
Location: Cabinet/Judiciary Suite; Hyatt Regency Bethesda
Clinical Perspectives in Prostate Cancer – Related Bone Complications

6:00 a.m. – 6:30 a.m.  Registration and Breakfast
6:30 a.m. – 7:30 a.m.  Scientific Program

Chair
Matthew R. Smith, MD, PhD
Associate Professor of Medicine
Harvard Medical School
Massachusetts General Hospital Cancer Center
Boston, Massachusetts

Faculty
Gordon A. Brown, DO
Assistant Clinical Professor of Urology
UMDNJ University Hospitals
Department of Surgery
Division of Urology
University of Medicine and Dentistry of New Jersey
Stratford, New Jersey

Fred Saad, MD, FRCS
Professor of Surgery/Urology
Chairman, Division of Urology
Director of Urologic Oncology
University of Montreal Endowed Chair in Prostate Cancer
University of Montreal Hospital Centre
Montreal, Quebec, Canada

7:00 a.m. – 8:00 a.m.  Continental Breakfast and Registration

8:00 a.m. – 8:30 a.m.  Young Urologic Oncologists (YUO)
Moderator: Jonathan Coleman, MD
Memorial Sloan-Kettering Cancer Center

Selected YUO Podium Abstract Presentations

8:00 a.m.  # 4  UPREGULATION OF TRAG3 (TAXOL RESISTANCE ASSOCIATED GENE 3) IS ASSOCIATED WITH ADVANCED BLADDER CANCER (BCA)
Jose Karam, MD¹, Sandra Huang¹, Jinhai Fan¹, Jennifer Stanfield⁴, Roger Schultz², Rey-Chen Pong⁴,
Xiankai Sun³, Xian-Jin Xie⁴, Arthur Sagalowsky¹ and Jer-Tsong Hsieh¹ (Presented By: Jose Karam)
¹Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, TX; ²Department of Pathology, University of Texas Southwestern Medical Center, Dallas, TX; ³Department of Radiology, University of Texas Southwestern Medical Center, Dallas, TX; ⁴Department of Urology, University of Texas Southwestern Medical Center, Dallas, TX

Continues on next page
8:10 a.m. # 5  COMPARISON OF PRIMARY AND METASTATIC TO LYMPH NODE CELL LINES FROM THE SAME PATIENTS
Kiranpreet Khurana, Nick W. Liu, BS, Ariel Reinish, Youfeng Yang, PhD, Vladimir Valera, PhD, Cathy Vocke, PhD, Peter A. Pinto, MD, W. Marston Linehan, MD and Gennady Bratslavsky, MD (Presented By: Kiranpreet Khurana)
Bethesda, MD

8:20 a.m. # 6  CLINICAL OUTCOMES IN CLINICAL STAGE III NSGCT PATIENTS WHO ACHIEVE A COMPLETE RADIOGRAPHIC RESPONSE TO CHEMOTHERAPY AT THE SITE OF EXTRA-RETROPERITONEAL DISEASE
Timothy A. Masterson, MD, Brett S. Carver, MD, Robert J. Motzer, MD, George J. Bosl, MD and Joel Sheinfeld, MD (Presented By: Timothy A. Masterson)
MSKCC, New York, NY

8:30 a.m. – 9:30 a.m.  Bladder Cancer III: Women with Bladder Cancer
Moderator: Michael Cookson, MD
Vanderbilt University

8:30 a.m. – 8:50 a.m.  Tumor Biology and Cystectomy Outcomes
Eila Skinner, MD
Keck USC School of Med.

8:50 a.m. – 9:10 a.m.  Complications of Female Cystectomy and Surgical Considerations
Sherrie Machelle Donat, MD
Memorial Sloan-Kettering Cancer Center

9:10 a.m. – 9:30 a.m.  Orthotopic Urinary Diversion in Women: Selection, Outcomes and QOL
Cheryl Lee, MD
University of Michigan

9:30 a.m. – 10:30 a.m.  Prostate Cancer III: Advances in Therapy
Moderator: Anthony L. Zietman, MD
Massachusetts General Hospital

9:30 a.m. – 9:45 a.m.  What’s the Best Way to Preserve the NVBs?
Edward M. Schaeffer, MD, PhD
James Buchanan Brady Urological Institute

9:45 a.m. – 10:00 a.m.  Brachytherapy: Long Term Results
Louis Potters, MD, FACR
North Shore University Hospital and LIJ Medical Center

10:00 a.m. – 10:15 a.m.  Proton Beam Therapy: A Skeptical View
Anthony L. Zietman, MD
Massachusetts General Hospital

10:15 a.m. – 10:30 a.m.  Panel Discussion
Panel: Anthony Zietman, MD
Edward M. Schaeffer, MD, PhD
Louis Potters, MD, FACR

10:30 a.m. – 11:40 a.m.  Recent Advances Podium Session
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Number</th>
<th>Title</th>
<th>Presenters</th>
</tr>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td># 7</td>
<td>FACTORS THAT INFLUENCE RENAL FUNCTION OUTCOMES FOLLOWING LAPAROSCOPIC PARTIAL NEPHRECTOMY</td>
<td>Lucas Nogueira, MD, Guilherme Godoy, MD, Darren Katz, MD, Rodrigo Pinochet, MD, Karim Touijer, MD, Bertrand Guillonneau, MD and Jonathan Coleman, MD (Presented By: Guilherme Godoy) Memorial Sloan-Kettering Cancer Center, New York, NY</td>
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<tr>
<td>10:40 a.m.</td>
<td># 8</td>
<td>IMPACT OF ISCHEMIA AND TISSUE PROCUREMENT CONDITIONS ON GENE EXPRESSION IN RENAL CELL CARCINOMA</td>
<td>Nick Liu, MEng, BS¹, Kiranpreet Khurana, BS³, Olga Aprelikova, PhD¹, Robert Worrell, PhD¹, Jack Liu, MD³, John Gillespie, MD¹, Youfeng Yang, MS³, Ramaprasad Srinivasan, MD³, Charles Bechert, MD², Maria Merino, MD², Peter Pinto, MD³, W. Marston Linehan, MD³ and Gennady Bratslavsky, MD³ (Presented By: Nick Liu)¹ National Cancer Institute, Bethesda, MD; ²Surgical Pathology, National Cancer Institute, Bethesda, MD; ³Urologic Oncology Branch, National Cancer Institute, Bethesda, MD</td>
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<tr>
<td>10:50 a.m.</td>
<td># 9</td>
<td>ERG ACTIVATES C-MYC AND INTERFERES WITH PROSTATE DIFFERENTIATION GENES IN PROSTATE CANCER</td>
<td>Albert Dobi, PhD¹, Chen Sun, MD, PhD², Ahmed Mohamed, MD, PhD², Bungo Furusato, MD², Shyh-Han Tan, PhD², Rajesh Thangapazhaim, PhD², Hongyuan Li, MD, PhD², Syed Shaheduzzaman, PhD², Eric Whitman, MD², Dorotha Hawksworth, MD², Taduru Sreenath, PhD², Gyorgy Petrovics, PhD², Isabella Sesterhenn, MD², David McLeod, MD² and Shiv Srivastava, PhD² (Presented By: Albert Dobi)¹CPDR/USU; ²CPDR/USU Rockville, MD; ³AFIP/Washington, DC</td>
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<tr>
<td>11:00 a.m.</td>
<td># 10</td>
<td>EFFECT OF DIETARY OMEGA-3 FATTY ACIDS ON GENE EXPRESSION PROFILES IN PROSTATE CANCER XENOGRAFTS</td>
<td>Ramdev Konijeti, MD¹, Naoko Kobayashi, PhD¹, R. James Barnard, PhD² and William J. Aronson, MD¹ (Presented By: Ramdev Konijeti)¹ Department of Urology, David Geffen School of Medicine at UCLA, Los Angeles, CA; ²Department of Physiological Science, Universtiy of California, Los Angeles, Los Angeles, CA</td>
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<td>11:10 a.m.</td>
<td># 11</td>
<td>IMAGE GUIDED PHOTOTHERMAL TARGETED THERAPY FOR LOW RISK LOCALIZED PROSTATE CANCER</td>
<td>Uri Lindner, MD², Massom A. Haider, MD, FRCP², Robert A. Weersink, PhD¹, Sean R.H. Davidson, MASC¹, Mark R. Gertner, PhD¹, Mostafa Atri, MD, FRCP² and John Trachtenberg, MD, FRCSC¹ (Presented By: Uri Lindner)¹ Princess Margaret Hospital, Toronto, ON, Canada; ²Princess Margaret Hospital, University of Toronto. Toronto, ON, Canada; ³Sunnybrook Health Science Centre, University of Toronto, Toronto, ON, Canada</td>
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<tr>
<td>11:20 a.m.</td>
<td># 12</td>
<td>TOREMIFENE SLOWED TIME TO PSA PROGRESSION AND IMPROVED MULTIPLE SIDE EFFECTS OF ADT IN A PHASE 3 CLINICAL TRIAL IN MEN (*CME not provided)</td>
<td>Mitchell Steiner, MD, FACS, Ronald Morton, MD, Gary Barnette, PhD, Michael Hancock and Domingo Rodriguez, MD (Presented By: Mitchell Steiner) GTx Inc., Memphis, TN</td>
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<tr>
<td>11:30 a.m.</td>
<td># 13</td>
<td>RESULTS OF THE P53 TARGETED THERAPY TRIAL FOR PATIENTS WITH ORGAN CONFINED NODE NEGATIVE BLADDER CANCER TREATED WITH RADICAL CYSTECTOMY</td>
<td>Seth P. Lerner, John P. Stein, Walter M. Stadler Susan Groshen, Ellenie Tuazon, Donald G. Skinner, Derek Raghavan, David Esrig, SWOG, Laurence Klotz (CUOG), Gary Steinberg, Craig Hall, Richard Cote (Presented By: Seth P. Lerner)</td>
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11:40 a.m. – 12:00 p.m. **SUO Clinical Trials Consortium**

Martin Gleave, MD
University of British Columbia

*Continues on next page*
PROGRAM SCHEDULE

Continued from previous page

12:00 p.m. – 1:10 p.m.  Lunch

1:00 p.m. – 2:15 p.m.  Session I: Robotic Prostatectomy
Moderator: Fernando Bianco, MD
Columbia University

1:00 p.m. – 1:15 p.m.  Outcomes Research in Prostate Surgery: How Should We Evolve from Open Surgery?
Keynote Speaker: Peter Scardino, MDM

1:15 p.m. – 1:25 p.m.  Transition from Open to Robotic Prostatectomy
David Wood, MD
University of Michigan

1:25 p.m. – 1:35 p.m.  Transition from Laparoscopic to Robotic Prostatectomy
Edouard Trabulsi, MD
Jefferson Medical College

1:35 p.m. – 1:45 p.m.  Experience with Robotic Prostatectomy: Progression in Three Programs
Vipul Patel, MD
Celebration Hospital

1:45 p.m. – 2:15 p.m.  Panel Discussion: Survey Results, and Key Lessons from SUO Membership Moving Forward: Surgical Clinical Trials
Moderator: Fernando Bianco, MD
Columbia University
Panel: Peter Scardino, MD
David Wood, MD
Edouard Trabulsi, MD
Vipul Patel, MD

2:15 p.m. – 3:10 p.m.  Session II: Robotic Cystectomy
Moderator: John W. Davis, MD
University of Texas, Anderson Cancer Center

2:15 p.m. – 2:30 p.m.  Panel Discussion: Review of the Robotic Cystectomy Literature
John W. Davis, MD
University of Texas, Anderson Cancer Center

2:30 p.m. – 2:45 p.m.  Results of the International Robotic Cystectomy Consortium
Khurshid Guru, MD
Roswell Park Cancer Institute

2:45 p.m. – 3:10 p.m.  Panel Discussion: SUO Survey Results, Research Needs, and Moving Forward
Moderator: John W. Davis, MD
University of Texas, Anderson Cancer Center
Panel: Erik Castle, MD
Raj Pruthi, MD
David Ornstein, MD
Khurshid Guru, MD

3:10 p.m. – 4:00 p.m.  Session III: Robotic Partial Nephrectomy: Moving the Robot Out of the Pelvis
Moderator: Peter A. Pinto, MD
National Cancer Institute
3:10 p.m. – 3:20 p.m. Robotic Partial Nephrectomy: Benchmarks of Laparoscopic Partial Nephrectomy to Beat
Craig Rogers, MD
Henry Ford Hospital

3:20 p.m. – 3:30 p.m. Transperitoneal Robotic Renal Surgery
Gennady Bratslavsky, MD
National Cancer Institute

3:30 p.m. – 3:40 p.m. Retroperitoneal Robotic Renal Surgery
James Porter, MD
Swedish Urology Group

3:40 p.m. – 4:00 p.m. Panel Discussion: SUO Survey Results, Research Needs, and Moving Forward
Moderator: Peter A. Pinto, MD
National Cancer Institute
Panel: Craig Rogers, MD
Gennady Bratslavsky, MD
James Porter, MD
Sam Bhayani, MD

4:00 p.m. – 6:00 p.m. Poster Session II: Prostate, Kidney and Bladder Cancer: Clinical and Basic Research and Minimally Invasive Therapy

Poster # 101 DENOSUMAB IN PATIENTS WITH BONE METASTASES FROM PROSTATE CANCER AND ELVATED URINE N-TELOPEPTIDE LEVELS DESPITE INTRAVENOUS BISPHOSPHONATE (IV BP) THERAPY: RESULTS OF A RANDOMISED PHASE II TRIAL
Karim Fizazi1, Linda Bosserman2, Guozhi Gao2, Tomas Skacel1 and Carsten Goessl3 (Presented By: Carsten Goessl)
1Amgen (Europe) GmbH, Zug, Switzerland; 2Amgen Inc., San Francisco, CA; 3Amgen Inc., Thousand Oaks, CA; 4Institut Gustave Roussy, Villejuif, France; 5Wilshire Oncology Medical Group, La Verne, CA

Poster # 102 PHASE II STUDY OF TREATMENT WITH 5-ALPHA REDUCTASE INHIBITORS (5ARIS) IN LOW RISK PROSTATE CANCER
Jerome Levesque, MD², Michele Lodde, MD³, Thierry Dujardin, MD⁴, Rabi Tiguert, MD⁴, Louis Lacombe, MD⁴ and Yves Fradet, MD⁴ (Presented By: Michele Lodde)
¹University of Laval, Quebec, QC; ²University of Laval, Quebec, QC; ³University of Laval, Quebec, QC; ⁴University of Laval, Quebec, QC, Canada; ⁵University of Laval, Quebec, QC

Poster # 103 DIETARY OMEGA-3 FATTY ACIDS, COX-2 GENETIC VARIATION, AND AGGRESSIVE PROSTATE CANCER RISK
Vincent Fradet, MD³, Iona Cheng, PhD MPH¹, Graham Casey, PhD² and John S. Witte, PhD¹ (Presented By: Vincent Fradet)
¹UCSF, San Francisco, CA; ²University of Southern California, Los Angeles, CA

Poster # 104 TREATMENT FAILURE IS ASSOCIATED WITH DIFFERENT DOSING REGIMENS OF LEUTINIZING HORMONE RELEASING HORMONE AGONIST THERAPY FOR PROSTATE CANCER
Stephen Williams, MD⁴, Jeremy Blumberg, MD⁴, T. Craig Cheetham, PhD², Fang Nui, Steven Jacobsen, PhD and Gary Chien, MD (Presented By: Stephen Williams)
¹Kaiser Permanente, Los Angeles, CA; ²Kaiser Permanente, Los Angeles, CA; ³Kaiser Permanente, Los Angeles, CA

Continues on next page
Poster # 105  DEPRESSION IN A FEASIBILITY STUDY OF TELEPHONE INTERPERSONAL COUNSELING FOR AFRICAN AMERICAN MEN WITH PROSTATE CANCER ON ANDROGEN DEPRIVATION THERAPY AND THEIR PARTNERS
Gerald Bennett, PhD², Stephen Looney, PhD², James Brown, MD, Martha Terris, MD¹, Rosalind Jones, DNP¹, Thomas Joshua, MS² and Cheryl Robinson, MSN³ (Presented By: James Brown)
¹Charlie Norwood VA Medical Center and Medical College of Georgia, Augusta, GA; ²Medical College of Georgia, Augusta, GA

Poster # 106  TOXICITY RESULTS OF A PROSPECTIVE PHASE II TRIAL USING SALVAGE HIGH INTENSITY FOCUSED ULTRASOUND (HIFU) FOR THE TREATMENT OF RECURRENT PROSTATE CANCER AFTER RADIOTHERAPY
Venu Chalasani, MB, BS, Carlos H. Martinez, MD, Darwin Lim, MD and Joseph Chin, MD (Presented By: Venu Chalasani)
University of Western Ontario, London, Ontario

Poster # 107  PHASE I STUDY OF AV-951 (KRN951), A POTENT AND SELECTIVE VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR (VEGFR)-1, -2, AND -3 TYROSINE KINASE INHIBITOR, IN PATIENTS WITH ADVANCED SOLID TUMORS
Ferry A.L.M. Eskens, MD², Pankaj Bhargava, MD¹, Maja J.A. de Jonge, PhD², Brooke Esteves, MS¹, Monette Cotreau, PhD¹, John Ryan, MD¹, Leny Van Doorn, PhD², Toshiyuki Iseoe, PhD², Kunihiko Hayashi, BS³, Lena Eckman, MS², Herman Burger, PhD² and Jaap Verweij, PhD² (Presented By: Ferry A.L.M. Eskens)
¹AVEO Pharmaceuticals, Inc., Cambridge, MA; ²Erasmus University Medical Center, Rotterdam, Netherlands; ³Kirin Pharma Company, Ltd., Tokyo, Japan; ₪Quintiles AB, Uppsala, Sweden

Poster # 108  LONG TERM SUCCESS RATE OF RADICAL PROSTATECTOMY WITH NEOADJUVANT DOCETAXEL AND ADT FOR HIGH RISK LOCALIZED PROSTATE CANCER
Mohammed M. Tawfeek, MD, Venu Chalasani, MB, BS, Carlos H. Martinez, MD, Darwin Lim, MD and Joseph Chin, MD (Presented By: Venu Chalasani)
University of Western Ontario, London, Ontario

Poster # 109  PHASE III 12-MONTH RANDOMIZED, OPEN-LABEL, PARALLEL-GROUP STUDY (CS21) OF DEGARELIX VERSUS LEUPROLIDE IN PATIENTS WITH PROSTATE CANCER
Neal Shore, MD¹, Laurence Klotz, MD², Laurent Boccon-Gibod, MD¹, Fritz Schröder, MD¹, Cal Andreou, MD³, Bo-Éric Persson, MD, PhD⁴, Per Cantor, MD, PhD⁴, Jens-Kristian Jensen, MS⁵ and Tine Kold Olesen, MD⁷ (Presented By: Neal Shore)
¹Carolina Urologic Research Center; ²University of Toronto, Toronto, ON, Canada; ³CHU Hôpital Bichat-Claude Bernard, Paris, France; ⁴Erasmus MC, Rotterdam, The Netherlands; ⁵Surrey Memorial Hospital, Surrey, BC, Canada; ⁶Ferring Pharmaceuticals A/S, Copenhagen, Denmark; ⁷Ferring Pharmaceuticals Inc., Parsippany, NJ

Poster # 110  A PHASE II STUDY OF NEOADJUVANT ERLOTINIB (TARCEVA) IN PATIENTS WITH MUSCLE-INVASIVE BLADDER CANCER UNDERGOING RADICAL CYSTECTOMY: UPDATED RESULTS AND CORRELATIVE MOLECULAR RESULTS
Matthew Coward, Angela Smith, Raj Kurpad, Matthew Nielsen, William Kim, Eric Wallen and Raj Pruthi (Presented By: Matthew Coward)

Poster # 111  CYTOKINE RESPONSE TO INTRAVESICAL BLADDER CANCER THERAPY
Frances Martin, MD, Tracy Robinson, Stephen Culp, MD and Ashish Kamat, MD (Presented By: Frances Martin)
MD Anderson Cancer Center
Poster # 112  PERIOPERATIVE OUTCOMES OF ROBOTIC PROSTATECTOMY FOR PROSTATE CANCER IN THE OBSE AND MORBIDLY OBSE
Ronney Abaza, MD (Presented By: Ahmad Shabsigh)
Ohio State University Medical Center and James Cancer Hospital, Columbus, OH

Poster # 113  EARLY PATIENT RESULTS OF NOVEL TECHNIQUE FOR ROBOTIC PARTIAL NEPHRECTOMY
Ronney Abaza, MD (Presented By: Ahmad Shabsigh)
Ohio State University Medical Center and James Cancer Hospital, Columbus, OH

Poster # 114  DOES A POSTOPERATIVE URINARY LEAK AFTER ROBOT ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY AFFECT URINARY CONTINENCE? AN ANALYSIS OF THE LEARNING CURVE
Carlos Martinez, MD, Venu Chalasani, MB, BS, Darwin Lim, MD, Reem Al Bareeq, MD, Geoff Wignall, MD and Stephen Pautler, MD (Presented By: Carlos Martinez)
University of Western Ontario, London, Ontario

Poster # 115  PATHOLOGIC VALUE OF ANTERIOR PERIPROSTATIC TISSUE MAY BE OF LIMITED UTILITY
Serge Ginzburg, MD³, Ilene Staff¹, Joseph Tortora¹, Alison Champagne¹, Andrew Salner, MD¹, Joseph R. Wagner, MD¹ and Vincent P. Laudone, MD² (Presented By: Serge Ginzburg)
¹Hartford Hospital, Hartford, CT; ²Memorial Sloan-Kettering Cancer Center, New York, NY; ³University of Connecticut, Farmington, CT

Poster # 116  DOES DEFINITION OF SPACES AND DELAYED URETERAL TRANSECTION IMPACT ONCOLOGIC RESULTS AFTER ROBOT-ASSISTED RADICAL CYSTECTOMY?
Matthew Sheldon, Rameela Chandrasekhar, MA, Gregory Wilding, PhD, Hyung Kim, MD, James Mohler, MD and Khurshid Guru, MD (Presented By: Matthew Sheldon)
Roswell Park Cancer Institute, Buffalo, NY

Poster # 117  IMPACT OF PREVIOUS ABDOMINAL SURGERY ON ROBOT-ASSISTED RADICAL CYSTECTOMY
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¹State University of New York at Buffalo, Buffalo, NY; ²Roswell Park Cancer Institute Buffalo, NY; ³State University of New York at Buffalo School of Medicine, Buffalo, NY; ²Northwestern University School of Medicine, Chicago, IL

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Venu Chalasani, MB, BS, Carlos H. Martinez, MD, Darwin Lim, MD, Reem Al Bareeq, MD, Geoff Wignall, MD and Stephen Pautler, MD (Presented By: Venu Chalasani)
University of Western Ontario, London, Ontario

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Matthew Sheldon, Adam Perlmutter, DO², Anees Fazili, BA¹, Wei Tan, MA³, Shaozeng Zhang, MD², Gregory Wilding, PhD², Hyung Kim, MD³, James Mohler, MD² and Khurshid Guru, MD² (Presented By: Matthew Sheldon)
¹Northwestern University Feinburg School of Medicine; ²Roswell Park Cancer Institute, Buffalo, NY
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<td>Department of Urology, Loyola University Medical Center, Maywood, IL</td>
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<td>Department of Urologic Oncology, Fox Chase Cancer Center, Philadelphia, PA; Department of Urology, Temple University Hospital, Philadelphia, PA</td>
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¹Kansas University Medical Center; ²University of Missouri at Kansas City

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¹Mayo Clinic, Phoenix, AZ; ²Mayo Clinic, Phoenix, AZ

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¹The James Buchanan Brady Urologic Institute; ²The James Buchanan Brady Urologic Institute, Baltimore, MD

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¹Northwestern University School of Medicine, Chicago, IL; ²Roswell Park Cancer Institute, Buffalo, NY; ³University at Buffalo School of Medicine and Biomedical Sciences

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Mayo Clinic, Phoenix, AZ

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¹UAMS, Little Rock, AR; ²UAMS, Little Rock, AR

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¹UAMS, Little Rock, AR; ²UAMS, Little Rock, AR; ³UAMS, Little Rock, AR

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University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN

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Brian Link, MD³, Rebecca Nelson, PhD³, David Josephson, MD², Jonathan Eandi, MD³, Mark Kawachi, MD² and Timothy Wilson, MD² (Presented By: Brian Link)
¹Mercy Health Center, Oklahoma City, OK; ²City of Hope, Duarte, CA

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Douglas Sutherland, MD³, Compton Benjamin, MD, PhD², Song Hau Tran, MD², Jason Engel, MD² and Harold Frazier, MD² (Presented By: Douglas Sutherland)
¹MultiCare Urology of Tacoma; ²George Washington University, Department of Urology, Washington, DC
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¹Urology Associates of Battle Creek, Michigan; ²Urology associates; ³same

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¹UMDN-New Brunswick (Cooper); ²Cooper University Hospital-RWJ, Camden, NJ; ³Cooper University Hospital-RWJ, Camden, NJ

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¹Duke University, Durham, NC; ²Lafayette College, Eaton, PA

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Erik S. Weise, MD (Presented By: Erik S. Weise)
Northeast Indiana Urology
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<td>Roswell Park Cancer Institute; Roswell Park Cancer Institute, Buffalo, NY</td>
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<td>Medical College of Georgia; Medical College of Georgia, Augusta GA; Medical College of Georgia/Veterans Affairs Hospital, Augusta GA</td>
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<td>Department of Urology, Eastern Virginia Medical School, Norfolk, VA; Department of Interventional Radiology, Eastern Virginia Medical School, Norfolk, VA</td>
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<td>Department of Urology, Eastern Virginia Medical School, Norfolk, VA; Department of Interventional Radiology, Eastern Virginia Medical School, Norfolk, VA</td>
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Department of Urologic Oncology, Fox Chase Cancer Center, Philadelphia, PA

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¹UCLA Department of Pathology, Los Angeles, CA; ²UCLA Department of Urology, Los Angeles, CA

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Matthew Cooperberg, MD, MPH¹, Christopher Kane, MD², Katherine Mallin, PhD³ and Peter Carroll, MD, MPH³ (Presented By: Matthew Cooperberg)
¹National Cancer Data Base, Chicago, IL; ²University of California, San Diego, CA; ³University of California, San Francisco, CA

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Memorial Sloan-Kettering Cancer Center

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¹Cleveland Clinic, OH; ²Columbia University, NYC; ³Fundación Puigvert, Spain; ⁴Hospital Gregorio Marañón, Spain; ⁵Hospital Universitario Puerta de Hierro-Majadahonda, Madrid, Spain; ⁶Hospital Universitario Puerta de Hierro-Majadahonda, Spain; ⁷Lahey Clinic, MA; ⁸Memorial Sloan-Kettering, NY; ⁹Novara University, Italy; ¹⁰Universita Vitta Salute, Italy; ¹¹University of Miami, Florida; ¹²Wayne State University, Detroit

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¹Cleveland Clinic, OH; ²Columbia University, NYC; ³Fundación Puigvert, Spain; ⁴Hospital Universitario Puerta de Hierro-Majadahonda, Madrid, Spain; ⁵Hospital Universitario Puerta de Hierro-Majadahonda, Madrid, Spain; ⁶Lahey Clinic, MA; ⁷Memorial Sloan-Kettering, NYC; ⁸Novara University, Italy; ⁹Universita Vitta Salute, Italy; ¹⁰University of Miami, FL; ¹¹Wayne State University, MI

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¹Columbia University, NYC; ²Hospital Universitario Gregorio Marañón, Spain; ³Hospital Universitario Puerta de Hierro-Majadahonda, Madrid, Spain; ⁴Lahey Clinic, MA; ⁵Memorial Sloan-Kettering, NYC; ⁶Novara University, Italy; ⁷University of Miami, FL; ⁸Wayne State University, MI

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Fox Chase Cancer Center, Philadelphia, PA

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Cleveland Clinic, Cleveland, OH

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**PROGRESSION OF RENAL CELL CARCINOMA BASED ON GENDER AND ETHNICITY AFTER RESECTION OF LOCALIZED DISEASE**  
Stephen Culp, MD, PhD, MS, E. Jason Abel, MD, Lambros Stamatakis, MD, Kate Lynn Bill, Matthew Meisner, Vitaly Margulis, MD and Christopher Wood, MD (Presented By: Stephen Culp)  
UT MD Anderson Cancer Center, Houston, TX
Poster # 178  
**CARDIOPULMONARY BYPASS AND RCC WITH LEVEL IV TUMOR THROMBUS: DEEHPHOTHERMIC CIRCULATORY ARREST MAY LIMIT PERIOPERATIVE MORTALITY**

Brian Shuch, MD¹, Paul Crispen, MD¹, Brad Leibovich, MD¹, Jeff LaRochelle, MD², Allan Pantuck, MD, MSN³, Weiqing Liu, MS⁴, Maxime Crepel, MD³, Anne Schuckman, MD⁴, Jerome Rigaud, MD², Oliver Bouchot, MD², Jean-Jacques Patard, MD¹, Donald Skinner, MD⁶, Arie Beldegrun, MD⁷ and Michael Blute, MD¹ (Presented By: Brian Shuch)

¹Mayo Clinic Department of Urology, Rochester, MN; ²Nantes Department of Urology, France; ³Rennes Department of Urology, France; ⁴UCLA Department of Biostatistics, Los Angeles, CA; ⁵UCLA Department of Urology, Los Angeles, CA; ⁶USC Department of Urology, Los Angeles, CA

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Poster # 179  
**IS A POSITIVE SURGICAL MARGIN IMPORTANT FOLLOWING EXTRIRPATIVE NEPHRON SPARING SURGERY?**

Srinivas Vourganti, MD and Hui Zhu, MD (Presented By: Srinivas Vourganti)

Case Western Reserve University, Cleveland, OH

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Poster # 180  
**TREATMENT TRENDS FOR RENAL CELL CARCINOMA IN A POPULATION-BASED TUMOR REGISTRY**

Robert Abouassaly, MD, FRCSC, Antonio Finelli, MD, MSc, FRCSC and Shabbir M.H. Alibhai, MD, MSc, FRCPC (Presented By: Robert Abouassaly)

Princess Margaret Hospital, Toronto, Ontario

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Poster # 181  
**PARTIAL NEPHRECTOMY FOR SELECTED RENAL CORTICAL TUMORS GREATER THAN 7 CENTIMETERS**

Michael Karellas, MD¹ and Paul Russo, MD² (Presented By: Michael Karellas)

¹Fellow, Memorial Sloan-Kettering Cancer Center; ²Memorial Sloan-Kettering Cancer Center, New York, NY

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Poster # 182  
**SURGICAL, FUNCTIONAL, AND ONCOLOGIC OUTCOMES OF REPEAT PARTIAL NEPHRECTOMY ON A SOLITARY KIDNEY**

Nick Liu, MEng, BS, Kiranpreet Khurana, BS, Sunil Sundarshan, MD, W. Marston Linehan, MD, Peter Pinto, MD and Gennady Bratslavsky, MD (Presented By: Nick Liu)

Urologic Oncology Branch, National Cancer Institute, Bethesda, MD

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Poster # 183  
**MANAGEMENT OF THE ADRENAL GLAND DURING PARTIAL NEPHRECTOMY**

Brian Lane, MD, PhD, Ho-Yee Tiong, MD, Amr Fergany, MD, Christopher Weight, MD, Benjamin Larson, MD, Andrew Novick, MD and Stuart Flechner, MD (Presented By: Brian Lane)

Cleveland Clinic, Cleveland, OH

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Poster # 184  
**ASSESSMENT OF RISK FACTORS FOR AND COMPARISON OF RATES OF DEVELOPMENT OF CHRONIC RENAL INSUFFICIENCY, PROTEINURIA, AND METABOLIC ACIDOSIS FOLLOWING RADICAL OR NEPHRON SPARING SURGERY**

Reza Mehrazin, MD¹, Aditya Bagrodia, BS¹, John Malcolm, MD¹, Christopher DiBlasio, MD¹, Jim Wan, PhD¹, Anthony Patterson, MD¹, Wake Robert, MD¹ and Ithaar Derweesh, MD (Presented By: Reza Mehrazin)

¹University of Tennessee Health Science Center, Memphis, TN; ²University of Tennessee Health Science Center, Memphis TN; University of California San Diego, San Diego, CA

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<td>¹Dept of Hematology/Oncology, Medical College of Georgia, Augusta, GA; ²Dept. of Radiology, Medical College of Georgia, Augusta, GA; ³Dept. of Urology, Medical College of Georgia, Augusta, GA</td>
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<td>¹Department of Pathology, UT Southwestern Medical Center, Dallas, TX; ²Department of Urology, UT Southwestern Medical Center, Dallas, TX; ³Memorial Sloan-Kettering Cancer Center, New York, NY</td>
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**PS3 EXPRESSION IN PATIENTS WITH ADVANCED UROTHELIAL CANCER OF THE URINARY BLADDER**

Christian Bolenz, MD⁸, Shahrokh F. Shariat, MD⁷, Pierre I. Karakiewicz, MD⁴, Yves Fradet, MD¹, Raheela Ashfaq, MD⁹, Patrick J. Bastian, MD⁷, Matthew E. Nielsen, MD⁶, Nazareno Suardi, MD², Susan Groshen, MD⁴, Jérôme Rigaud, MD⁸, Seth P. Lerner, MD¹², Francesco Montorsi, MD¹⁰, Arthur I. Sagalowsky, MD⁸, Richard J. Cote, MD⁴ and Yair Lotan, MD⁸ (Presented By: Christian Bolenz)

¹Cancer Prognostics and Health Outcomes Unit, University of Montreal, Montreal, Quebec, Canada; ²Cancer Prognostics and Health Outcomes Unit, University of Montreal, Montreal, Quebec, Canada and Department of Urology, Vita-Salute University, Milan, Italy; ³Centre de recherche en cancérologie de l’Université Laval, L’Hôtel-Dieu de Québec, CHUQ, Québec, QC, Canada; ⁴Department of Pathology, Keck School of Medicine, University of Southern California/Norris Cancer Center, Los Angeles, CA; ⁵Department of Pathology, University of Texas Southwestern Medical Center, Dallas, TX; ⁶Department of Urology, Johns Hopkins Hospital, Baltimore, MD; ⁷Department of Urology, Universitätsklinikum Großhadern, Ludwig-Maximilians-Universität München, Munich, Germany; ⁸Department of Urology, UT Southwestern Medical Center, Dallas, TX; ⁹Department of Urology, UT Southwestern Medical Center, Dallas, TX and Sidney Kimmel Center for Prostate and Urologic Cancer, Memorial Sloan-Kettering Cancer Center, New York, NY; ¹⁰Department of Urology, Vita-Salute University, Milan, Italy; ¹¹Preventive Medicine, Keck School of Medicine, University of Southern California/Norris Cancer Center, Los Angeles, CA; ¹²Scott Department of Urology, Baylor College of Medicine, Houston, TX

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Poster # 193

**COMPARISON OF OUTCOMES IN CYSTECTOMY POPULATIONS BETWEEN A VETERANS AFFAIRS MEDICAL CENTER AND UNIVERSITY HOSPITAL SETTING**

Janet Baack¹, Eugene Lee, MD², Paul Womble, MD² and Jeffrey Holzbeierlein, MD² (Presented By: Janet Baack)

¹KUMC; ²Kansas University Medical Center

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Poster # 194

**BLADDER CRYOABLATION IN A PORCINE MODEL: EVALUATION OF THREE SURGICAL APPROACHES AND CRYOLESION PREDICTABILITY**

Douglas Sutherland, MD¹, Compton Benjamin, MD, PhD², Kevin Blumenthal, MD², Kristopher Wagner, MD², Arnold Schwartz, MD, PhD³, M. Katayoon Rezaei, MD⁴ and Thomas Jarrett, MD² (Presented By: Douglas Sutherland)

¹MultiCare Urology of Tacoma; ²George Washington University, Department of Urology, Washington, DC; ³Scott and White Health System, Department of Urology, Temple TX; ⁴George Washington University, Department of Pathology, Washington, DC

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Poster # 195

**MICROPAPILLARY BLADDER CANCER: COMPARISON OF OUTCOMES WITH UPFRONT CYSTECTOMY AND NEOADJUVANT CHEMOTHERAPY**

Edmund Chiong, MD¹, Jennifer Taylor, MD¹, Arlene Sieker-Radke, MD², Randall Milikan, MD, PhD², Diana Urbauer, MS³, David McConkey, PhD¹, H. Barton Grossman, MD¹, Colin Dinney, MD¹ and Ashish Kamat, MD⁴ (Presented By: Edmund Chiong)

¹Department of Urology, University of Texas MD Anderson Cancer Center, Houston, TX; ²Department of Genitourinary Medical Oncology, University of Texas MD Anderson Cancer Center, Houston, TX; ³Division of Quantitative Sciences, University of Texas MD Anderson Cancer Center, Houston, TX

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Poster # 196

**EASTERN COOPERATIVE ONCOLOGY GROUP PERFORMANCE STATUS PREDICTS DISEASE RECURRENCE AND CANCER-SPECIFIC SURVIVAL IN PATIENTS WITH ORGAN CONFINED UPPER TRACT UROTHELIAL CARCINOMA**

Jeffery Wheat, MD¹, Alon Weizer, MD¹, Sharokh Shariat, MD² and J. Stuart Wolf, Jr., MD¹ (Presented By: Jeffery Wheat)

¹University of Michigan, Ann Arbor, MI; ²Memorial Sloan-Kettering Cancer Center, New York, NY
Be sure not to miss these special events being held at the Hyatt Regency Bethesda:

**Young Urologic Oncologist Dinner**
Wednesday, December 3, 2008
Time: 6:00 p.m. – 9:30 p.m.
Location: Cabinet/Judiciary Suite; Hyatt Regency Bethesda

Membership in the YUO Section of the Society of Urologic Oncology consists of fellows, scientists, and board certified or eligible physicians who are members of the SUO and have some post-residency training in urologic oncology. Membership is limited to the first 7 years after completion of fellowship.

**Industry Sponsored Satellite Breakfast**
Clinical Perspectives in Prostate Cancer–Related Bone Complications
Chair: Matthew R. Smith, MD, PhD; Harvard Medical School, Massachusetts General Hospital Cancer Center, Boston, MA
Faculty: Gordon A. Brown, DO; UMDNJ University Hospitals, Stratford, NJ
Fred Saad, MD; University of Montreal Hospital Centre, Montreal, Canada

Friday, December 5, 2008
Time: 6:00 a.m. – 6:30 a.m. Registration and Breakfast
6:30 a.m. – 7:30 a.m. Scientific Program
Location: Cabinet/Judiciary Suite; Hyatt Regency Bethesda

This symposium will provide the latest clinical advances in the management of prostate cancer–related bone complications and review current knowledge of the pathophysiology involved in these complications. As the data from a number of large, randomized clinical trials are becoming available; a discussion of new and emerging therapies will also be included.
WEDNESDAY, DECEMBER 3, 2008
Location: Cabinet/Judiciary Suite; Hyatt Regency Bethesda

6:00 p.m. – 9:30 p.m. Young Urologic Oncologist (Y.U.O.) Dinner Program

6:30 p.m. – 7:00 p.m. Update on SUO Long-Range Planning Activities
Martin E. Gleave, MD
The Prostate Centre at VGH

7:00 p.m. – 7:30 p.m. Young Urologic Oncologists (Y.U.O.) Investigator Award Presentation
Jodi Kathleen Maranchie, MD
University of Pittsburgh

7:30 p.m. – 8:45 p.m. Young Urologic Oncologists (Y.U.O.) Podium Presentations
Moderator: Jonathan Coleman, MD
Memorial Sloan-Kettering Cancer Center

7:30 p.m. # 1 MULTI-INSTITUTIONAL VALIDATION OF THE PREDICTIVE VALUE OF KI-67 LABELING INDEX IN PATIENTS WITH URINARY BLADDER CANCER
Vitaly Margulis, MD, Yair Lotan, MD, Pierre Karakiewicz, MD, Yves Fradet, MD, Raheela Ashfaq, MD, Umberto Capitanio, MD, Francesco Montorsi, MD, Patrick Bastian, MD, Matthew Nielsen, MD, Stefan Muller, MD, Jerome Rigaud, MD, Seth Lerner, MD, George Netto, MD, Arthur Sagalowsky, MD and Shahrokh Shariat, MD (Presented By: Vitaly Margulis)

7:45 p.m. # 2 CYP17 POLYMORPHISMS AND PROSTATE CANCER RISK AND MORTALITY
Jonathan L. Wright1,2, Daniel W. Lin1,2, Erika M. Kwon4, Suzanne Kolb2, Ziding Feng3, Joseph Koopmeiners1, Elaine A. Ostrander4, Janet L. Stanford2,5 (Presented By: Jonathan Wright)
1Department of Urology, University of Washington School of Medicine, Seattle, WA; 2Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA; 3Department of Biostatistics, University of Washington School of Public Health, Seattle, WA; 4Cancer Genetics Branch, National Human Genome Research Institute, Bethesda, MD; 5Department of Epidemiology, University of Washington School of Public Health, Seattle, WA

8:00 p.m. # 3 IMAGE GUIDED PHOTOTHERMAL TARGETED THERAPY FOR LOW RISK LOCALIZED PROSTATE CANCER
Uri Lindner, MD2, Massom A. Haider, MD, FRCPC1, Robert A. Weersink, PhD1, Sean R.H. Davidson, MASc1, Mark R. Gertner, PhD1, Mostafa Atri, MD, FRCPC3 and John Trachtenberg, MD, FRCSC1 (Presented By: Uri Lindner)
1Princess Margaret Hospital, University of Toronto; 2Princess Margaret Hospital, University of Toronto. Toronto, ON, Canada; 3Sunnybrook Health Science Centre, University of Toronto, Toronto, ON, Canada

8:45 p.m. – 9:30 p.m. Y.U.O. Business Meeting

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8:00 a.m. – 8:30 a.m. Young Urologic Oncologists (YUO)
Moderator: Jonathan Coleman, MD
Memorial Sloan-Kettering Cancer Center

Selected YUO Podium Abstract Presentations

8:00 a.m. # 4 UPREGULATION OF TRAG3 (TAXOL RESISTANCE ASSOCIATED GENE 3) IS ASSOCIATED WITH ADVANCED BLADDER CANCER (BCA)
Jose Karam, MD¹, Sandra Huang¹, Jinhai Fan¹, Jennifer Stanfield¹, Roger Schultz², Rey-Chen Pong³, Xiankai Sun³, Xian-Jin Xie¹, Arthur Sagalowsky⁴ and Jer-Tsong Hsieh¹ (Presented By: Jose Karam)
¹Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, TX; ²Department of Pathology, University of Texas Southwestern Medical Center, Dallas, TX; ³Department of Radiology, University of Texas Southwestern Medical Center, Dallas, TX; ⁴Department of Urology, University of Texas Southwestern Medical Center, Dallas, TX

8:10 a.m. # 5 COMPARISON OF PRIMARY AND METASTATIC TO LYMPH NODE CELL LINES FROM THE SAME PATIENTS
Kiranpreet Khurana, Nick W. Liu, BS, Ariel Reinish, Youfeng Yang, PhD, Vladimir Valera, PhD, Cathy Vocke, PhD, Peter A. Pinto, MD, W. Marston Linehan, MD and Gennady Bratslavsky, MD (Presented By: Kiranpreet Khurana)
Bethesda, MD

8:20 a.m. # 6 CLINICAL OUTCOMES IN CLINICAL STAGE III NSGCT PATIENTS WHO ACHIEVE A COMPLETE RADIOGRAPHIC RESPONSE TO CHEMOTHERAPY AT THE SITE OF EXTRA-RETROPERITONEAL DISEASE
Timothy A. Masterson, MD, Brett S. Carver, MD, Robert J. Motzer, MD, George J. Bosl, MD and Joel Sheinfeld, MD (Presented By: Timothy A. Masterson)
MSKCC, New York, NY
Podium # 1

MULTI-INSTITUTIONAL VALIDATION OF THE PREDICTIVE VALUE OF KI-67 LABELING INDEX IN PATIENTS WITH URINARY BLADDER CANCER

Vitaly Margulis, MD, Yair Lotan, MD, Pierre Karakiewicz, MD, Yves Fradet, MD, Raheela Ashfaq, MD, Umberto Capitanio, MD, Francesco Montorsi, MD, Patrick Bastian, MD, Matthew Nielsen, MD, Stefan Muller, MD, Jerome Rigaud, MD, Seth Lerner, MD, George Netto, MD, Arthur Sagalowsky, MD and Shahrokh Shariat, MD (Presented By: Vitaly Margulis)
University of Texas MD Anderson Cancer Center

Purpose: We tested whether KI-67 labeling index could improve the accuracy of predictive models that include standard histo-pathologic features for prediction of disease recurrence and bladder cancer-specific survival in patients with bladder UC.

Patients and Methods: The study cohort was composed of 713 patients treated with radical cystectomy and bilateral pelvic lymphadenectomy from 10/25/1983 to 7/7/2005 at six participating institutions. Histology, tumor grade, tumor stage, and presence of carcinoma in-situ were confirmed by blinded centralized re-review of the original pathology slides. Ki-67 labeling index was considered to be high when samples demonstrated > 20% reactivity.

Results: Bladder cancer recurred in 318 (44.6%) of 713 patients. 395 (55.4%) individuals were dead at the time of analysis, and 274 (38.4%) died of metastatic bladder cancer. Median follow-up was 57.6 months (range: 1 to 236) for patients alive at the time of analysis. In multivariable analyses Ki-67 was independently associated with both disease recurrence (HR 2.37, p<0.001) and cancer-specific survival (HR 1.75, p<0.001). In a subgroup of patients with pT1-3 N0 UC addition of Ki-67 to the standard model improved prediction of disease recurrence by 4.1% and that of cancer-specific mortality by 4.6% (p-values<0.001).

Conclusion: Routine assessment of Ki-67 expression status provides a rational strategy for identification of patients who are at increased risk for disease progression after radical cystectomy and thereby may benefit from perioperative systemic chemotherapy.

Podium # 2

CYP17 POLYMORPHISMS AND PROSTATE CANCER RISK AND MORTALITY

Jonathan L. Wright1,2, Daniel W. Lin1,2, Erika M. Kwon4, Suzanne Kolb2, Ziding Feng3, Joseph Koopmeiners3, Elaine A. Ostrander4, Janet L. Stanford2,5 (Presented By: Jonathan Wright)
1Department of Urology, University of Washington School of Medicine, Seattle, WA; 2Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, WA; 3Department of Biostatistics, University of Washington School of Public Health, Seattle, WA; 4Cancer Genetics Branch, National Human Genome Research Institute, Bethesda, MD; 5Department of Epidemiology, University of Washington School of Public Health, Seattle, WA

Objective: Cytochrome P450 17á-hydroxylases-C-17,20-lyase (CYP17) is a key enzyme involved with the androgen biosynthesis pathway and has recently has been targeted for therapy in men with advanced PCa. Studies on survival and CYP17 SNPs have been conflicting. In this study, using SNPs covering variation in the entire CYP17 gene, we examine outcomes in Caucasian men associated with these polymorphisms.

Methods: Men aged 40-64 diagnosed with PCa between 1993 – 1996 in King County, Washington and participating in a population-based case-control study comprised the cohort. TagSNPs in the CYP17 gene in Caucasians were selected from the Genome Variation Server (SeattleSNPs – http://pga.gs.washington.edu). Mortality and underlying cause of death were obtained by linking to the SEER cancer registry. Risk of PCa-specific mortality (PCSM) was determined with Cox proportional hazards regression analysis.

Results: Three blocks of linkage disequilibrium were identified in the CYP17 gene and representative SNPs selected. Genotypes were available for 598 cases. After a median follow-up of 12.8 years, 42 prostate cancer-specific deaths were observed. Recurrence/progression events were observed in 29%. Men with the variant allele in rs10883783 had a 60% reduction in PCSM (HR = 0.43, 95% CI 0.19 – 0.96). When the analysis was restricted to patients with non-metastatic disease at diagnosis, the decrease in PCSM was greater (HR = 0.26, 95% CI 0.10 – 0.72).

Conclusion: These data suggest that genetic variation in the CYP17 gene in Caucasian men is associated with PCa survival.
IMAGE GUIDED PHOTOTHERMAL TARGETED THERAPY FOR LOW RISK LOCALIZED PROSTATE CANCER

Uri Lindner, MD1, Massom A. Haider, MD, FRCPC2, Robert A. Weersink, PhD2, Sean R.H. Davidson, MASc2, Mark R. Gertner, PhD2, Mostafa Atri, MD, FRCPC3 and John Trachtenberg, MD, FRCSC2 (Presented By: Uri Lindner)

1Princess Margaret Hospital, University of Toronto. Toronto, ON, Canada; 2Princess Margaret Hospital, University of Toronto; 3Sunnybrook Health Science Centre, University of Toronto, Toronto, ON, Canada

Introduction: Image-guided photo thermal focal therapy for the targeted ablation of prostate cancer has been developed at our institution. This is the first description of the clinical use of this technique.

Objective: To ascertain the feasibility and safety of image guided targeted photo thermal focal therapy for localized prostate cancer.

Methods: Twelve patients with biopsy proven low risk prostate cancer in a single sector underwent interstitial photo thermal ablation of the cancer. The area of interest was confirmed and targeted using multiparametric endorectal magnetic resonance (MR) imaging. Three dimensional ultrasound (US) was used to guide an 830 nm laser to the “MR to US” fused area of interest. Target ablation was monitored and controlled using luxtron thermal sensors and real-time “definity” contrast enhanced US. Follow-up assessment for treatment effect was done by combination of gadolinium MR imaging and targeted prostate biopsy. Validated quality of life (QOL) questionnaires were used to assess the effect on voiding symptoms and erectile function and adverse events were solicited and recorded.

Results: Interstitial photo thermal focal therapy was technically feasible to perform as an outpatient procedure with 75% of patients discharged, free from catheter, on the same day with the remainder the following day. The treatment created an identifiable hypovascular defect, which coincided with the targeted prostatic lesion on follow-up MRI at 7 days. Mean targeted volume was 0.3 cc and mean ablated volume was 2.5 cc. There were no peri-operative or post-operative complications and all patients maintained potency and continence levels. 85% of patients are free of tumor in the targeted area and 65% remain free of all disease at 6 months based on multicore biopsy.

Conclusions: Image guided focal photo thermal ablation of low risk and low volume prostate cancer is feasible. Early clinical, histological, and MRI response suggest that the targeted region can be ablated with minimal adverse effects. It may represent an alternate treatment approach to observation or delayed standard therapy in carefully selected patients. Further trials are required to demonstrate the effectiveness of this treatment concept.

UPREGULATION OF TRAG3 (TAXOL RESISTANCE ASSOCIATED GENE 3) IS ASSOCIATED WITH ADVANCED BLADDER CANCER (BCA)

Jose Karam, MD4, Sandra Huang4, Jinhai Fan4, Jennifer Stanfield4, Roger Schultz2, Rey-Chen Pong4, Xiankai Sun1, Xian-Jin Xie1, Arthur Sagalowsky4 and Jer-Tsong Hsieh4 (Presented By: Jose Karam)

1Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas; 2Department of Pathology, University of Texas Southwestern Medical Center, Dallas, Texas; 3Department of Radiology, University of Texas Southwestern Medical Center, Dallas, Texas; 4Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, Texas

Introduction: In the United States, BCa is estimated to result in ~14,000 deaths in 2008. Conventional cytotoxic chemotherapy is commonly used for advanced stages of BCas with modest success and high morbidity. Identifying markers of resistance will allow clinicians to tailor treatment to a more specific patient population.

Methods: T24-tumorigenic BCa cell line was grown orthotopically in bladders of nude mice. Tumor progression in these mice was monitored using bioluminescence imaging (BLI) and microcomputed tomography (microCT) until they developed bone and lung metastases. Stable cell lines were then developed from tumors harvested from primary bladder (T24-P), lung(T24-L) and bone(T24-B). Chromosomal analysis and DNA microarray were used to characterize these 3 sublines. PCR and immunohistochemistry (IHC) were used to quantify the mRNA and protein of interest, in cell lines and patient samples (n=30). All 3 cell lines were treated with docetaxel, cisplatin, mitomycin, adriamycin, and vinblastine, and cell viability was quantified with crystal violet assay.
Results: Using BLI and microCT, BCa metastatic to lung was documented around 4 to 6 weeks after instillation in bladder. Chromosomal analysis revealed multiple alterations in metastatic cell lines compared to T24-P. DNA microarray analysis comparing T24-L with T24-P showed that TRAG3 gene was the most upregulated gene (~115 times). RT-PCR was performed to confirm this result, and indeed TRAG3 was ~222-fold and ~588-fold increased in T24-L and T24-B, compared to T24-P. These results were corroborated by IHC. After treating these cell lines with a DNA hypomethylating agent and a histone deacetylase inhibitor, we found that TRAG3 gene expression in controlled by DNA methylation, but not histone acetylation, suggesting loss of methylation of TRAG3 promoter in these metastatic cells. Interestingly, T24-B and T24-L cells were more resistant than T24-P to treatment with docetaxel and vinblastine, but had the same sensitivity as T24-P when treated with mitomycin, Adriamycin, and cisplatin. TRAG3 mRNA expression was elevated in 20% of patients with =pT2 and 60% of patients with =pT3.

Conclusions: TRAG3 is upregulated in advanced BCa. Knowing the status of TRAG3 expression could help clinicians tailor treatment to a particular patient population that could benefit from treatment, while allocating patients with resistant tumors to new experimental therapies.

Podium # 5

COMPARISON OF PRIMARY AND METASTATIC TO LYMPH NODE CELL LINES FROM THE SAME PATIENTS
Kiranpreet Khurana, Nick W. Liu, BS, Ariel Reinish, Youfeng Yang, PhD, Vladimir Valera, PhD, Cathy Vocke, PhD, Peter A. Pinto, MD, W. Marston Linehan, MD and Gennady Bratslavsky, MD (Presented By: Kiranpreet Khurana)
Bethesda, MD

Objectives: Lymph node status in clear cell renal carcinoma portends poor prognosis. Yet, the mechanism of metastasis of renal cell carcinoma to lymph nodes is not clearly understood. The purpose of this study was to perform molecular and functional comparison of primary and metastatic to lymph node cell lines derived from same patients.

Methods: We have been able to develop and maintain several pairs of cell lines from primary renal tumors and metastatic lymph nodes obtained from the same patient. Cell lines from the primary tumor and metastatic lymph nodes from three patients were used for this study. The dominant histology was clear cell carcinoma. DNA fingerprinting was performed to confirm matching of cell line pairs (primary and lymph node) and absence of cross contamination. Functional studies consisted of proliferation, invasion, and migration assays. Molecular assays included gene expression microarrays using the Affymetrix platform following by confirmatory RT-PCR for several differentially expressed genes. All experiments were performed in triplicates.

Results: In all cases, fingerprinting revealed matching pairs of primary tumor cell line and lymph node cell line confirming origin from the same patient. Fingerprinting analysis revealed the presence of additional genetic abnormalities in metastatic lymph node cell lines including loss of heterozygosity and microsatellite instability. Functional assays revealed increased proliferation in cell lines derived from lymph node metastasis compared to primary tumor cell lines in two out of three cases. Invasion was found to be higher in all metastatic cell lines, while migration was higher in one metastatic cell line. Microarray analysis revealed up-regulation of several common genes in metastatic cell lines compared to primary tumor cell lines. One of them, carbonic anhydrase XII (CA XII) has been confirmed by RT-PCR to be over-expressed as high as 80-fold compared to primary tumor cell lines in the same patient.

Conclusions: This study demonstrates specific genetic alterations common to all metastatic clear cell carcinoma cell lines. Despite functional heterogeneity in metastatic cell lines, a common subset of genes may be important in regulating metastasis to lymph nodes. CA XII may be an important target and may play a role in potential future therapies. Additional functional studies such as gene silencing and stable transfection may further validate our results.
Podium # 6

CLINICAL OUTCOMES IN CLINICAL STAGE III NSGCT PATIENTS WHO ACHIEVE A COMPLETE RADIOGRAPHIC RESPONSE TO CHEMOTHERAPY AT THE SITE OF EXTRA-RETROPERITONEAL DISEASE
Timothy A. Masterson, MD, Brett S. Carver, MD, Robert J. Motzer, MD, George J. Bosl, MD and Joel Sheinfeld, MD (Presented By: Timothy A. Masterson)
MSKCC, New York, NY

Background: Integration of platinum-based chemotherapy and surgical resection of residual masses is essential in the management of advanced NSGCT. In patients with extra-retroperitoneal (ERP) tumors, resection of residual disease is based upon the radiographic response to induction chemotherapy. In this study, we compared the progression free and overall survival in patients with ERP disease who achieved a complete radiographic response (R-CR) and in patients who underwent resection of ERP residual masses demonstrating fibrosis.

Methods: Between 1989 and 2003, 237 patients with clinical stage III NSGCT underwent induction chemotherapy followed by RPLND. Following chemotherapy, 107 demonstrated an R-CR to treatment at the ERP site of disease. Of the remaining 130 patients with radiographic evidence of residual ERP disease, all underwent excision within 6 weeks of RPLND. Of these, 86 (66%) had fibrosis only on pathologic review (P-CR). Probabilities of progression-free and disease-specific survival were estimated by the Kaplan-Meier method. Cox proportional hazards regression analysis was used to determine the prognostic significance of risk factors for progression and survival.

Results: Median follow-up time was similar for both R-CR and P-CR patients (44.5 and 50.7 months, respectively). Overall, P-CR patients were more likely to have intermediate/poor IGCCCG risk disease (57% vs. 46%, p= 0.019) and require second-line chemotherapy (35% vs. 18%, p= 0.008) than those with an R-CR. Despite this, clinical outcomes were better for men with a P-CR regarding 5-year progression-free survival (92% versus 72%) and disease-specific survival (96% versus 87%), respectively. Predictors of disease progression include the RP residual CT mass after chemotherapy (p= 0.008), while undergoing resection of residual disease at the ERP site was protective (p= 0.024).

Conclusions: Our data suggests that patients who experience a R-CR at the ERP site of disease after chemotherapy carry a higher risk of disease progression and disease-specific mortality compared to those with fibrosis only at the time of resection of residual ERP disease. Therefore, a R-CR of ERP disease after chemotherapy does not ensure the absence of residual micrometastatic viable disease at the ERP site. Our findings support a continued policy of aggressive surgical resection of all sites of residual disease and close observation during the first 2 years after chemotherapy in those observed after R-CR.
**Podium # 7**

**FACTORS THAT INFLUENCE RENAL FUNCTION OUTCOMES FOLLOWING LAPAROSCOPIC PARTIAL NEPHRECTOMY**
Lucas Nogueira, MD, Guilherme Godoy, MD, Darren Katz, MD, Rodrigo Pinochet, MD, Karim Touijer, MD, Bertrand Guillonneau, MD and Jonathan Coleman, MD (Presented By: Guilherme Godoy)
Memorial Sloan-Kettering Cancer Center, New York, NY

**Introduction and Objectives:** Preservation of renal function is the goal of nephron sparing surgery in the treatment of renal tumors. Several putative factors are likely to influence functional outcomes. We analyze our experience with laparoscopic partial nephrectomy (LPN) in patients with a minimum of 6 months follow-up and investigate the relationship between clinical/operative factors and renal function recovery.

**Methods:** By November 2007, 109 bi-nephric patients underwent LPN. Estimated glomerular filtration rate (eGFR) was calculated using the abbreviated formula of the Modification of Diet and Renal Disease including preoperative and postoperative values at 6 and 12 months (109 and 73 patients, respectively). Change in eGFR and decline in the final eGFR were analyzed in multivariate regression models that included age, tumor size, estimated blood loss, intravenous fluid, American Society of Anesthesiologists (ASA) classification, use of renal ischemia and ischemia time.

**Results:** Median follow-up time was 55 weeks (IQR 34, 107 weeks). Preoperative median eGFR was 64mL/min/1.73m2 (IQR 57, 71mL/min/1.73m2). The prevalence of preoperative GFR < 60mL/min/1.73m2 was 39%. Median ischemia time was 36 minutes (IQR 26, 43 minutes). Postoperative renal impairment was identified in 51% and 41% of patients at 6 and 12 months, respectively and was not significantly changed from baseline.

Multivariate analysis of change in eGFR identified the use of ischemia to be significantly associated with decrease in eGFR at 12 months (p=0.02) but not 6 months (p=0.7) postoperatively. In a separate model controlling for patient and tumor characteristics, ischemia time was not related to eGFR recovery at either 6 or 12 months of follow-up. Analysis of a cut-point of 30 minutes of ischemia time was not significant with relation to eGFR change. ASA >2 showed a trend toward decrease in eGFR at 6 (p=0.062) but not at 12 months. None of the variables investigated were found to be predictive of a decline in eGFR postoperatively.

**Conclusions:** The use of renal ischemia during LPN is associated with a statistically significant decrease in eGFR at 12 months postoperatively. Length of ischemia time did not appear to be meaningful in this analysis. Clinically meaningful renal impairment affected 41% of patients at 12 months after surgery and was not significantly changed from 39% identified preoperatively. Long-term outcomes are needed to determine the clinical implications of these findings.

**Podium # 8**

**IMPACT OF ISCHEMIA AND TISSUE PROCUREMENT CONDITIONS ON GENE EXPRESSION IN RENAL CELL CARCINOMA**
Nick Liu, MEng, BS¹, Kiranpreet Khurana, BS³, Olga Aprelikova, PhD¹, Robert Worrell, PhD², Jack Liu, MD³, John Gillespie, MD¹, Youfeng Yang, MS³, Ramapradas Srinivasan, MD², Charles Bechert, MD², Maria Merino, MD², Peter Pinto, MD³, W. Marston Linehan, MD³ and Gennady Bratslavsky, MD³ (Presented By: Nick Liu)
¹National Cancer Institute, Bethesda, MD; ²Surgical Pathology, National Cancer Institute, Bethesda, MD; ³Urologic Oncology Branch, National Cancer Institute, Bethesda, MD

**Objectives:** Previous studies have shown that ischemia alters gene and protein expression in several tissue types. This, however, has not been studied in renal tumors. Our work evaluates the impact of ischemia and tissue procurement conditions on the RNA integrity and gene expression in renal cell carcinoma.
Methods: Solid renal tumors from patients with von Hippel Lindau who underwent partial nephrectomy at the National Cancer Institute were included if they were resected without clamping of the renal hilum and had greater than 80% homogeneity on immediate gross examination. The procurement of the tumor was performed in the operating room. Immediately upon surgical resection, a piece of tumor was snap frozen to represent the zero time point. Remaining tissue samples were then stored in PBS at 4C, 22C and 37C and frozen at 5, 30, 60, 120, and 240 mins. after surgical resection. All tissue samples were stored in liquid nitrogen until RNA extraction. Histopathologic evaluation was performed by a pathologist on H and E stained frozen sections obtained from each time point. Only tissue samples that had at least 80% tumor were selected and used for RNA extraction, analysis, and gene expression microarrays. Gene expression microarrays were performed using the Affymetrix platform. Class comparison analyses were performed between the zero time point and tissue samples from all other conditions obtained from the same tumor.

Results: A total of 10 tumors satisfied the inclusion criteria over the last 18 months. RNA extracted from 160 tissue samples exhibited prominent 18S and 28S ribosomal peaks indicating intact RNA. RNA degradations were observed after 120 mins. at 37C and 240 mins. at both 22C and 37C. Ninety-eight microarrays were performed. We identified over 1400 genes that were susceptible to ischemia times or storage conditions. Importantly, many genes were known to have prognostic implications in RCC. The greatest gene expression changes were observed with longer ischemia time and warmer tissue procurement conditions.

Conclusion: Our data demonstrates that RNA from kidney cancer remains intact for up to 4 hours post surgical resection with only a slight degradation at later time points in warmer conditions. Despite excellent RNA preservation sufficient for gene expression analysis, prolonged and warm procurement conditions, such as often encountered with laparoscopic surgery, are associated with significant changes in gene expression profiles.

Podium #9

ERG ACTIVATES C-MYC AND INTERFERES WITH PROSTATE DIFFERENTIATION GENES IN PROSTATE CANCER
Albert Dobi, PhD¹, Chen Sun, MD, PhD², Ahmed Mohamed, MD, PhD², Bungo Furusato, MD², Shyh-Han Tan, PhD², Rajesh Thangapazham, PhD², Hongyun Li, MD, PhD², Syed Shaheduzzaman, PhD², Eric Whitman, MD², Dorotha Hawksworth, MD², Taduru Sreenath, PhD², Gyorgy Petrovics, PhD², Isabell Sesterhenn, MD², David McLeod, MD² and Shiv Srivastava, PhD² (Presented By: Albert Dobi)
¹CPDR/USU; ²CPDR/USU Rockville, MD; ³AFIP/Washington, DC

Introduction and Objective: TMPRSS2-ERG rearrangement leads to the androgenic induction of ETS-related gene (ERG) in the majority (60%) of prostate cancers. We have been investigating the biological functions of ERG overexpression in prostate cancer.

Materials and Methods: We inhibited ERG in TMPRSS2-ERG expressing VCaP cells by using ERG siRNA molecules and monitored the cell growth and gene expression responses by quantitative PCR, microarray analysis and in mouse xenograft models of prostate cancer. ERG binding to cognate DNA sequences was monitored by Chromatin Immunoprecipitation assay. Gene expression data from laser capture microdissected prostate tumor cells was analyzed by the BiblioSphere software.

Results: Inhibition of ERG in TMPRSS2-ERG expressing prostate cancer cells induced robust morphological changes and inhibited cell growth. Consistent with the cell culture model, ERG knockdown reduced the growth of prostate cancer cells in SCID mice. Evaluating of the gene expression profile and the function of specific gene promoters in ERG siRNA treated cells, in comparison to the gene expression signatures of human prostate tumors we found that ERG activates C-MYC oncogene and represses the expression of prostate epithelial differentiation genes such as, PSA/KLK3 and Prostein/SLC45A3).

Conclusion: These findings support the notion that frequent overexpression of ERG in prostate tumor cells may play a central role to the neoplastic process by activating oncogenic signals e.g., C-MYC and by inhibiting prostate epithelial differentiation.
**Podium # 10**

**EFFECT OF DIETARY OMEGA-3 FATTY ACIDS ON GENE EXPRESSION PROFILES IN PROSTATE CANCER XENOGRAFTS**

Ramdev Konijeti, MD¹, Naoko Kobayashi, PhD¹, R. James Barnard, PhD² and William J. Aronson, MD¹ (Presented By: Ramdev Konijeti)  
¹Department of Urology, David Geffen School of Medicine at UCLA, Los Angeles, California; ²Department of Physiological Science, University of California, Los Angeles, Los Angeles, CA

**Introduction and Objectives:** We previously demonstrated that increasing the ratio of dietary omega-3 to omega-6 fatty acids decreased the growth of human prostate cancer xenografts in immunocompromised mice. We sought to identify candidate genes responsible for this effect by examining gene profiles of the xenografts in each diet group.

**Methods:** Individually caged male severe combined immunodeficiency (SCID) mice were fed isocaloric 20% kilocalorie (kcal) fat diets with the fat derived either primarily from omega-6 fatty acids with an omega-6 to omega-3 ratio of 10:0 (omega-6 diet group) or with a diet consisting of omega-6 and omega-3 fatty acids in a 1:1 ratio (omega-3 diet group). Two weeks after initiating these diets, mice were injected subcutaneously with Los Angeles Prostate Cancer 4 (LAPC-4) cells. Tumor volumes and mouse weights were measured weekly and caloric intake was measured three days per week. Gene expression profiles were determined by use of an Affymetrix human U133plus2 gene chip. Profiles were obtained from three median-weight tumors from each diet group. Quantitative reverse transcription-polymerase chain reaction (RT-PCR) was performed on select transcripts.

**Results:** Numerous transcripts were noted to be significantly up-regulated and down-regulated after dietary intervention. In the omega-3 diet group, rho-guanine nucleotide exchange factor (RGNEF1), endothelin 1 (EDN-1), catenin delta 2 (CTNND2), kallikrein 11 (KLK11), erythropoietin receptor (EPOR), plexin domain containing-1 (PLXDC-1), and angiopoietin 2 (ANGPT2) were down regulated, whereas phospholipase C, beta 1 (PLCB1), homeobox A9 (HOXA9), and endothelial differentiation sphingolipid G-protein coupled receptor 3 (EDG3) were up-regulated relative to the omega-6 diet group. Quantitative RT-PCR revealed statistically significant changes in cyclooxygenase 2 (COX2), arachidonate lipoxygenase 5 (ALOX5), hepsin, vascular endothelial growth factor (VEGF), ANGPT2, EDN-1, and CTNND2.

**Conclusions:** These results indicate that alteration of the dietary ratio of omega-3 to omega-6 fatty acids modulates key inflammatory and angiogenic pathways in prostate tumors. Experiments are ongoing to identify the mechanistic importance of these genes with regard to diet-specific antitumor effects. Prospective dietary intervention trials in humans are ongoing to evaluate if similar inflammatory and angiogenic pathways are affected.

**Funding:** NIH/NCI SPORE In Prostate Cancer Grant P50CA92131

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**Podium # 11**

**IMAGE GUIDED PHOTOTHERMAL TARGETED THERAPY FOR LOW RISK LOCALIZED PROSTATE CANCER**

Uri Lindner, MD¹, Massom A. Haider, MD, FRCPC², Robert A. Weersink, PhD², Sean R.H. Davidson, MSc³, Mark R. Gertner, PhD², Mostafa Atri, MD, FRCPC³ and John Trachtenberg, MD, FRCSC² (Presented By: Uri Lindner)  
¹Princess Margaret Hospital, University of Toronto. Toronto, ON, Canada; ²Princess Margaret Hospital, University of Toronto; ³Sunnybrook Health Science Centre, University of Toronto, Toronto, ON, Canada

**Introduction:** Image-guided photo thermal focal therapy for the targeted ablation of prostate cancer has been developed at our institution. This is the first description of the clinical use of this technique.

**Objective:** To ascertain the feasibility and safety of image guided targeted photo thermal focal therapy for localized prostate cancer.

**Methods:** Twelve patients with biopsy proven low risk prostate cancer in a single sector underwent interstitial photo thermal ablation of the cancer. The area of interest was confirmed and targeted using multiparametric endorectal magnetic resonance (MR) imaging. Three dimensional ultrasound (US) was used to guide an 830 nm laser to the “MR to US” fused area of interest. Target ablation was monitored and controlled using luxtron thermal sensors and real-time “definity” contrast enhanced US. Follow-up assessment for treatment effect was done by combination of gadolinium MR imaging and targeted prostate biopsy. Validated quality of life (QOL) questionnaires were used to assess the effect on voiding symptoms and erectile function and adverse events were solicited and recorded.

**Continues on next page**
Results: Interstitial photo thermal focal therapy was technically feasible to perform as an outpatient procedure with 75% of patients discharged, free from catheter, on the same day with the remainder the following day. The treatment created an identifiable hypovascular defect, which coincided with the targeted prostatic lesion on follow-up MRI at 7 days. Mean targeted volume was 0.3 cc and mean ablated volume was 2.5 cc. There were no peri-operative or post-operative complications and all patients maintained potency and continence levels. 85% of patients are free of tumor in the targeted area and 65% remain free of all disease at 6 months based on multicore biopsy.

Conclusions: Image guided focal photo thermal ablation of low risk and low volume prostate cancer is feasible. Early clinical, histological, and MRI response suggest that the targeted region can be ablated with minimal adverse effects. It may represent an alternate treatment approach to observation or delayed standard therapy in carefully selected patients. Further trials are required to demonstrate the effectiveness of this treatment concept.

Podium # 12

TOREMIFENE SLOWED TIME TO PSA PROGRESSION AND IMPROVED MULTIPLE SIDE EFFECTS OF ADT IN A PHASE 3 CLINICAL TRIAL IN MEN (*CME not provided)
Mitchell Steiner, MD, FACS, Ronald Morton, MD, Gary Barnette, PhD, Michael Hancock and Domingo Rodriguez, MD (Presented By: Mitchell Steiner)
GTx Inc., Memphis, TN

Background: ADT is the treatment of choice for men with advanced prostate cancer. In recent years the indications for ADT have expanded and ADT is administered earlier in the natural history of prostate cancer. As a result, many men are on ADT for 10 or more years subjecting them to serious side effects including life threatening fractures. We conducted a randomized placebo controlled Phase 3 trial to examine the ability of toremifene to prevent fractures and to treat other estrogen deficiency related side effects of ADT in men with advanced prostate cancer.

Methods: 1389 men with advanced prostate cancer were randomized to receive either 80 mg toremifene citrate orally or placebo for up to 24 months. The primary endpoint was new morphometric vertebral fractures and secondary endpoints included bone mineral density (BMD), lipid profile, hot flashes, and gynecomastia. A post hoc safety analysis of time to PSA progression was also conducted.

Results: Toremifene reduced vertebral fractures by 54% compared to placebo (p=0.032). There was also a 56% reduction in first of either a nontraumatic fracture or >7% bone loss (placebo 23.8% versus 10.5% toremifene; p<0.0001). Toremifene had statistically significant improvements in lipid profile, BMD, gynecomastia, and hot flashes. Importantly, there was a statistically significant improvement in time to PSA progression in the toremifene treated group compared to placebo (p=0.0219) among patients with a detectable baseline PSA. There were more thromboembolic events in the treated group compared to placebo (2.4% versus 1%). All thrombolic events were non-fatal.

Discussion: In this randomized, placebo controlled trial toremifene citrate demonstrated the ability to prevent fractures and other key estrogen deficiency related side effects in men on ADT, as well as slow time to PSA progression.

Podium # 13

RESULTS OF THE P53 TARGETED THERAPY TRIAL FOR PATIENTS WITH ORGAN CONFINED NODE NEGATIVE BLADDER CANCER TREATED WITH RADICAL CYSTECTOMY
Seth P. Lerner, John P. Stein, Walter M. Stadler Susan Grosen, Ellenie Tuazon, Donald G. Skinner, Derek Raghavan, David Esrig, SWOG, Laurence Klotz (CUOG), Gary Steinberg, Craig Hall, Richard Cote (Presented By: Seth P. Lerner)

Introduction: Retrospective studies suggest that p53 status is a prognostic factor for recurrence in patients (pts) with organ confined bladder cancer and is furthermore predictive for benefit from MVAC adjuvant chemotherapy. This NIH funded prospective multi-institutional clinical trial was conducted to test the hypothesis that p53 is a prognostic and predictive biomarker in this population.

Methods: Pts with pT1-2N0M0 transitional cell bladder carcinoma (TCC) following radical cystectomy and bilateral pelvic lymph node dissection (PLND) were eligible. IHC for p53 was centrally performed on the pathologic cystectomy specimen or the pre-cystectomy TURBT when P<T stage. P53 positive (=10% nuclear immunoreactivity) pts were offered randomization to 3 cycles of adjuvant MVAC vs. observation. P53
negative pts and p53 positive pts who declined randomization were observed. The primary endpoint was recurrence-free survival (RFS) in the randomized population. Secondary endpoints were RFS in p53 negative versus p53 positive pts and overall survival in each of these groups. The planned total accrual was 760 with 190 randomized p53 positive patients. The study was powered to detect an absolute improvement of 20% in RFS survival at three years. Probability estimates for RFS were based on cumulative incidence curves.

**Results:** A total of 515 pts from 43 sites in US, Canada and Europe were registered between 7/97 and 1/06. We obtained p53 status on the 499 eligible patients and 272 (55%) were p53 positive. A total of 114 were randomized (42%) when the data base was frozen. The data safety monitoring committee reviewed the first 110 randomized pts and recommended study closure based on a futility analysis suggesting that the probability of detecting a significant difference in RFS in the randomized population would be highly unlikely. The final outcome analysis demonstrated no difference in RFS between the p53 positive patients randomized to MVAC vs. observation or overall between p53 positive and p53 negative patients.

**Conclusion:** Although the prognostic and predictive value of p53 were not confirmed, the p53 positive rate was higher than initially expected while the recurrence rate was lower, thus significantly altering the original power assumptions. A rich repository of surgical quality and biomarker data will provide important insights into the treated natural history of invasive organ-confined bladder cancer.
Prostate, Kidney, Bladder, Penile and Testis Cancer, Clinical and Basic Research

Poster #1

**UPREGULATION OF TRAG3 (TAXOL RESISTANCE ASSOCIATED GENE 3) IS ASSOCIATED WITH ADVANCED BLADDER CANCER (BCA)**

Jose Karam, MD¹, Sandra Huang², Jinhai Fan³, Jennifer Stanfield⁴, Roger Schultz², Rey-Chen Pong⁴, Xiankai Sun¹, Xian-Jin Xie¹, Arthur Sagalowsky¹ and Jer-Tsong Hsieh¹ (Presented By: Jose Karam)

¹Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas; ²Department of Pathology, University of Texas Southwestern Medical Center, Dallas, Texas; ³Department of Radiology, University of Texas Southwestern Medical Center, Dallas, Texas; ⁴Department of Clinical Sciences, University of Texas Southwestern Medical Center, Dallas, Texas

**Introduction:** In the United States, BCa is estimated to result in ~14,000 deaths in 2008. Conventional cytotoxic chemotherapy is commonly used for advanced stages of BCa with modest success and high morbidity. Identifying markers of resistance will allow clinicians to tailor treatment to a more specific patient population.

**Methods:** T24-tumorigenic BCa cell line was grown orthotopically in bladders of nude mice. Tumor progression in these mice was monitored using bioluminescence imaging (BLI) and microcomputed tomography (microCT) until they developed bone and lung metastases. Stable cell lines were then developed from tumors harvested from primary bladder (T24-P), lung(T24-L) and bone(T24-B). Chromosomal analysis and DNA microarray were used to characterize these 3 sublines. PCR and immunohistochemistry (IHC) were used to quantify the mRNA and protein of interest, in cell lines and patient samples (n=30). All 3 cell lines were treated with docetaxel, cisplatin, mitomycin, adriamycin, and vinblastine, and cell viability was quantified with crystal violet assay.

**Results:** Using BLI and microCT, BCa metastatic to lung was documented around 4 to 6 weeks after instillation in bladder. Chromosomal analysis revealed multiple alterations in metastatic cell lines compared to T24-P. DNA microarray analysis comparing T24-L with T24-P showed that TRAG3 gene was the most upregulated gene (~115 times). RT-PCR was performed to confirm this result, and indeed TRAG3 was ~222-fold and ~588-fold increased in T24-L and T24-B, compared to T24-P. These results were corroborated by IHC. After treating these cell lines with a DNA hypomethylating agent and a histone deacetylase inhibitor, we found that TRAG3 gene expression in controlled by DNA methylation, but not histone acetylation, suggesting loss of methylation of TRAG3 promoter in these metastatic cells. Interestingly, T24-B and T24-L cells were more resistant than T24-P to treatment with docetaxel and vinblastine, but had the same sensitivity as T24-P when treated with mitomycin, adriamycin, and cisplatin. TRAG3 mRNA expression was elevated in 20% of patients with =pT2 and 60% of patients with =pT3.

**Conclusions:** TRAG3 is upregulated in advanced BCa. Knowing the status of TRAG3 expression could help clinicians tailor treatment to a particular patient population that could benefit from treatment, while allocating patients with resistant tumors to new experimental therapies.

Poster #2

**mTOR ACTIVATION IN THE PRIMARY TUMOR OF PATIENTS WITH METASTATIC CLEAR CELL RENAL CELL CARCINOMA (CC-RCC)**

Alexander Kutikov, MD¹, Tasha Morrison¹, Elizabeth P. Henske, MD¹, Min Huang, MD², Tahseen Al-Saleem, MD² and Robert G. Uzzo, MD³ (Presented By: Alexander Kutikov)

¹Department of Medical Oncology, Fox Chase Cancer Center, Philadelphia, PA; ²Department of Pathology, Fox Chase Cancer Center, Philadelphia, PA; ³Department of Urologic Oncology, Fox Chase Cancer Center, Philadelphia, PA

**Introduction:** The mammalian target of rapamycin (mTOR) is a serine/threonine protein kinase that regulates cell growth, proliferation, motility, and survival. Activation of mTOR has been implicated in renal tumorigenesis. Pharmacologic inhibition of mTOR is now a clinically relevant strategy in treating metastatic RCC. Here we assess mTOR activation in primary renal masses of patients with metastatic cc-RCC (n=34).

**Materials and Methods:** Tissue from primary renal tumors was obtained from our institutional biosample repository. Tissue microarray (TMA) slides were constructed in duplicate using primary tumors in patients with mRCC along with normal kidney controls. TMAs were incubated with rabbit polyclonal antibodies against p-mTOR. Samples were then developed using the Histostatin®-Plus kit and counterstained with hematoxylin. Semiquantitative staining assessments of immunohistochemical staining (score from 0 to 300 taking into account intensity and area of stained tissue) were made by two independent observers who were blinded to the identity of the tissue.
Results: Patients with metastatic cc-RCC had either synchronous or metachronous extrarenal disease (n=34). Eight (23.5%) primary tumors exhibited no substantial staining for p-mTOR (IHC score <10). Six (17.6%) tumors demonstrated minimal staining (IHC score 10-50). The remaining 20 masses (58.8%) revealed significant staining for p-mTOR (IHC score 100-300). Figure 1 summarizes the degree of p-mTOR staining for each mass.

Conclusion: Phosphorylation of mTOR results in translational initiation and cell proliferation. Activation of the mTOR pathway recently has been identified in the majority of malignant melanomas, but not in benign nevi, reflecting the importance of mTOR activation in tumorigenesis. Our data suggests that mTOR pathway activation is not ubiquitous in primary tumors of patients who exhibit metastatic cc-RCC, but that a majority of tumors do exhibit significant degree of mTOR pathway activation. These findings may have both prognostic and therapeutic value. Further research is warranted.

Funding: This publication was supported by Fox Chase Cancer Center via institutional support of the Kidney Cancer Keystone Program.

Poster # 3

BLADDER TUMOR INFILTRATING MATURE DENDRITIC CELLS AND MACROPHAGES AS PREDICTORS OF RESPONSE TO BACILLUS CALMETTE-GUERIN IMMUNOTHERAPY
Cherifa Ayari, MSc, Hélène LaRue, PhD, Hélène Hovington, BSc, Marc Decobert, PhD, François Harel, MSc, Alain Bergeron, PhD, Bernard Têtu, MD, Louis Lacombe, MD and Yves Fradet, MD (Presented By: Cherifa Ayari)
Laval University Cancer Research Centre Hôtel-Dieu De Québec-CHUQ

Background: The clinical significance of tumor-infiltrating dendritic cells (TIDCs) and tumor-associated macrophages (TAMs), as markers of the immune response, has been reported in many cancers. To evaluate their significance in non-muscle invasive urothelial cancer (NMIUC) prior to Bacillus Calmette-Guerin (BCG) immunotherapy, we evaluated tumor infiltration by CD83+ mature DCs and CD68+ macrophages in tumors resected before BCG treatment.

Methods: Immunohistochemical staining was performed with anti-CD83 and anti-CD68 monoclonal antibodies on respectively 53 and 46 NMIUC, prior to BCG treatment. A scoring index based on the average density of positive cells within the papillary axis, the stroma, lymphoid aggregates, and infiltrated into tumors was calculated.

Results: CD83+ TIDCs were observed mostly within lymphoid aggregates. Multivariate Cox regression analysis showed that maintenance BCG (>1 maintenance cycles) was highly effective in patients with a low level of CD83+ TIDCs prior to BCG (HR=0.035, p=0.002) while showing a reduced efficacy on patients with a high level of CD83+ TIDCs (HR=0.87, p=0.810). However, a high level of tumor infiltration by CD83+ TIDCs showed a slightly protective effect in patients treated with =1 maintenance BCG cycle (HR=0.4, p=0.117), suggesting an interaction between BCG and DCs (p=0.01). In the same population, a strong infiltration of CD68+ TAMs, mostly at the tumor margin, was associated with an increased risk of recurrence (HR=3.8, p=0.013).

Conclusion: These results suggest that the level of tumor infiltration by these cells associated with the innate immunity is important in the anti-tumor immune response to BCG and could be used as a predictive marker.
**Poster Session I**

**Poster # 4**

**NAD(P)H OXIDASE REGULATORY SUBUNIT P22PHOX IS OVER-EXPRESSED IN HUMAN RENAL CELL CARCINOMA AND UP-REGULATES EXPRESSION OF HIF-2α TARGET GENES**
Karen Block, PhD, David New, BS, Assaad Eid, PhD, Yves Gorin, PhD, Amanda Reed, MD, Goutam Gosh-Choudhury, PhD, Hanna E Abboud, MD and Dipen Parekh, MD (Presented By: Karen Block)
1UTHSCSA San Antonio, TX

**Introduction:** Mutations in the von Hippel-Lindau (VHL) tumor suppressor gene give rise to hereditary and sporadic clear cell Renal Cell Carcinoma (RCC). VHL-deficiency is responsible for the over-expression of proteins that are required for cell growth and angiogenesis. Reactive oxygen species are involved in the signaling pathways mediating these processes. NAD(P)H oxidases of the Nox family are major sources of oxidative stress in RCC. Renal proximal tubular epithelial cells express the Nox oxidase subunits Nox1, Nox4, Nox2 as well as p22phox, which is critical for the activity of the aforementioned Nox proteins.

**Results:** Previously, we demonstrated that Nox4 and p22phox are up-regulated in VHL-deficient cells and p22phox-based Nox oxidases maintain hypoxia-inducible factor-2 alpha (HIF-2α) protein expression through the PI3K/Akt/4E-BP1 translational pathway. We extend these findings by showing that in situ clear cell RCC, p22phox, Nox1 and Nox4 are over-expressed, which correlate with increased superoxide anion generation and reduced superoxide scavenger SOD1 indicating a state of oxidative stress in human RCC. Additionally, we demonstrate activation of the translational pathway in tumors that over-express Nox oxidase subunits, further substantiating a role for p22phox-based Nox oxidases in the pathogenesis of RCC. Finally, we demonstrate that down-regulation of p22phox using small inhibitory RNA (siRNA) in VHL-deficient 786-O human renal tumor cells inhibits HIF-transcriptional activity and trans activation of HIF target genes, Vascular endothelial growth factor, Glucose transporter-1, and Transforming growth factor-α.

**Conclusion:** These studies suggest that p22phox is likely a pivotal target for therapeutic strategies in the treatment of RCC.

**Poster # 5**

**A PILOT STUDY OF FDG-PET/CT FOR DETECTING OCCULT METASTATIC BLADDER CARCINOMA**
Matthew Katz, MD³, Farrokh Deshdashti, MD², Aleksandra Klim, RN⁴, Robert Grubb, MD³, Peter Humphrey, MD, PhD¹, Feng Gao, PhD⁴, Cary Siegel, MD², Barry Siegel, MD² and Adam Kibel, MD⁵ (Presented By: Matthew Katz)
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**Introduction and Objective:** Novel imaging modalities are needed to detect occult metastatic bladder carcinoma. Patients identified with regional lymphatic spread would undergo neoadjuvant chemotherapy and patients with distant metastatic disease would be spared the morbidity of a radical cystectomy. Herein we report our prospective study of FDG-PET with CT fusion in patients undergoing radical cystectomy for cT2/T3 TCC.

**Methods:** 41 patients with cT2/T3 bladder TCC were prospectively enrolled from 6/04 to 10/07. All patients had negative conventional CT and bone scan prior to enrollment in the trial. CT/PET imaging was performed prior to planned cystectomy. Positive findings were confirmed by percutaneous biopsy or open surgical exploration. Complete lymphadenectomy was performed on patients with negative CT/PET to confirm results. Pathology was reviewed blinded to CT/PET results and compared to the pre-operative result of the CT/PET. All CT/PET imaging was interpreted by the same radiologist (FD). Recurrence-free survival (RFS) and overall survival (OS) were described using the Kaplan-Meier method and compared by log-rank test.

**Results:** Median follow-up was 9.9 months (range, 0.4 to 36.9 mo). One patient did not undergo lymphadenectomy due to surgeon choice and was excluded from the data analysis (n=40), but was included in the survival analysis (n=41). Compared to pathologic findings, a positive scan agreed with positive pathology results in 7/10 (PPV - 70%) and a negative scan agreed with negative pathology results in 28/30 (NPV - 93%). There were 3/31 with false positive scan results and 2/9 with false negative scan results which corresponds to a sensitivity of 77% and a specificity of 90%, respectively. The RFS at 6 and 24 months for CT/PET positive patients was 63% and 0%, compared to 83% and 64% for CT/PET negative patients at same time points (p=0.0001). The OS at 6 and 24 months for CT/PET positive patients was 75% and 21%, compared to 92% and 80% for CT/PET negative patients at same time points (p=0.0017). Interestingly, 2/3 with a false positive CT/PET scan result recurred and died of their disease at 4 months and 2 years, respectively.

**Conclusions:** Our results suggest that FDG-PET fused with CT detects occult metastatic disease in a high percentage of patients with negative conventional preoperative evaluations. As such, CT/PET imaging may help in making treatment decisions prior to radical cystectomy.
Poster # 6

LITX WITH TALAPORFIN SODIUM (LS11) IN PROSTATE CANCER XENOGRAPHS
Todd Morgan, MD¹, Theodore Koreckij, MD¹, Holly Nguyen, BA¹, Tianna Stubblefield, BA¹, Michiyo Dalos, BA¹, Julene Christophersen, BA², James Chen, MD², Eva Corey, PhD¹ and Robert Vessella, PhD¹ (Presented By: Todd Morgan)
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Introduction and Objectives: Litx™ is a minimally invasive modality that uses a device designed with linear array light-emitting diodes that emit light of a specific wavelength to activate LS11. LS11 is a photosensitive drug that, when activated by the device, generates singlet oxygen. LS11 is a second-generation photosensitizer, developed to allow for greater tissue penetration with less skin photosensitivity and is being used in clinical trials for treatment of primary and metastatic liver tumors, gliomas, and benign prostatic hyperplasia. We sought to determine the efficacy of this therapy against prostate cancer (CaP) in a murine model.

Methods: C4-2B CaP xenografts were grown subcutaneously in SCID mice and treatment was performed once tumor volumes reached 500 mm³. Activation of LS11 was accomplished using with the device inserted directly into the center of the tumor mass. Animals were separated into 4 groups: 1) no treatment, 2) light only, 3) LS11 only, and 4) LS11 + light. The treatment parameters, established in a pilot study, were 5 mg/kg LS11 activated by 50 joules/cm at a rate of 10 mW/cm. Tumor volume and PSA levels were closely monitored.

Results: Mice bearing C4-2B tumors undergoing Litx had a 90% response rate, defined as a ≥50% decrease in tumor volume. Mice in the three control groups had response rates of 0% (no treatment), 0% (light only), and 13% (LS11 only). Mice undergoing Litx had an 88 ± 9.6% reduction in tumor volume compared to 8.8 ± 2.6% in the 3 control groups (p<0.0001). PSA declined by 89 ± 9.9% in Litx-treated animals vs. 12 ± 2.9% in controls (p<0.0001). Compared with mice in the control group, mice in the LS11 + light group showed a 16% recovery of body weight after treatment, suggesting reversal of cachexia. Comparison groups had a mean 2.6% weight loss over the same period (p<0.0001).

Conclusions: Although the mortality in some of the studies was higher than expected, we attribute this solely to probe size in relation to tumor size. Design and use of a smaller probe or engaging in studies where the model system allows for larger tumors should eliminate this limitation. Most importantly, light activation of LS11 has a significant tumoricidal effect on subcutaneous CaP xenografts and these data support further studies using this modality in the treatment of CaP.

POSTER # 7

THE SRC INHIBITOR AZD0530 INDUCES GROWTH INHIBITION AND MIGRATORY ARREST OF HUMAN BLADDER CANCER CELL LINES
Jay Shah, MD, Jennifer Nguyen, Robert Svatek, MD, Arlene Siefker-Radtke, MD, Colin Dinney, MD and David McConkey, PhD (Presented By: Jay Shah)
MD Anderson Cancer Center, Houston, TX

Introduction: Activation of Srcfist oncogene discovered to be a key feature of multiple tumor types including colorectal cancer, breast cancer, lung cancer, and prostate cancer. As a central regulator of multiple signaling pathways, Src expression mediates numerous processes such as invasion, migration, proliferation, angiogenesis, and apoptosis. Based on promising preclinical research, Src inhibitors are currently being explored in early phase clinical trials for various tumor types. The exact contribution of Src pathway activation to bladder cancer pathogenesis has not yet been explored. We investigated the effect of the Src inhibitor AZD0530 on apoptosis, proliferation, and migratory capacity of human bladder cancer cell lines.

Methods: Propidium iodide staining and fluorescence-activated cell sorting (PI/FACS) was used to determine the ability of AZD0530 to induce DNA fragmentation and apoptosis in a panel of eight human bladder cancer cell lines at 24 and 48 hours. The MTT assay was used to determine the effect of increasing concentrations of AZD0530 on growth inhibition of human bladder cancer cell lines at 24 and 48 hours. The wound healing assay was used to compare the migratory capacity of human bladder cancer cell lines in the presence and absence of AZD0530. Western blotting was used to determine baseline levels of phospho-Src and total Src in the panel of bladder cancer cell lines.

Results: PI/FACS revealed no significant induction of apoptosis in the bladder cancer cell lines at 24 and 48 hours at all dose levels tested. The MTT assay showed greater than 25% growth inhibition in three of the bladder cancer cell lines tested. In every cell line tested the wound healing assay revealed marked inhibition of cell migratory capacity that was sustained for at least 48 hours.

Continues on next page
Conclusions: Src inhibition with AZD0530 shows marked and sustained inhibition of cell migratory capacity in human bladder cancer cell lines. Aberrant Src pathway activation may be a relevant mechanism in bladder cancer progression and candidate downstream pathways are currently being investigated.

Poster # 8

THE MITOTIC SPINDLE APPARATUS INHIBITOR AZD4877 HOLDS PROMISE AS A NOVEL THERAPEUTIC OPTION AGAINST HUMAN BLADDER CANCER
Jay Shah, MD, Lauren Marquis, BA, Robert Svatok, MD, John Papadopoulos, MD, Arlene Siefker-Radtke, MD, Colin Dinney, MD and David McConkey, PhD (Presented By: Jay Shah)
MD Anderson Cancer Center, Houston, TX

Introduction: While localized human bladder cancer is amenable to cure with surgery, few treatment options exist for advanced bladder cancer. With current chemotherapy, median survival of patients with metastatic bladder cancer is slightly over one year. More effective strategies directed against human bladder cancer are clearly needed. Since formation and dissociation of the mitotic spindle is a key regulatory event of the cell cycle, we hypothesized that a mitotic spindle apparatus inhibitor may serve as a novel anticancer agent. To that end, we tested the effects of the mitotic spindle inhibitor AZD4877 on in vitro and in vivo models of human bladder cancer.

Methods: Propidium iodide staining and fluorescence-activated cell sorting (PI/FACS) were used to determine the ability of AZD4877 to induce apoptosis at 24 and 48 hours in a panel of twenty human bladder cancer cell lines. In cell lines that did not show significant induction of apoptosis cell cycle analysis was used to determine the extent of cell cycle arrest induced by AZD4877. The ability of AZD4877 to inhibit tumor growth in vivo was tested in athymic nude mice bearing subcutaneous KU7 bladder tumors.

Results: After 24 hours of treatment with AZD4877 eight of the twenty bladder cancer cell lines showed greater than 33% induction of apoptosis by PI/FACS analysis. After 48 hours of treatment, seventeen of the cell lines showed greater than 33% apoptosis. In the cell lines that showed less than 33% apoptosis, cell cycle analysis showed marked cellular arrest in the G2-M phase of the cell cycle. Compared with untreated controls, mice treated with 8 mg/kg AZD4877 showed considerable growth inhibition of subcutaneous tumors (see figure) without evidence of toxicity. Pathologic tumor weight was also significantly lower in treated mice than in untreated controls (450 mg versus 860 mg, p =0.03).  

Conclusions: The mitotic spindle apparatus inhibitor AZD4877 shows promising single-agent antitumor activity in both in vitro and in vivo models of human bladder cancer. Combination regimens with standard chemotherapeutic agents are being tested as AZD4877 may have significant potential to enhance the effectiveness of currently available agents.

Poster # 9

CYP17 POLYMORPHISMS AND PROSTATE CANCER RISK AND MORTALITY
Jonathan L. Wright1,2, Daniel W. Lin1,2, Erika M. Kwon1, Suzanne Kolb1, Ziding Feng1, Joseph Koopmeiners1, Elaine A. Ostrander1, Janet L. Stanford1,5 (Presented By: Jonathan Wright)
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Objective: Cytochrome P450 17α-hydroxylases-C-17,20-lyase (CYP17) is a key enzyme involved with the androgen biosynthesis pathway and has recently been targeted for therapy in men with advanced PCa. Studies on survival and CYP17 SNPs have been conflicting. In this study, using SNPs covering variation in the entire CYP17 gene, we examine outcomes in Caucasian men associated with these polymorphisms.

Methods: Men aged 40-64 diagnosed with PCa between 1993 – 1996 in King County, Washington and participating in a population-based case-control study comprised the cohort. TagSNPs in the CYP17 gene in Caucasians were selected from the Genome Variation Server (SeattleSNPs – http://pga.gs.washington.edu). Mortality and underlying cause of death were obtained by linking to the SEER cancer registry. Risk of PCa-specific mortality (PCSM) was determined with Cox proportional hazards regression analysis.

Results: Three blocks of linkage disequilibrium were identified in the CYP17 gene and representative SNPs selected. Genotypes were available for 598 cases. After a median follow-up of 12.8 years, 42 prostate cancer-specific deaths were observed. Recurrence/progression events were observed in 29%. Men with the variant allele in rs10883783 had a 60% reduction in PCSM (HR = 0.43, 95% CI 0.19 – 0.96). When the analysis was restricted to patients with non-metastatic disease at diagnosis, the decrease in PCSM was greater (HR = 0.26, 95% CI 0.10 – 0.72).

Conclusion: These data suggest that genetic variation in the CYP17 gene in Caucasian men is associated with PCa survival.

Poster # 10

COMBINED EXPRESSION OF B7-H1 AND PD-1 AMONG PATIENTS WITH CLEAR CELL RENAL CELL CARCINOMA
Paul Crispen, MD, Xavier Frigola, Christine Lohse, MS, Yuri Sheinin, MD, PhD, Susan Kuntz, MS, Bradley Leibovich, MD, Michael Blute, MD and Eugene Kwon, MD (Presented By: Paul Crispen)
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Introduction and Objectives: The prognostic impact of aberrant expression of the immune co-regulatory ligand B7-H1 by clear cell renal cell carcinoma (ccRCC) tumor cells has been well described. However, the relationship between tumor cell B7-H1 and its corresponding receptor, PD-1, expressed by intra-tumoral mononuclear cells (IMCs) has not previously been studied. Herein we examine the prognostic significance of B7-H1 and PD-1 on survival in ccRCC and explore the functional impact of tumor cell B7-H1 expression on PD-1+ IMC function.

Methods: We identified 618 patients treated with radical nephrectomy or nephron-sparing surgery for ccRCC from our Nephrectomy Registry between 1990 and 1999. B7-H1, PD-1, CD8, CD4, and granzyme B expression were characterized by immunohistochemistry. The magnitudes of the associations of B7-H1 and PD-1 expression with survival were evaluated using Cox proportional hazards regression models.

Results: Ninety-three (15.1%) patients had B7-H1+ tumors. There were 110 (17.8%) tumors with no evidence of IMC PD-1 expression, 330 (53.4%) with focal expression, 119 (19.3%) with moderate expression, and 59 (9.6%) with marked IMC PD-1. Tumor B7-H1 expression remained significantly associated with death from RCC even after adjusting for the SSIGN Score (risk ratio 1.38; 95% CI 1.01 –1.89; p=0.045). Using patients whose tumors did not contain PD-1 expression on IMC as the reference group, the SSIGN Score-adjusted risk ratios for associations of focal, moderate, and marked IMC PD-1 expression with death from RCC were 1.08 (95% CI 0.59 –1.98; p=0.812), 1.24 (0.67 –2.30; p=0.490), and 1.31 (95% CI 1.09 –2.50; p=0.413), respectively. In a subset of B7-H1+ tumors evaluated, the majority of PD-1+ IMCs were CD8+ and granzyme B-negative.

Conclusions: These findings suggest that tumor cell B7-H1 may impair immune surveillance and foster tumor progression in ccRCC. The clinical significance of the observed ligand receptor relationship supports the potential of B7-H1 as a therapeutic target.

Poster # 11

EFFECT OF DIETARY OMEGA-3 FATTY ACIDS ON GENE EXPRESSION PROFILES IN PROSTATE CANCER XENOGRAFTS
Ramdev Konijeti, MD¹, Naoko Kobayashi, PhD¹, R. James Barnard, PhD² and William J. Aronson, MD¹ (Presented By: Ramdev Konijeti)
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Introduction and Objectives: We previously demonstrated that increasing the ratio of dietary omega-3 to omega-6 fatty acids decreased the growth of human prostate cancer xenografts in immunocompromised mice. We sought to identify candidate genes responsible for this effect by examining gene profiles of the xenografts in each diet group.
**Methods:** Individually caged male severe combined immunodeficiency (SCID) mice were fed isocaloric 20% kilocalorie (kcal) fat diets with the fat derived either primarily from omega-6 fatty acids with an omega-6 to omega-3 ratio of 10:0 (omega-6 diet group) or with a diet consisting of omega-6 and omega-3 fatty acids in a 1:1 ratio (omega-3 diet group). Two weeks after initiating these diets, mice were injected subcutaneously with Los Angeles Prostate Cancer 4 (LAPC-4) cells. Tumor volumes and mouse weights were measured weekly and caloric intake was measured three days per week. Gene expression profiles were determined by use of an Affymetrix human U133plus2 gene chip. Profiles were obtained from three median-weight tumors from each diet group. Quantitative reverse transcription-polymerase chain reaction (RT-PCR) was performed on select transcripts.

**Results:** Numerous transcripts were noted to be significantly up-regulated and down-regulated after dietary intervention. In the omega-3 diet group, rho-guanine nucleotide exchange factor (RGNEF1), endothelin 1 (EDN-1), catenin delta 2 (CTNND2), kallikrein 11 (KLK11), erythropoietin receptor (EPOR), plexin domain containing-1 (PLXDC-1), and angiopoietin 2 (ANGPT2) were down regulated, whereas phospholipase C, beta 1 (PLCB1), homeobox A9 (HOXA9), and endothelial differentiation sphingolipid G-protein coupled receptor 3 (EDG3) were up-regulated relative to the omega-6 diet group. Quantitative RT-PCR revealed statistically significant changes in cyclooxygenase 2 (COX2), arachidonate lipoygenase 5 (ALOX5), hepsin, vascular endothelial growth factor (VEGF), ANGPT2, EDN-1, and CTNND2.

**Conclusions:** These results indicate that alteration of the dietary ratio of omega-3 to omega-6 fatty acids modulates key inflammatory and angiogenic pathways in prostate tumors. Experiments are ongoing to identify the mechanistic importance of these genes with regard to diet-specific antitumor effects. Prospective dietary intervention trials in humans are ongoing to evaluate if similar inflammatory and angiogenic pathways are affected.

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**RESVERATROL ALTERS PROSTATE CANCER XENOGRAFT GROWTH**

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**Introduction and Objective:** Resveratrol, a phytoalexin naturally found in red wine, is marketed as a supplement to increase lifespan and decrease the risk of many types of cancer, including prostate cancer. We previously demonstrated mice eating a Western diet experience faster LAPC-4 xenograft growth than mice eating low-fat or low-carbohydrate diets. We hypothesize resveratrol will slow the growth of human prostate cancer xenografts fed a Western diet and will prolong survival by counteracting the harmful effects of the diet.

**Methods:** Eight week old male SCID mice were fed Western diet (39% fat, 45% carbohydrate, 16% protein by kcal) ad lib. One week later, 4x10^5 LAPC-4 cells were injected subcutaneously in the flank of each animal. Tumors were measured twice weekly. Three weeks after tumor injection, the mice were randomized to Western diet (control group; 50 mice); Western diet plus resveratrol at moderate (50 mg/kg/day; 50 mice); or high doses (100 mg/kg/day; 51 mice). Mice were sacrificed when tumors reached 1000 mm^3. Survival differences among groups were assessed with the log-rank test. Angiogenesis was assessed by measuring vessel density after staining tumor sections for CD31. The IGF axis (IGF-1, IGF-BP1, IGF-BP2, IGF-BP3, IGF-1/BP ratios) was assessed in serum using commercially available assays.

**Results:** All treatment groups ate their respective diets without toxicity. Specifically, there were no differences in weights of the testicles, livers, or total body weights at the time of sacrifice among the groups (all p>0.05). On two-way analysis, moderate dose resveratrol was associated with a significantly shorter survival relative to the no-resveratrol group (HR 1.53, p=0.04). High dose resveratrol was also associated with decreased survival relative to control (HR 1.22), but this was not statistically significant (p=0.32). The survival differences could not be explained by differences in vessel density (all p>0.05) or IGF axis (all p>0.05).

**Conclusions:** In this study using 151 mice, resveratrol was associated with increased risk of prostate cancer death in mice fed a Western diet. The mechanism of this decreased survival is the subject of ongoing investigation, but it is not due to increased angiogenesis or IGF axis alterations. Based on these preliminary data that resveratrol may be harmful, caution should be advised in the use of resveratrol supplements until further studies can be conducted.
**Poster # 13**

**CLINICAL UTILITY OF PCA3 AND TMPRSS2: ERG GENE FUSION URINE ASSAYS TO PREDICT PROSTATE BIOPSY OUTCOME**

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**Introduction:** Current tools to aid in the detection of prostate cancer (CaP) lack of diagnostic accuracy due primarily to low specificity remains a persistent problem. A molecular urine test for Prostate Cancer Gene 3 (PCA3) RNA has shown increased specificity for predicting biopsy outcome relative to sPSA. More recently, Hessels, et al (Clin Canc Res 13:5103) showed that qualitative detection of TMPRSS2 (T2): ERG gene fusion RNAs in urine sediments further increased diagnostic accuracy when used in combination with PCA3. In this research study, we performed the first multi-center evaluation of the PCA3 and T2:ERG assays for predicting prostate biopsy outcome.

**Methods:** Post-DRE first void urine specimens were prospectively collected from consenting patients scheduled for prostate biopsy due to elevated sPSA, abnormal DRE or abnormal prior CaP-negative biopsy (n = 235). Whole urine samples for PCA3 testing were processed by mixing with an equal volume of buffered detergent solution. Urine sediments for T2: ERG testing were prepared by centrifugation and washing with PBS. Both the quantitative PCA3 and qualitative T2: ERG mRNA assays utilize transcription-mediated amplification. PCA3, T2: ERG and sPSA markers were assessed for their ability to predict biopsy outcome individually, or in combination using logistic regression (LR) analysis.

**Results:** CaP was detected in 110/254 men (43% biopsy positive). For this subject group, the T2: ERG and PCA3 urine test specificities relative to prostate biopsy were 85% and 79%, respectively; sPSA specificity (cutoff 2.5 ng/mL) was 19%. LR analysis showed that combination of T2: ERG and PCA3 yielded the greatest diagnostic accuracy (ROC AUC = 0.761, P < 0.009), compared to PCA3 (AUC = 0.700) or serum PSA (AUC = 0.631) alone. Addition of sPSA to the LR model did not further improve diagnostic accuracy.

**Conclusions:** These results further confirm that the urine biomarkers PCA3 and T2: ERG can function synergistically to predict prostate biopsy outcome. The data presented here indicate that these markers increase overall diagnostic accuracy and may potentially play a role in screening patients for prostate cancer.

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**Poster # 14**

**THE TRANSCRIPTIONAL REPRESSOR, ZEB1, REGULATES EPITHELIAL TO MESENCHMAL TRANSITION IN BLADDER CANCER**

Robert Svatek, Jay Shah, MD, Woonyoung Choi, PhD, Keith Fournier, MD, David McConkey, PhD and Colin Dinney, MD (Presented By: Robert Svatek)

MD Anderson Cancer Center

**Background:** Despite the poor prognosis for patients with advanced bladder cancer, response to cytotoxic therapy is variable and some patients may experience long periods of disease stability. Epithelial to mesenchymal transition (EMT) is an epigenetic process that leads to cellular changes characterized histologically by altered cell polarity and a reduction in cell-to-cell adherence. Down-regulation of the archetypal marker of the epithelial phenotype, E-cadherin, is associated with invasion and metastasis during cancer progression. It has been shown that global patterns of cytotoxic drug sensitivity correlates with E-cadherin expression in human pancreatic cell lines. The purpose of this study was to identify the potential transcriptional repressor(s) responsible for down-regulating E-cadherin in human bladder cancer cell lines.

**Methods:** Gene expression microarrays were performed on a large panel of human bladder cancer cell lines (n = 20). Expression levels of candidate regulators of EMT phenotypes were assessed and subsequently confirmed using real time RT-PCR. Response to cytotoxic therapy was assessed using flow cytometry cell cycle analysis. Functional studies were performed to determine whether or not key transcriptional repressor(s) directly regulated E-cadherin expression.

**Results:** Unsupervised hierarchal clustering identified 2 large subsets of human bladder cancer cell lines which corresponded to bladder cancer cell line cytotoxic drug sensitivity. E-cadherin expression among human bladder cancer cell lines correlated directly with cisplatin sensitivity and indirectly with the transcription repressor Zeb-1 expression levels. RNA interference of Zeb-1 restored E-cadherin expression.

**Conclusions:** The transcriptional repressor, Zeb-1, controls E-cadherin expression and correlates with resistance to cytotoxic agents making it an ideal candidate for targeted therapy in combination therapy.

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Poster # 15

**COMPARISON OF PRIMARY AND METASTATIC TO LYMPH NODE CELL LINES FROM THE SAME PATIENTS**

Kiranpreet Khurana, Nick W. Liu, BS, Ariel Reinish, Youfeng Yang, PhD, Vladimir Valera, PhD, Cathy Vocke, PhD, Peter A. Pinto, MD, W. Marston Linehan, MD and Gennady Bratslavsky, MD (Presented By: Kiranpreet Khurana)

Bethesda, MD

**Objectives:** Lymph node status in clear cell renal carcinoma portends poor prognosis. Yet, the mechanism of metastasis of renal cell carcinoma to lymph nodes is not clearly understood. The purpose of this study was to perform molecular and functional comparison of primary and metastatic to lymph node cell lines derived from same patients.

**Methods:** We have been able to develop and maintain several pairs of cell lines from primary renal tumors and metastatic lymph nodes obtained from the same patient. Cell lines from the primary tumor and metastatic lymph nodes from three patients were used for this study. The dominant histology was clear cell carcinoma. DNA fingerprinting was performed to confirm matching of cell line pairs (primary and lymph node) and absence of cross contamination. Functional studies consisted of proliferation, invasion, and migration assays. Molecular assays included gene expression microarrays using the Affymetrix platform following by confirmatory RT-PCR for several differentially expressed genes. All experiments were performed in triplicates.

**Results:** In all cases, fingerprinting revealed matching pairs of primary tumor cell line and lymph node cell line confirming origin from the same patient. Fingerprinting analysis revealed the presence of additional genetic abnormalities in metastatic lymph node cell lines including loss of heterozygosity and microsatellite instability. Functional assays revealed increased proliferation in cell lines derived from lymph node metastasis compared to primary tumor cell lines in two out of three cases. Invasion was found to be higher in all metastatic cell lines, while migration was higher in one metastatic cell lines. Microarray analysis revealed up-regulation of several common genes in metastatic cell lines compared to primary tumor cell lines. One of them, carbonic anhydrase XII (CA XII) has been confirmed by RT-PCR to be over-expressed as high as 80-fold compared to primary tumor cell lines in the same patient.

**Conclusions:** This study demonstrates specific genetic alterations common to all metastatic clear cell carcinoma cell lines. Despite functional heterogeneity in metastatic cell lines, a common subset of genes may be important in regulating metastasis to lymph nodes. CA XII may be an important target and may play a role in potential future therapies. Additional functional studies such as gene silencing and stable transfection may further validate our results.

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Poster # 16

**IMIDAZOQUINOINE DRUG THERAPY INCREASES LYMPHOCYTIC INFILTRATION/ACTIVATION AND INDUCES CANCER CELL DEATH IN PRIMARY TUMORS OF A RENAL CELL CANCER MOUSE MODEL**

Eric Kauffman, MD, Huixian Liu, PhD, Michael J. Schwartz, MD, Ming-Ming Lee, BA and Douglas S. Scherr, MD (Presented By: Eric Kauffman)

Weill Medical College of Cornell University, New York, NY

**Introduction and Objectives:** Cytotoxic T-cell lymphocytes in renal cell carcinoma (RCC) primary tumors are typically non-responsive, possibly due to the upstream inactivation of antigen-presenting dendritic cells. Imidazoquinoline drugs are potent activators of dendritic cells and an effective first-line treatment for clinical skin cancers. Here we tested whether imidazoquinolines also have biologic activity in RCC primary tumors.

**Methods:** RCC primary tumors were grown in flanks of immunocompetent balb-c mice (N=28) following subcutaneous injection of the RENCA mouse RCC cell line. On days 17 and 24, tumors were directly injected with the imidazoquinoline, CPG5282, or placebo control, and tumor sizes were followed. On day 26, tumors were harvested and assessed by immunohistochemistry or western blotting for markers of cell death (TUNEL) or T-cell lymphocyte infiltration/activation (CD3/CD69), and by ELISA assay for Th1-type cytokine production.
**Results:** Intra-tumoral injection of CPG5282 on day 17 significantly reduced tumor growth by around 2-fold relative to placebo over the following 4 to 7 days. (Figure) Re-injection on day 24 with a second CPG5282 dose further slowed tumor growth over the following 48 hours. TUNEL staining of harvested tumors revealed a nearly 2-fold increase in cell death in CPG5282-treated tumors relative to placebo. CD3 immunostaining revealed an intense T-cell infiltrate in CPG5282-treated tumors, with large capsular aggregates and effective penetration into the central tumor bulk, compared to a mild T-cell infiltrate in placebo-treated tumors that was largely confined to tumor edges. Production of Th1-type cytokines, including IL-6 and MCP-1, was increased 2-5X in CPG5282-treated tumors relative to placebo, and expression levels of the lymphocyte activation marker, CD69, were also increased.

**Conclusions:** Direct imidazoquinoline injection slows growth of RCC primary tumors by increasing cancer cell death while enhancing T-cell lymphocyte infiltration, activation, and Th1-type cytokine production. This work supports the biologic efficacy of an imidazoquinoline in a kidney cancer mouse model, and warrants its further investigation as a potential immunotherapy for clinical RCC.

**Poster # 17**

**IMPACT OF ISCHEMIA AND TISSUE PROCUREMENT CONDITIONS ON GENE EXPRESSION IN RENAL CELL CARCINOMA**

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**Objectives:** Previous studies have shown that ischemia alters gene and protein expression in several tissue types. This, however, has not been studied in renal tumors. Our work evaluates the impact of ischemia and tissue procurement conditions on the RNA integrity and gene expression in renal cell carcinoma.

**Methods:** Solid renal tumors from patients with von Hippel Lindau who underwent partial nephrectomy at the National Cancer Institute were included if they were resected without clamping of the renal hilum and had greater than 80% homogeneity on immediate gross examination. The procurement of the tumor was performed in the operating room. Immediately upon surgical resection, a piece of tumor was snap frozen to represent the zero time point. Remaining tissue samples were then stored in PBS at 4C, 22C and 37C and frozen at 5, 30, 60, 120, and 240 mins. after surgical resection. All tissue samples were stored in liquid nitrogen until RNA extraction. Histopathologic evaluation was performed by a pathologist on H and E stained frozen sections obtained from each time point. Only tissue samples that had at least 80% tumor were selected and used for RNA extraction, analysis, and gene expression microarrays. Gene expression microarrays were performed using the Affymetrix platform. Class comparison analyses were performed between the zero time point and tissue samples from all other conditions obtained from the same tumor.

**Results:** A total of 10 tumors satisfied the inclusion criteria over the last 18 months. RNA extracted from 160 tissue samples exhibited prominent 18S and 28S ribosomal peaks indicating intact RNA. RNA degradations were observed after 120 mins. at 37C and 240 mins. at both 22C and 37C. Ninety-eight microarrays were performed. We identified over 1400 genes that were susceptible to ischemia times or storage conditions. Importantly, many genes were known to have prognostic implications in RCC. The greatest gene expression changes were observed with longer ischemia time and warmer tissue procurement conditions.

**Conclusion:** Our data demonstrates that RNA from kidney cancer remains intact for up to 4 hours post surgical resection with only a slight degradation at later time points in warmer conditions. Despite excellent RNA preservation sufficient for gene expression analysis, prolonged and warm procurement conditions, such as often encountered with laparoscopic surgery, are associated with significant changes in gene expression profiles.
**Poster # 18**

**INTRATUMORAL INJECTION OF 17AAG IN A PROSTATE CANCER XENOGRAFT RESULTS IN DECREASED TUMOR GROWTH**  
Mehrdad Alemozaffar, Shinji Tsutsumi, PhD, Len Neckers, PhD and Peter Pinto, MD (Presented By: Mehrdad Alemozaffar)  
UOB, NCI

**Introduction:** Heat shock protein 90 (HSP 90) is up-regulated in cancer cells allowing for continued cell survival and evasion of various apoptotic mechanisms. 17-(allylamino)-17-demethoxygeldanamycin (17AAG) have demonstrated the ability to bind and inhibit HSP 90 with subsequent inhibition of cancer cell growth. Several phase I studies of 17AAG have demonstrated severe side effects. In an attempt to avoid systemic toxicity, some studies have explored the potential of regionally administered chemotherapy as a possible therapeutic option for localized prostate cancer.

In this study we investigate the utility of direct intratumoral injection of 17AAG for the potential treatment of localized prostate cancer in a luciferase expressing PC3M murine xenograft model as compared to systemic administration.

**Materials and Methods:** PC3 tumor cells were grown subcutaneously in 40 mice and randomized to 4 different groups. Group 1 received intratumoral injections of 10mg/kg 17AAG in 20ul DMSO. Group 2 received intratumoral injections of 20ul DMSO. Group 3 received intraperitoneal injections of 10mg/kg 17AAG in 20ul DMSO. Group 4 received intraperitoneal injections of 20ul DMSO as systemic control. Mice were injected twice weekly for a total of 5 injections. Before each dose was given the animal was weighed, tumors measured with calipers, and imaged with luciferase on a Xenogen machine.

**Results:** A significant difference was observed between the intratumoral treatment group and systemic treatment group ($P= 0.022$). A difference was also seen between the intratumoral treatment group and the intratumoral DMSO control group ($P= 0.028$). No significant difference was observed between the systemic treatment group the systemic DMSO control group ($P= 0.4$).

**Conclusion:** This study demonstrates the utility of intratumoral dosing of 17AAG in decreasing tumor growth and has possible implications for the treatment of localized prostate cancer that needs to be studied further.

**Poster # 19**

**DISSEMINATED TUMOR CELLS IN PROSTATE CANCER**  
Theodore Koreckij, MD¹, Paul Lange, MD¹, Todd Morgan, MD¹, Ilona Holcomb, PhD², William Ellis, MD¹, Dan Lin, MD¹, Mike Porter, MD¹, Ian Galleher³, Bryce Lakely¹, Marty Kinnunen¹, Roger Coleman², Ilia Coleman², Deanna Gonzales¹ and Robert Vessella, PhD¹ (Presented By: Theodore Koreckij)  
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**Background:** A significant portion of prostate cancer (CaP) patients develop recurrence despite early detection and treatment, and the methods used for distinguishing between those patients at risk for recurrence are an inexact science. In CaP, where 90% of patients that metastasize do so to the bone, we sought to look for the presence of disseminated tumor cells (DTC) in the bone marrow of both early and late stage disease patients. Beyond mere detection, we attempted to characterize the DTC in hopes of affording further insights into CaP carcinogenesis and metastases.

**Methods:** After informed consent, patients underwent pelvic bone marrow aspirations either at the time of surgery or in follow-up. The aspirate undergoes an enrichment process using immunomagnetic beads conjugated to antibodies to CD45 and CD61 (negative selection) and to EpCam (positive selection). The remaining cells are stained with a FITC-BerEp4 antibody and those staining positive are plucked with a micropipette system for further analysis. DTC characterization was accomplished through array comparative genomic hybridization (aCGH) and cDNA microarrays with real time PCR confirmation.

**Results:** DTC are present in the majority of CaP patient samples (572/899; 64%). At the time of radical prostatectomy, 451/668 (68%) patients were positive for DTC. Those patients who show no evidence of disease (NED) after radical prostatectomy harbor DTC (66/121; 55%) even up to 5 years after surgery (21/45; 47%). In the NED population, DTC were shown to be associated with shorter time to biochemical recurrence. Our aCGH data has proven these cells to be in fact tumor cells and that these cells undergo increasing genomic instability with disease progression. Gene expression analysis has revealed wide ranging phenotypic variation among DTC with elements of epithelial-mesenchymal transition taking place.
Conclusions: We show that early dissemination is taking place in the majority CaP patients. We also show that DTC may have clinical significance as a prognostic indicator for recurrence and thus aid in treatment stratification for patients after primary surgery. There are also implications for tumor cell dormancy with DTC being exhibited in NED patients many years after surgery. DTC exhibit the same genomic and phenotypic heterogeneity that is seen in primary tumors as well as in patient outcomes. This characterization will help further our understanding of CaP biology and the mechanisms behind metastasis.

Poster # 20

BLADDER CANCER ASSOCIATED GENE EXPRESSION SIGNATURES IDENTIFIED BY PROFILING OF EXFOLIATED UROTHELIA
Patrick Villicana, MD, Charles Rosser, MD, Li Liu, Yijun Sun, Molly McCuller, Stacy Porvasnik and Steve Goodison (Presented By: Patrick Villicana)
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Introduction: Bladder cancer is the fifth most commonly diagnosed malignancy in the United States and one of the most prevalent worldwide. It harbors a probability of recurrence of >50%, thus rigorous, sometimes lifelong surveillance for patients is advocated. Flexible cystoscopy coupled with voided urine cytology (VUC) is the primary diagnostic approach, but cystoscopy is an uncomfortable, invasive procedure and the sensitivity of VUC is poor in all but high-grade tumors. Thus, improvements in non-invasive urinalysis assessment strategies would benefit both patients and healthcare providers.

Methods: We applied gene expression microarray analysis to exfoliated urothelia recovered from bladder washes obtained prospectively from 100 patients with subsequently confirmed presence or absence of bladder cancer. Data from microarrays containing 56,000 targets was subjected to a panel of statistical analyses to identify bladder cancer-associated gene signatures. Hierarchical clustering and supervised learning algorithms were used to classify samples on the basis of tumor burden.

Results: A differentially expressed gene set of 319 gene probes was associated with the presence of bladder cancer (P<0.01), and visualization of protein interaction networks within this geneset revealed highly expressed VEGF and AGT as pivotal interactive hubs in tumor cells. Supervised machine learning and a cross-validation approach were used to build a 14-gene molecular classifier that was able to classify patients with and without bladder cancer with an overall accuracy of 76%.

Conclusion: Our results show that it is possible to achieve the detection of bladder cancer using molecular signatures present in exfoliated tumor urothelia. Further investigation and validation of the cancer-associated profiles may reveal important biomarkers for the non-invasive detection and surveillance of bladder cancer.

Poster # 21

PATTERNS OF RNA EXPRESSION ARE DEPENDANT ON EXTRACELLULAR MATRIX IN RT4 BLADDER CANCER CELLS
Mikhail Dozmorov, PhD, Kimberly Kyker, PhD, Jonathan Heinlen, MD, Daniel Culkin, MD and Robert Hurst, PhD (Presented By: Jonathan Heinlen)
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Introduction and Objectives: RT4 is a well differentiated papillary tumor cell line derived from human urothelium. Prior investigation has shown that the cells exhibit different morphology and behavior when grown on different media, specifically plastic, mouse tumor basement membrane matrix (Matrigel - MG), and a small intestinal submucosa based medium (SISgel - SG). On MG, RT4 cells recapitulate the malignant phenotype forming papillary structures while on SG the same cells form a normal appearing sheet of cells. The current study investigates differences in gene expression level between cells grown on plastic, MG, and SG to elucidate differences in cell signaling and gene expression.

Methods: RT4 cells were cultured on plastic, MG, and SG using McCoy’s 5A media (Gibco). MG and SG grown cells were harvested at 12 hours, 24 hours, 2, 3, 5, 6, and 8 days of growth on a matrix, while cells grown on Plastic were acquired at one time point. Cells grown on plastic were isolated when confluency reached 70-80%. A Trizol RNA isolation was used for all cells. Cy3 labeled cDNA was synthesized and hybridized onto a glass array spotted with 22,464 long oligos (~70mers) from the UniGene database of functionally known genes and controls. Gene expression levels were then normalized to noise level and arrays were adjusted to each other by robust linear regression.

Continues on next page
RESULTS: The microarray screened 21,521 genes. The largest differences in gene expression were observed between growth conditions. Core set of 14,133 were expressed by all three cell populations. Plastic grown cells expressed 172 genes uniquely, MG grown cells expressed 1302 genes uniquely, and SG grown cells 81 genes. Six hundred twenty one (621) genes were expressed by only plastic and MG, 103 by Plastic and SG, and 1780 by SG and MG. Among the genes with differential expression are several genes known to be active in tumorigenicity and malignant conversion.

CONCLUSIONS: These data, combined with previous results, suggest that the extracellular matrix (ECM) has significant effect on the intercellular mechanisms of cancer growth and cellular differentiation. Furthermore, transformation of the ECM is a crucial step in development of the malignant phenotype. Of most interest is a group of genes uniquely expressed on MG that may represent a variety of malignancy-promoting functions. Further study may yield therapeutic targets for suppression of malignancy.

Poster # 22

ALTERATIONS IN GENE EXPRESSION OF BLADDER PAPILLOMA CELLS INDUCED BY A MALIGNANCY-REMODELED EXTRACELLULAR MATRIX UP-REGULATES INFLAMMATION AND IMMUNE TOLERANCE

Mikhail Dozmorov, PhD, David Buethe, MD, Paul Hauser, PhD, Robert Hurst, PhD and Daniel Culkin, MD (Presented By: David Buethe)
University of Oklahoma Health Science Center, Department of Urology

Introduction and Objective: To identify the earliest stages of malignant phenotypic expression by identifying genes, pathways, and functions within papilloma cells responding to growth on a malignancy-remodeled extracellular matrix (ECM) as a means to understand how altered cells progress toward malignancy.

Methods: Isolated messenger ribonucleic acid from RT4 papilloma cells grown on both plastic and Matrigel (a malignancy-remodeled ECM) was analyzed on a 21K long oligonucleotide spotted microarray to compare gene expression of cells grown on plastic versus 3-dimensional Matrigel. Nuclear protein binding to 345 transcription factor sequences was similarly analyzed to confirm that transcription level changes translated into corresponding protein activity.

Results: Of 21,308 genes probed, 2,839 “responded” to the presence of Matrigel. To minimize false positives, the list was filtered to 877 “Off-On” genes that were not originally expressed on plastic but were definitely expressed (>5 standard deviations above background) on Matrigel. Of note, 79 “On-Off” genes exhibited the opposite phenomena. The ontologies of the “Off-On” genes were found to be overrepresented with regards to processes involving gene expression, protein synthesis, G-protein signaling, kinases, and cell-surface genes involved with immune tolerance. Some of these same ontologies were represented by “On-Off” genes but over half were inhibitors of the pathways turned on. Pathway analysis showed sharp up-regulation of inflammatory and cell survival pathways. Analysis of promoter sequences of the aforementioned genes suggested several promoters were driving these changes and experimental verification with a promoter array was in close agreement. Major promoters were AP-1, AP-2, CREB and NFκB, among others. In concordance with the changes in gene expression, 13 transcription factors were shut off by the ECM and 40 were activated.

Conclusions: The ECM is a major modulator of gene expression within urothelial papilloma cells. Cells grown on an ECM are qualitatively different from cells grown on plastic, which represents the current common model for studying cancer. Notably, about 2,500 genes and their associated processes were turned on by exposure to Matrigel. Further, these genes, many responsible for immune tolerance and cell survival-inflammatory pathways, are very rapidly up-regulated.

Poster # 23

DIFFERENTIAL NOTCH-1 EXPRESSION IN UROTHELIAL CARCINOMA

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Introduction and Objectives: Notch signaling is involved in cellular differentiation, proliferation, and apoptosis. It plays a key role in several solid tumors, such as breast, prostate, lung, and kidney carcinomas. Recent studies suggest a possible role in urothelial carcinogenesis as well. We determined the differential expression pattern of Notch-1 in normal urothelium, primary urothelial carcinomas, and lymph node metastases.
Methods: A tissue microarray consisting of normal urothelium, primary bladder tumor, and lymph node metastasis, if present, was developed from 111 patients (88 males, 23 females) between 43 and 84 years of age (mean 68 years) who underwent radical cystectomy for invasive urothelial carcinoma from February 2001 to January 2008. Immunohistochemistry was performed using a Notch-1 polyclonal rabbit antibody and interpreted by a single uropathologist. The percent of tissue stained, staining intensity (0-2), and staining pattern (diffuse, membranous, cytoplasmic speckling [CS], and perinuclear [PN]) were noted.

Results: Histologically, normal urothelium showed more intense diffuse staining than the primary bladder tumor or lymph node metastasis (46.5%, 2.8%, and 0% respectively, p<0.001). However, nodal metastases and primary tumors showed more membranous staining than the normal urothelium (66.7%, 57.7%, and 33.4% respectively, p<0.001). When stratified by the depth of invasion, muscle-invasive (≥pT2) tumors showed more membranous staining than nonmuscle-invasive (<pT2) tumors (64.4% and 25% respectively, p=0.011). Cytoplasmic speckling and perinuclear staining was seen consistently in normal urothelium but infrequently in the primary bladder tumor or lymph node metastasis (CS–.8%, 8.5%, 16.7%, p=0.001; PN–.9%, 5.6%, 0%, p<0.001).

Conclusions: The normal urothelium of bladder cancer patients shows intense diffuse staining with associated cytoplasmic speckling and perinuclear staining while muscle-invasive tumors show a predominance of expression only on the cell membrane. Due to the degradation of Notch upon activation, expression patterns do not necessarily correlate with activation. Investigation of the Notch ligand Jagged-1 and downstream Notch targets are currently in progress to better characterize this association. The differential expression pattern of Notch receptors and ligands in urothelial carcinoma may hold potential therapeutic implications.

Poster # 24

A NEW MECHANISM FOR THE REGULATION OF ANDROGEN RECEPTOR IN PROSTATE CANCER
Hongyun Li, MD, PhD, Linda Xu, PhD, Katsuaki Masuda, MD, PhD, Maria Eliza Raymundo, MD, PhD, David McLeod, MD, Albert Dobi, PhD and Shiv Srivastava, PhD (Presented By: Maria Eliza Raymundo)
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Introduction: In the context of normal prostate growth and differentiation, androgen receptor (AR) stability is controlled by the ubiquitin-proteasome pathway. Dysfunctions of mechanisms regulating AR levels may contribute to prostate cancer initiation and progression. Mdm2 has been highlighted as a regulator of AR stability. We have investigated the role of a novel Mdm2-independent pathway in AR regulation. PMEPA1 is an androgen-inducible gene that exhibits negative cell growth regulatory functions in prostate cell culture model systems. Its expression is decreased during cancer progression in human prostate tumors. We found that PMEPA1 negatively regulates AR protein levels by recruiting NEDD4 ubiquitin ligase to AR. Thus, PMEPA1 serves as a docking platform facilitating proteasome-mediated degradation of AR.

Methods: Prostate cancer cells were transfected with siRNA targeting PMEPA1 transcripts, generating stable PMEPA1-GFP-Tet LNCaP transfectant. Expression of PMEPA1-GFP fusion protein was negatively regulated by tetracycline. Cell lysates were analyzed by immunoblotting using AR and PMEPA1 antibodies. Cell growth was analyzed with FACS. COS-7 cells or 2KO (p53-/-/ MDM2-/-) cells were cotransfected with HA-ubiquitin, AR, NEDD4, wtPMEPA1 or PY-mutant PMEPA1 expression vectors. After coexpression for 24 hours, cells were grown in the presence or absence of MG132 proteasome inhibitor for 8 hours then lysates were subjected to immunoblotting with anti-AR.

Results: Transient expression of PMEPA1 down-regulates AR protein levels and AR transcriptional targets in prostate cancer cells. Conversely, knockdown of PMEPA1 leads to elevated levels of AR protein, AR transcriptional targets and increased cell cycle S phase. PMEPA1 dependent down-regulation of AR is due to AR ubiquitination and proteasome mediated degradation. Mutant PMEPA1 that is impaired in NEDD4 recruitment shows attenuated AR protein down-regulation.

Conclusions: PMEPA1 negatively regulates AR protein stability by enhancing AR ubiquitination and proteasome-mediated degradation through NEDD4, which is MDM2 independent. PMEPA1-AR degradation pathway represents a new mechanism for regulating AR levels in prostate epithelial cells. These findings underscore that decreased PMEPA1 expression frequently noted in prostate cancers may lead to increased AR functions and strengthen the biological role of PMEPA1 in prostate cancers.

Funding: National Cancer Institute grant number #1R01CA106653 to Shiv Srivastava
Poster # 25

ERG ACTIVATES C-MYC AND INTERFERES WITH PROSTATE DIFFERENTIATION GENES IN PROSTATE CANCER
Albert Dobi, PhD¹, Chen Sun, MD, PhD², Ahmed Mohamed, MD, PhD², Bungo Furusato, MD², Shyh-Han Tan, PhD², Rajesh Thangapazham, PhD², Hongyun Li, MD, PhD², Syed Shaheduzzaman, PhD², Eric Whitman, MD², Dorotha Hawksworth, PhD², Taduru Sreenath, PhD², Gyorgy Petrovics, PhD², Isabbell Sesterhenn, MD³, David McLeod, MD² and Shiv Srivastava, PhD² (Presented By: Albert Dobi)
¹CPDR/USU; ²CPDR/USU Rockville, MD; ³AFIP/Washington, DC

Introduction and Objective: TMPRSS2-ERG rearrangement leads to the androgenic induction of ETS-related gene (ERG) in the majority (60%) of prostate cancers. We have been investigating the biological functions of ERG overexpression in prostate cancer.

Materials and Methods: We inhibited ERG in TMPRSS2-ERG expressing VCaP cells by using ERG siRNA molecules and monitored the cell growth and gene expression responses by quantitative PCR, microarray analysis and in mouse xenograft models of prostate cancer. ERG binding to cognate DNA sequences was monitored by Chromatin Immunoprecipitation assay. Gene expression data from laser capture microdissected prostate tumor cells was analyzed by the BiblioSphere software.

Results: Inhibition of ERG in TMPRSS2-ERG expressing prostate cancer cells induced robust morphological changes and inhibited cell growth. Consistent with the cell culture model, ERG knockdown reduced the growth of prostate cancer cells in SCID mice. Evaluating of the gene expression profile and the function of specific gene promoters in ERG siRNA treated cells, in comparison to the gene expression signatures of human prostate tumors we found that ERG activates C-MYC oncogene and represses the expression of prostate epithelial differentiation genes such as, PSA/KLK3 and Prostein/SLC45A3).

Conclusion: These findings support the notion that frequent overexpression of ERG in prostate tumor cells may play a central role to the neoplastic process by activating oncogenic signals e.g., C-MYC and by inhibiting prostate epithelial differentiation.

Poster # 26

DISCOVERY OF NEUROPEPTIDE Y AND SMOC PROTEIN IN POST-DRE URINE AND EVALUATION OF SECRETORY PROTEIN PANEL AS POTENTIAL PREDICTORS OF BIOPSY RESULT FOR PROSTATE CANCER
Kee-Hong Kim, PhD¹, Amina Ali, MSc¹, Jaroslaw Tuszynski, PhD², Daniel Yen, PhD¹, Gyorgy Petrovics, PhD¹, Albert Dobi, PhD¹, Sreenath Taduru, PhD¹, David McLeod, MD³ and Shiv Srivastava, PhD³ (Presented By: Kee-Hong Kim)
¹CPDR, Rockville, MD; ²SAIC, McLean, VA; ³CPDR/WRAMC, Rockville, MD

Introduction: Serum prostate-specific antigen (sPSA) has enabled to detect prostate cancer (CaP) at early stage. However, its low cancer specificity results in large numbers of unnecessary biopsies, and the development of fluid-based protein marker is immediately needed to improve specificity of sPSA.

Methods: To develop multiplexed secretory protein panel as predictor of prostate biopsy results, we used genomic analysis to identify seven mRNA transcripts (SMOC, PLA2G7, SPOCK, NPY, F5, TMEFF1, CRISP3) encoding secretory proteins that frequently up-regulated in LCM-purified prostate carcinoma epithelial cells over the patient-matched benign cells (N = 40). We have developed indirect ELISA systems to measure the levels of each secretory protein from prospectively collected post-DRE urines of 56 men before prostate biopsy, and then, univariate and optimal threshold analysis were performed to examine prediction capability of prostate biopsy results.

Results: Among seven secretory proteins, the presence of NPY and SMOC proteins in post-DRE urine of prostate cancer patients are verified. Attentive DRE substantially increased urine PSA (uPSA), which is used as a normalization factor to calculate NPY-/SMOC-score (ratio of NPY or SMOC to uPSA, respectively). Univariate analysis of each score revealed the elevating trend in the patients with prostate cancer over the biopsy negative despite statistically unsatisfactory. ROC curve analysis indicates the potential of NPY- and SMOC-score to improve cancer detection specificity as supplementary markers to serum PSA. The combination of optimal thresholds of two scores resulted in the improved specificity (83%) from that of serum PSA (33%), as well as the sensitivity (50%) at this setting was comparable to sPSA (64%).

Discussion: This is the first study reporting the presence of NPY and SMOC proteins originated from prostate glands in post-DRE urine of prostate cancer patients, and potential clinical utility of NPY- and SMOC-score as supplementary predictors of biopsy results for prostate cancer. Use of NPY-/SMOC-score in post-DRE urine may improve the specificity of serum PSA, leading to a reduction of the number of unnecessary repeated prostate biopsies.
**Poster # 27**

**THERAPY-INDUCED SENESCENCE RESPONSE AND DIFFERENTIAL GENE EXPRESSION IN PROSTATE CANCER CELLS WITH VARIABLE METASTATIC POTENTIAL**

Badar Mian, MD¹, Ross Bauer, MD², Eugenia Broude, PhD³, Olga Berezovska, PhD³, Gennady Glinsky, PhD³, Ralph Buttyan, PhD³ and Igor Roninson, PhD³ (Presented By: Badar Mian)

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**Introduction and Objective:** Cell senescence is a physiological process that leads to irreversible growth arrest in normal and tumor cells. Tumor cell senescence is strongly augmented by radiation and chemotherapy. However, senescent cells maintain secretory function and can secrete growth-stimulatory factors that promote the growth of surrounding cells. Our goal was to determine the effect of radiation therapy on the senescence response in prostate cancer cells of variable metastatic potential.

**Methods:** Senescence-associated -galactosidase activity (SA—gal) is the most widely used surrogate marker of senescence. Human prostate cancer cell line LNCaP and its metastatic variant LNCaP-LN3 were subjected to ionizing radiation. Cell proliferation was determined by analyzing the growth curves and the senescence response was determined by SA—gal staining. Microarray analysis was performed on RNA from both cell lines before and after irradiation. Immunostaining was performed to determine the level of secreted growth factors in response to therapy.

**Results:** The metastatic LNCaP-LN3 cells were more resistant to the growth-inhibitory effects of radiation than the non-metastatic LNCaP. Despite being more resistant to treatment, LNCaP-LN3 showed higher intensity of treatment-induced SA—gal staining than LNCaP. The SA—gal-negative cells that survived irradiation, were able to grow in colonies adjacent to the senescent LNCaP-LN3 cells. Immunostaining results revealed induction of several proteins known to be upregulated in senescent cells: maspin, IGFBP3, prosaposin and BTG2. Microarray analysis revealed upregulation of cell cycle inhibitor p21 to a similar extent in both cell lines after therapy. Surprisingly, LNCaP-LN3 showed stronger induction of p21-inducible genes (e.g. secreted factors) but failed to suppress p21-inhibited genes (e.g. for cell cycle progression), when compared to LNCaP.

**Conclusions:** Stronger induction of SA—gal in LNCaP-LN3 and increased secretory activity likely has a growth stimulatory affect on adjacent cells. Induction of p21-inducible genes in the more metastatic cell line, coupled with the failure to inhibit p21-suppressed cell cycle progression genes suggests a major change in the transcriptional response to p21 associated with metastatic phenotype. This uncoupling of transcriptional effects of p21 and paracrine effect of secreted proteins may be causally related to the more metastatic phenotype of LNCaP-LN3 cells.

**Poster # 28**

**EFFECT OF METFORMIN ON PROSTATE TUMOR PROGRESSION**

Mireia Musquera, MD, PhD, Ahmed Q. Haddad, MD, PhD, Vasundara Venkateswaran, PhD, Neil E. Fleshner, MD and Laurence Klotz, MD (Presented By: Mireia Musquera)

University of Toronto

**Introduction and Objectives:** Epidemiological and laboratory studies point to the fact that obesity is related to insulin resistance, resulting in a hyperinsulinemia status, with an increase of Insulin Growth Factor 1 (IGF-1), and a reduction of their binding proteins. These changes are directly related to the development of solid neoplasia, including prostate cancer (PCa), due to an anti-apoptotic effect and an increase of cell proliferation. In a recent in vivo study published by our group we found that a high carbohydrate-high fat diet resulted in an increase in insulin levels, IGF-1 and tumour volume. Metformin is an antidiabetic drug that decrease postprandial serum lipids levels; increases intestinal and muscular glucose absorption and stimulates anaerobic glycolysis. We hypothesize that metformin may inhibit the growth of prostate cancer cells in vitro and in vivo in a hyperinsulinemic environment.

**Material and Methods:** LNCaP, PC3 and BPH-1 cells were plated in 96 well plates and treated with different concentration of metformin (1mM-2000mM) for 72 hours. 28 transgenic mice bearing human prostate cancer xenografts (LNCaP) were fed ad libitum with a high-fat, high-carbohydrates diet (HC-HF diet) for 9 weeks. They were randomized to receive drinking water with or without metformin. Body weight and tumour volume were measured weekly, and glucose levels every other week. Tissue samples (tumor, pancreas and liver) were collected at the end of the study.
**Poster Session I**

Continued from previous page

**Results:** In vitro analysis: Metformin inhibited LNCap proliferation with an IC50 of 548mM. There was no effect on PC3 and BPH 1 cell lines. In vivo study: Metformin had no impact on serum glucose (p=0.3), animal weight (0.652), tumor volume (p=0.39), or tumor weight (p=0.448).

**Conclusions:** Metformin inhibits LNCap proliferation at high concentrations, but has no apparent effect on LNCap xenografts. This could reflect the limitations of the xenograft model, inadequate dosing of Metformin, or lack of effect of the drug. Further studies using a transgenic model are warranted.

**Poster # 29**

**THE EFFECT OF PROTOCADHERIN-PC (PCDH-PC) EXPRESSION ON THE INVASIVE PHENOTYPE OF PROSTATE CANCER (PCA) CELLS**

Bilal Chughtai, MD, Elina Levina, PhD¹, Stephane Terry, PhD¹, Francis Vacherot, PhD¹, Alexandre de la Taille, PhD¹, Badar Mian, MD² and Ralph Buttyan, PhD¹ (Presented By: Bilal Chughtai)

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**Introduction:** Protocadherin-PC is an androgen-repressed gene on the Y-chromosome that is a marker of apoptosis-resistant LNCaP cells and is upregulated in (>100-fold) by exposure to androgen-free medium. Transfection of LNCaP cells with PCDH-PC makes them resistant to apoptosis, more likely to form colonies in agar, and enables their growth in androgen-free medium. We measured the effects of PCDH-PC expression on the invasiveness of LNCaP cells.

**Materials and Methods:** We compared parental LNCaP with variants that overexpress PCDH-PC (T6-myc) as well as a variant (T6-C8) in which PCDH-PC is conditionally expressed by exposure to ecdysterone. Invasive behavior was measured by 2 quantitative in vitro assays. 1) Cell migration through a Matrigel Invasion Chamber (8 µm pores) was quantified by counting labeled cells that crossed the membrane in 24 hrs. The assay was repeated 5 times for each measurement. 2) Cell migration across a wound (scratch) in a cell monolayer was assessed using time-lapse photomicroscopy over 24 hrs. This assay was repeated 3 times per sample. Assays were performed in androgen-free medium (phenol red-free RPMI with charcoal stripped FBS [CS-FBS]) or androgen-free medium with 0.5 nM R1881 (CS-FBS + R1881). Statistical analysis was done by the ANOVA test.

**Results:** T6-myc cells were 1.93-fold more invasive through Matrigel compared to LNCaP cells (p<0.04). T6-C8 cells were 2.07-fold more invasive with ecdysterone compared to vehicle (p<0.04). Assays repeated using androgen-defined medium (CS-FBS or CS-FBS + R1881), androgen supplementation significantly increased parental LNCaP invasion whereas it significantly decreased the invasion of the T6-myc cells. These results were mirrored on the scratch assay, where LNCaP cells were less than half as motile as T6-myc cells and the effects of androgen were similar.

**Conclusion:** We found that PCDH-PC induces an invasive phenotype in PCa cells. Remarkably, androgen enhances the invasiveness of LNCaP cells while suppressing the invasiveness of PCDH-PC expressing cells. This may be related to the ability of androgen signaling to interfere with Wnt signaling. PCDH-PC is expressed in hormone refractory human prostate cancer cells and may be a target for suppression of the aggressive prostate cancer phenotype.

**Poster # 30**

**INFLUENCE OF SERUM TESTOSTERONE LEVEL ON SURVIVAL IN MEN TREATED WITH IMMEDIATE VS. DEFERRED ANDROGEN DEPRIVATION FOR NODE-POSITIVE PROSTATE CANCER AFTER RADICAL PROSTATECTOMY & PELVIC LYMPHADENECTOMY**

Eric A. Singer, MD, MA², Dragan J. Golijanin, MD³, Yu-Hui Chen, MS¹, Judith Manola, MS¹, Ganesh S. Palapattu, MD² and Edward M. Messing, MD³ (Presented By: Eric A. Singer)

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**Introduction:** Circulating androgens drive normal prostatic cellular function as well as the growth of adenocarcinoma. Androgen deprivation therapy (ADT) can effectively achieve a castrate state in all men by lowering serum testosterone (T) levels, but the duration of tumor response is finite and variable. The impact of baseline serum testosterone levels on overall survival (OS), progression-free survival (PFS), and prostate
cancer-specific (PCS) mortality in men treated with immediate versus delayed ADT for node-positive prostate cancer after radical retropubic prostatectomy and pelvic lymphadectomy was evaluated by examining the outcomes of a prospective, randomized cooperative group trial. 

Methods: Eligible subjects enrolled in the Eastern Cooperative Oncology Group EST 3886 trial were randomly assigned to receive immediate ADT (n=47) or expectant management (n=51). Among these subjects, 79 had baseline T levels available. To better describe the associations between disease outcome and circulating androgens, baseline T levels were divided into low (<240ng/dL) or high (>240ng/dL) groups. OS and PFS were estimated using Kaplan-Meier curves. A two-sided log-rank test was used to measure the differences in OS and PFS. PCS mortality was compared between different groups with consideration of competing risks of death. Causes were defined as death from prostate cancer, or death from other causes, based on clinical record review and confirmed by death certificate.

Results: Among the 39 subjects in the immediate ADT arm who had baseline Ts, 6 had low T and 33 high T, while among the 40 subjects in the delayed ADT arm, 8 had low T and 32 high T at baseline. In the immediate treatment arm, baseline T levels did not influence OS (P=0.83), PCS mortality (P=0.91), or PFS (P=0.74). Similarly, in the delayed treatment arm, baseline T levels did not affect OS (P=0.53) or PCS mortality (P=0.76), but PFS was significantly shorter (1.4 years vs. 3.3 years; P=0.01) in men with low baseline T.

Conclusions: Men with node-positive disease after extirpative surgery, who also have a low baseline T and are not treated with immediate ADT, have biochemical recurrence faster than their counterparts with high T. This may be due to the more aggressive biology of tumors arising in a low androgen environment. Strategies that prolong tumor sensitivity to androgens, and therefore ADT, as well as the timing of ADT, may be especially important in this subgroup of prostate cancer patients.

Poster # 31

RESULTS OF LIMITED AND EXTENDED ROBOTIC LYMPHADENECTOMY FOR PROSTATE CANCER
Ronney Abaza, MD (Presented By: Ahmad Shabsigh)
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Objectives: We assessed the results of routinely-performed robotic pelvic lymph node dissection (PLND) in patients undergoing robotic prostatectomy including nodal yield and positivity as well as complications.

Methods: A prospectively collected database of 100 robotic prostatectomy procedures was analyzed for results of PLND performed in all patients. Extent of PLND was based upon PSA, biopsy, and clinical stage. Extended PLND was performed in patients considered “high risk” with preoperative Gleason =8, high-volume Gleason 7, PSA =10ng/ml, and/or clinical T3 disease. Limited PLND included external iliac nodes while extended PLND also included obturator, hypogastric and common iliac nodes up to the crossing of the ureter.

Results: Mean PSA was 5.49ng/ml (0.73-50.14), and median preoperative Gleason score was 7 (6-9). Mean operative time was 184min. Mean number of nodes removed was 10.7 overall (1-34) and 17.4 for extended PLND. Seven (7%) patients had positive lymph nodes with a mean of 2.5 positive nodes (1-4). All patients who were found to have positive nodes were among the 33 patients deemed high risk who received extended PLND (7 of 33 or 21%), and all had =T3a disease on final pathology. Two patients (2%) developed infected lymphoceles requiring percutaneous drainage presenting >30days postoperatively and both after extended PLND, and one patient sustained a cautery injury to the ureter requiring a temporary ureteral stent.

Conclusions: Robotic PLND is feasible with low risk of complications. The role of limited PLND is unknown, but extended PLND at the time of robotic prostatectomy appears warranted for high risk patients.
Poster # 32

EXTENDED LYMPH NODE DISSECTION DURING ROBOTICALLY-ASSISTED RADICAL PROSTATECTOMY – INITIAL EXPERIENCE
Darren Katz, MD, Guilherme Godoy, MD, Lucas Nogueira, MD, David Yee, MD, Matthew Kaag, MD, Timothy Masterson, MD and Jonathan Coleman, MD (Presented By: Darren Katz)
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Introduction and Objectives: The most accurate staging method for assessment of LN involvement in prostate cancer is a lymph node dissection (LND). Standards for the template and extent of LND are not well defined. With transperitoneal approaches access is provided to more proximal lymph nodes of the pelvis and retroperitoneum. We compared the results of including a more proximal LND in a consecutive series of patients undergoing robotic assisted laparoscopic prostatectomy (RALP) to our standard LND to analyze the effective increase in LN yield and characterize the patterns of LN involvement.

Methods: Consecutive patients who underwent (RALP) between January 2007 to July 2008 by a single surgeon were included in this study. During 2007 the surgeon performed a standard LND (group 1) during RALP and in 2008 patients underwent an extended LND (group 2). LN packets were defined by vascular anatomic location. Standard LND included tissue between the external and internal iliac artery up to the common iliac bifurcation. Extended dissection included nodes obtained proximal to the common iliac vessel bifurcation and medial to the internal iliac artery.

Results: There were 94 patients in total, 62 patients in group 1 and 32 patients in group 2. The median (mean) number of total LNs retrieved in the standard and extended group were 12 (13.3) and 17.5 (21.4) respectively corresponding to a 46% (median) 60% (mean) increase in the number of nodes retrieved (p=0.001). Of the 5 patients with positive LNs (5.3%), 4 had an extended dissection. Two of these patients had positive LNs in the common iliac region, in one of whom was the sole site of involvement. The median time for the LND was 47 and 72 minutes in groups 1 and 2 respectively. There were 3 LND related complications in the group 1 (3.1%) and 1 in group 2 (4.8%), with a mean (median) follow-up of 239 (229) and 79 (43) days respectively.

Conclusions: Extending LND above the common iliac vessel bifurcation during RP results in an increase in the LN yield and may identify additional sites of involvement when compared to standard dissection. Of patients with identified nodal metastases 20% had involvement exclusively outside of our standard template. The addition of more proximal node dissection appears to be a safe technical modification of the LND but its role is yet to be established.

Poster # 33

OUTPATIENT PROSTATECTOMY: TOO MUCH TOO SOON OR JUST WHAT THE PATIENT ORDERED
Aaron Martin, MD, MPH, Rafael Nunez, MD, Jack Andrews, George Martin, MD, Paul Andrews, MD and Erik Castle, MD (Presented By: Aaron Martin)
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Objectives: To evaluate the feasibility of performing a robot assisted radical prostatectomy (RARP) as an outpatient procedure while maintaining patient satisfaction and safety. We have begun to perform extra-peritoneal (EP) RARP with same-day discharge in select patients. Herein we report our experience, selection criteria, and discharge criteria for outpatient RARP.

Methods: We performed a prospective study with 11 patients undergoing extraperitoneal robot assisted radical prostatectomy. These patients were counseled prior to the procedure that they would go home the evening of the procedure. The patients were then surveyed by a third party shortly after their return home using a previously scientifically validated instrument for patient satisfaction. Sociodemographic data, comorbidities, and outcomes were collected for analysis.

Results: All patients were successfully discharged home the day of surgery. Mean patient age was 62.2 years with a mean BMI of 26 kg/m2. Mean operative time was 117.6 minutes, mean console time was 76.7 minutes, and mean estimated blood loss was 168.2 cc. Mean indwelling catheter time was 7.5 days. No complications occurred in this series of patients. Satisfaction was unanimously high in all patients surveyed with most scores over 90%. No patient reported any ill effects from the shortened stay or felt rushed to leave the hospital.
Conclusions: The early experience with EP RARP as a same day surgery is promising. Preoperative patient counseling and selection is paramount. Patient satisfaction is not adversely affected by the shortened stay. Surgeon experience, assessment of intraoperative findings (such as bleeding and integrity of anastomosis), and adequate post-operative assessment is essential. Whether this can be translated to the transperitoneal approach remains to be seen.

**Poster # 34**

**INFLUENCE OF OBESITY ON SURVIVAL IN MEN TREATED WITH IMMEDIATE VERSUS DEFERRED ANDROGEN DEPRIVATION THERAPY FOR NODE-POSITIVE PROSTATE CANCER AFTER RADICAL PROSTATECTOMY AND PELVIC LYMPHADENECTOMY**

Dragan J. Golijanin, MD², Eric A. Singer, MD, MA², Yu-Hui Chen, MS¹, Judith Manola, MS¹, Ganesh S. Palapattu, MD² and Edward M. Meising, MD² (Presented By: Dragan J. Golijanin)

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**Introduction and Objectives:** Obesity has been implicated as a predictor of more aggressive pathologic features at prostatectomy and of decreased survival. The impact of obesity on overall survival (OS), progression-free survival (PFS), and prostate cancer-specific (PCS) mortality in men treated with immediate versus delayed androgen deprivation therapy (ADT) for node-positive prostate cancer after radical retropubic prostatectomy and pelvic lymphadenectomy was evaluated by examining the outcomes of a prospective, randomized cooperative group trial.

**Methods:** Eligible subjects enrolled in the Eastern Cooperative Oncology Group EST 3886 trial were randomly assigned to receive immediate ADT (n=47) or expectant management (n=51). Among these subjects, 95 had body mass index (BMI) information available. To better describe the associations between disease outcome and obesity, subject BMI was divided into underweight/normal (<18.5-24.9) or overweight/obese (25-30+) groups. OS and PFS were estimated using Kaplan-Meier curves. A two-sided log-rank test was used to measure the differences in OS and PFS. PCS mortality was compared between different groups with consideration of competing risks of death. Causes were defined as death from prostate cancer, or death from other causes, based on clinical record review and confirmed by death certificate.

**Results:** Among the 46 subjects in the immediate ADT arm with baseline BMIs, 14 were underweight/normal and 32 were overweight/obese, while among the 49 subjects in the delayed ADT group, 19 were underweight/normal and 30 were overweight/obese at baseline. BMI did not impact OS (P=0.30 vs. 0.57), PFS (P=0.79 vs. 0.09), or PCS mortality (P=0.88 vs. 1.00) in the immediate versus delayed ADT arms, respectively.

**Conclusions:** Obesity continues to have a major impact in the health of the United States, but obesity at the time of prostate cancer diagnosis and treatment does not seem to exert a significant influence on prostate cancer outcomes in men with node-positive disease after radical retropubic prostatectomy regardless of the timing of ADT.

**Poster # 35**

**COMPETING CAUSES OF DEATH IN MEN WITH PROSTATE CANCER: RESULTS FROM CAPSURE**

Cole Davis, MD, Peter Carroll, MD, MPH, Natalia Sadetsky, PhD, Eric Elkin, MPH and Maxwell Meng, MD (Presented By: Cole Davis)

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**Purpose:** The optimal management of men with prostate cancer remains uncertain. The prolonged natural history of disease combined with competing causes of mortality in the older population raises question of when treatment is indicated. We sought to examine these issues using a cohort of men with all stages of prostate cancer undergoing various treatments followed within a longitudinal database.

**Materials and Methods:** CaPSURE is a longitudinal observational registry of men with biopsy-confirmed prostate cancer. Among the 11,182 men diagnosed with various stages of disease between 1/1989 – 8/2004, we identified those who died during continued follow-up. Cause of death was determined and categorized as either prostate cancer-related or not. Clinical and sociodemographic characteristics of the two groups were analyzed using Chi-squared tests for categorical variables and analysis of variance for continuous variables. Odds ratio (OR) for the likelihood of dying from prostate cancer were derived using logistic regression, adjusting for clinical and demographic variables.
**Results:** A total of 825 men (7.3%) died during follow-up at a mean of 5.2 years. Nearly all men (98%) received some form of treatment. The majority of deaths (74%) were not related to prostate cancer but due to other comorbidities – cardiovascular disease (47%), other neoplasm (41%), and pulmonary disease (13%). Median time to death after treatment was comparable in the prostate cancer-related (57 months) and other cause (51 months) deaths.

**Conclusions:** Men with prostate cancer are more likely to die of non-prostate cancer-related causes and there appears to be no significant change in mortality among men choosing differing treatment strategies.

**Poster # 36**

**EFFECT OF HURRICANE KATRINA ON RACIAL DISPARITY IN PROSTATE CANCER TREATMENT IN SOUTHEASTERN LOUISIANA**

Sean Collins, MD², Joseph Su, PhD¹, Scott Delacroix, MD¹, Fontham Elizabeth, PhD³, Simonsen Neal, DPh¹, Schroeder Jane, DPh¹, Wu Xiao, DPh¹, Michel Merle, DPh¹, Jeannette Bensen, DPh¹ and James Mohler, MD¹, MD¹, MD¹ (Presented By: Sean Collins)

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**Introduction and Objective:** Hurricane Katrina caused the closing of The Medical Center of Louisiana at New Orleans and the relocation of the LSUHSC Urology service to Houma, Louisiana. The effect of these events, race and income level on treatment of prostate cancer was evaluated in men enrolled in the North Carolina - Louisiana Prostate Cancer Project (PCaP), a population-based case-only study of men with newly diagnosed prostate cancer.

**Methods:** Research subjects enrolled on PCaP in Louisiana between 7/1/2004-8/29/2005 and 7/1/2006-8/31/2007 were studied. Prostate cancer subjects were identified through the rapid case ascertainment system at the Louisiana Tumor Registry. Study nurses administered structured questionnaires and collected blood, adipose tissue, urine, and toenail samples during in-home visits. Clinical data were abstracted from medical records, diagnostic biopsies were obtained, sectioned and reviewed, and tissue microarrays were constructed from radical prostatectomy specimens.

**Results:** 216 subjects (122 African Americans (AA) and 94 Caucasian Americans (CA)) enrolled pre-Hurricane Katrina and 374 subjects (119 AA and 255 CA) Post-Katrina were included in the analysis. Katrina produced no significant difference in the percentage of patients treated with prostatectomy, external beam radiation, brachytherapy, hormonal therapy, and other therapies (Post-Katrina: 50%, 8%, 11%, 16%, 15% vs. Pre-Katrina 44%, 16%, 7%, 21%, 12%, respectively). AA men (38%) were less likely (p=0.05) to undergo radical prostatectomy compared to CA men (49%) post-Katrina. However, race and time period before and after Hurricane Katrina were not significantly associated with radical prostatectomy after adjusting for income, comorbidity, age, and tumor aggressiveness at diagnosis (OR=0.80, p=0.36; OR=1.02, p=0.93), respectively. Patients with lower incomes were less likely to undergo radical prostatectomy than wealthier patients (multivariate analysis, OR=1.435, p=0.003).

**Conclusions:** The disparity in prostate cancer treatment in southeastern Louisiana is more closely related to income level than race or the occurrence of Hurricane Katrina.

**Poster # 37**

**THE ASSOCIATION OF OBESITY AND PROSTATE TUMOR INFLAMMATORY INFILTRATE IN MEN UNDERGOING RADICAL PROSTATECTOMY**

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**Introduction and Objectives:** Emerging evidence suggests that prostatic inflammation may contribute to both initiation and progression of prostate cancer. Obesity, a known risk factor for advanced prostate cancer and cancer-specific death, is reported to promote a pro-inflammatory state. We investigated the relationship between prostate tumor inflammation and obesity among patients undergoing radical prostatectomy (RP).

**Methods:** A total of 254 men who underwent RP at the Durham VA Medical Center from 1993 to 2004 with slides available for pathological review were included in the study. Cases were reviewed by a single pathologist blinded to clinical information and graded for inflammation within the index tumor as 0 (no inflammation), 1 (mild: ≤10% tumor inflammation), and 2 (marked: >10% tumor inflammation). Logistic regression was used to determine the association of body mass index (BMI) with marked inflammation controlling for age, race, pre-operative PSA, clinical stage, biopsy Gleason sum, year of surgery, pathological Gleason sum, surgical margins, extracapsular extension, seminal vesicle invasion, lymph node invasion and prostate specimen weight.

**Results:** Thirty-three percent of overweight/obese men (BMI ≥25 kg/m²) had grade 2 inflammatory infiltrates in their prostate tumors compared to 21% among normal weight men. After controlling for demographic and clinicopathological variables, overweight/obese men were more likely to have marked inflammation in their tumors relative to normal weight men (OR=2.57; 95% CI=1.08-6.14; p=0.03).

**Conclusions:** In a cohort of men undergoing RP, excess body weight was associated with marked inflammation within the prostate tumor. Studies investigating inflammation as a possible contributor to unfavorable prostate cancer outcomes in patients with increased BMI are warranted. Exploring the link between inflammation and obesity may also present opportunities for new preventative/therapeutic strategies for this subset of high-risk subjects.

**Poster #38**

**RESOLUTION OF ACUTE URINARY SYMPTOMS AFTER PROSTATE BRACHYTHERAPY WITH CESIUM-131**

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**Introduction and Objective:** Recently a new radioisotope, Cesium-131 (131Cs) (IsoRay Medical Inc., Richland, Washington, USA), has been introduced for use in prostate brachytherapy (PB). One of the major proposed benefits of 131Cs is a possible shorter duration of the bothersome voiding and symptoms when compared to Iodine-125 (125I) and Palladium-103 (103Pd). Our center began using 131Cs in September 2006, and the present study evaluates the severity and time to resolution of acute urinary symptoms in men undergoing PB with 131Cs.

**Methods:** A longitudinal, prospective study of patients who have undergone PB with 131Cs at a single institution was performed. All patients were asked to complete the Expanded Prostate Cancer Index Composite (EPIC) pre-operatively and at 2 weeks, 1 month, 2 months, 3 months, and 6 months post-operatively.

**Results:** The first 100 patients to have undergone PB with 131Cs at our institution were included in the study. On the EPIC survey, the mean urinary summary score at baseline was 86.0±10.7 compared to 60.8±16.6 (p<0.0001), 61.1±15.1 (p<0.0001), 68.3±15.8 (p<0.0001), 79.7±15.0 (p=0.001), and 82.7±17.8 (p=0.23) at 2 weeks, 1 month, 2 months, 3 months, and 6 months post-operatively, respectively. Based on this survey, overall urinary symptoms returned to baseline clinically by 3 months and returned to baseline statistically by 6 months. Urinary subscales followed the same course.

**Conclusion:** In patients undergoing PB with 131Cs, post-operative urinary symptoms had largely returned to baseline at 3 months. These results suggest that the duration of bothersome urinary symptoms associated with PB is shorter with the 131Cs isotope when compared to 125I and 103Pd.
Poster # 39

EXTENDED LYMPHADENECTOMY IN RADICAL PROSTATECTOMY: A MULTICENTER STUDY
Michele Lodde, MD, Louis Lacombe, MD, François Harel, David Wood, MD, Michael Harris, MD and Yves Fradet, MD (Presented By: Michele Lodde)

Background: Extended lymphadenectomy (PLND) in radical prostatectomy (RP) increased the yield of total and positive lymph nodes (LN). Positive LN are often localized in the internal iliac region. In this study we analysed the impact of extended (with internal iliac LN) versus standard and no PLND on PSA failure.

Material and Methods: RP patients from three different Urological Departments, A, B and C, have been retrospectively compared. From 3328 patients, 2776 were analyzed after exclusion of those that received neoadjuvant therapy. Group A performed perineal RP (no PNLD), B retropubic RP and standard PNLD and C retropubic RP and extended PLND. PSA failure was defined for A and B as PSA > 0.2 ng/ml and for C > 0.3 ng/ml. Median LN removed and positive LN, Kaplan-Maier curves for PSAF according to PSA<10 PSA>10 and Cox regression analyses (adjusting for age, initial PSA, pTNM, adjuvant Androgen Deprivation Therapy or adjuvant Radiotherapy) have been calculated.

Results: Group A (667 patients), B (1229) and C (870) had a median follow up of 4, 3.13 and 6.28 years, respectively. The clinical and pathological characteristics differed for the three group with more pT3 stage, pN+, Gleason >7 and higher baseline PSA for the group C. The PNLD template comprehensive of the internal iliac chain (group C), retrieved a median of 14 nodes compared to group B (median 5) (p<0.0001). Cox regression analysis showed that extended PNLD in patients with PSA>10ng/ml significantly (p=0.002) reduced the PSAF compared to standard PLND which was not different than no PLND. For PSA <10 only trend to PSAF reduction was reached.

Conclusion: PLND with inclusion of the internal iliac nodes increased the yield of total and positive LN removed. In patients with PSA > 10, extended PLND resulted in a significant 60% reduction in PSAF. Removing the nodes in the internal iliac region may result in a better cancer control, particularly in patients with higher risk cancers.

Poster # 40

OUTCOMES AFTER RADICAL PROSTATECTOMY IN MEN RECEIVING PRIOR PELVIC RADIATION FOR NON-PROSTATE MALIGNANCIES
Timothy A. Masterson, MD, Alexei Wedmid, MD, Jaspreet S. Sandhu, MD and James A. Eastham, MD (Presented By: Timothy A. Masterson)
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Purpose: While the morbidity associated with salvage radical prostatectomy (RP) for locally recurrent prostate cancer after primary radiotherapy have been well documented, little is known about the impact on surgical difficulty and outcomes for RP in men receiving prior pelvic radiotherapy for non-prostate malignancies. We report the functional outcomes in 9 patients treated at our institution.

Materials and Methods: From 1993 to 2007 RP was performed in 9 patients following external beam radiotherapy for testicular seminoma (6), anorectal cancer (2), and colon cancer (1). Clinical information was obtained from a prospective prostate cancer database.

Results: RP was completed without identifiable injury to adjacent structures in all 9 patients. Significant pelvic fibrosis was encountered in 4 patients, requiring bilateral NVB resection in 3 men. NVB preservation was performed in the remaining 6 patients, including all 4 patients with good preoperative erectile function. However, no patient recovered erectile function postoperatively at a median follow-up time of 19.1 months (range 11.6 to 172.1). Of preoperatively continent men, 57% required 1 pad daily or less and 43% were completely dry at a median follow-up time of 7.5 months (range 2 to 19). Two patients developed anastomotic stricture, with one being associated with concomitant ureteral stricture. Additionally, one patient developed meatal stenosis in the early postoperative period.

Conclusion: RP after radiotherapy to the pelvis for non-prostate malignancies was not associated with increased intraoperative morbidity. However, rates of anastomotic stricture, erectile dysfunction and urinary incontinence are higher than those observed after standard RP, and comparable to those seen in the salvage RP setting.
TIMING OF RADIATION THERAPY AFTER RADICAL PROSTATECTOMY: IMPACT ON METASTASES AND SURVIVAL

Stephen Boorjian, MD¹, R. Jeffrey Karnes, MD², Paul Crispen, MD², Laureano Rangel, MS², Eric Bergstrahl, PhD² and Michael Blute, MD²
(Presented By: Stephen Boorjian)
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Introduction and Objectives: Extraprostatic disease is found in approximately 45% of patients undergoing radical prostatectomy (RRP), while an estimated 25% of men experience biochemical recurrence (BCR) following surgery. Although there is little doubt that secondary local treatment with radiation therapy (RT) is most effective when administered to the least cancer burden, the optimal timing of RT after RRP remains in question. Here, then, we evaluated the impact of adjuvant (ART) and salvage (SRT) radiotherapy on the risks of disease progression and mortality.

Methods: We evaluated 13,308 consecutive patients who underwent RRP at the Mayo Clinic between 1987-2003. Patients who received ART were matched based on clinicopathological features to patients who did not receive ART in a 2:1 case-control ratio. Postoperative survival was estimated using the Kaplan-Meier method and compared using the log-rank test. A second cohort of men who experienced BCR following RRP was separately evaluated. Cox proportional hazard regression models were used to analyze the impact of SRT on disease progression and survival in this group.

Results: We identified 361 patients who received ART following RRP. Median postoperative follow-up in this cohort was 11.0 years (range 1.8-19.7). After matching clinicopathological variables, ART was associated with significantly improved 10-year BCR-free survival (63% vs. 45%, p<0.001), local recurrence (LR)-free survival (97% vs. 82%, p<0.001), and a decreased need for salvage androgen deprivation therapy (ADT) (17% vs. 28%, p=0.002), but did not impact the risks of systemic progression (SP) (p=0.94) or prostate cancer death (p=0.43). Meanwhile, of 2,657 patients who experienced BCR after RRP, 856 (32.3%) received SRT. Median PSA at SRT was 0.8 ng/ml, and median follow-up after SRT was 5.9 years (range 0-19). On multivariate analysis, SRT significantly reduced the risks of LR (HR 0.12; 95% CI 0.06-0.26; p<0.0001), SP (HR 0.30; 95% CI 0.16-0.56; p=0.0002), and delayed ADT (HR 0.63; 95% CI 0.55-0.74; p<0.001), but did not impact mortality (HR 1.06; 95% CI 0.79-1.42; p=0.70).

Conclusions: Both ART and SRT provide durable local control, improve long-term BCR-free survival, and decrease the need for delayed ADT. SRT was further associated with a decreased rate of SP, but neither ART nor SRT improved survival. These results must be weighed against the potential morbidity of postoperative RT in counseling patients.

Source of Funding: None

Poster # 42

BILATERAL PERINEURAL INVASION IN PATIENTS WITH PROSTATE CANCER PREDICTS SIGNIFICANTLY DECREASED FIVE YEAR BIOCHEMICAL DISEASE FREE SURVIVAL AFTER BRACHYTHERAPY

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Objective: The prognostic significance of perineural invasion (PNI) of prostate cancer identified on prostate needle biopsy is controversial. The purpose of this study is to evaluate the significance of PNI in patients treated with radiation therapy.

Methods: The pathology of prostate needle biopsies of 649 men treated with radiation therapy for prostate cancer was reviewed. Complete treatment and subsequent PSA records were available in 430 patients who were included in the analysis. The cohort was divided into three groups: 1) no PNI (n=355), 2) unilateral PNI (n=65), and 3) bilateral PNI (n=10). Fisher exact tests were used to compare bilateral PNI to non-bilateral PNI on the proportions receiving external radiation and/or hormone suppression. Independent groups t tests were used to compare the groups on D90 (in Gray). Cox proportional hazard regressions were performed to examine the effect of PNI on disease-free survival both before and after adjustment for the clinical covariates of external radiation, D90, and hormone use.
**Results:** The patients in the bilateral PNI group were more likely to receive external radiation and to have a higher D90 (p=.0019 and p=.0355, respectively). Cox regression showed a significantly greater likelihood of disease recurrence in the bilateral PNI group, Hazard Ratio=7.65 (95% CI 2.69-21.79). After adjustment for the clinical covariates of external radiation, D90, and hormone suppression, the bilateral PNI group still exhibited a greater likelihood of disease recurrence, Hazard Ratio=4.81 (95% CI 1.52-15.25). Kaplan Meier curve estimates of biochemical disease free survival at 5 years were 93% for the no PNI group, 87% for the unilateral PNI group, and 51% for the bilateral PNI group (p=.0001).

**Conclusion:** In this large cohort of men treated for prostate cancer with brachytherapy, bilateral PNI is significantly associated with a decreased biochemical disease free survival, even when controlled for D90, external radiation, and hormone suppression.

**Poster # 43**

**GEOGRAPHIC ANALYSIS OF UROLOGIST DENSITY AND PROSTATE CANCER MORTALITY**

Anobel Odisho, MD, Vincent Fradet, MD, Matthew R. Cooperberg, MD MPH, Ardalan E. Ahmad, MD and Peter R. Carroll, MD MPH (Presented By: Vincent Fradet)

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**Purpose:** The adequacy of the urologist workforce, in both absolute numbers and relative distribution, is unclear. It is also not known how access to a urologist affects patient outcomes. Development of effective policies to address the needs of an aging population will require better understanding of the urologist workforce. We aim to assess the geographic distribution of urologists throughout the United States at the county level, to determine the county characteristics that attract urologists, and determine if the effect of these predictors varies based on urologist age. In addition, we seek to determine the effect of urologist density on prostate cancer mortality.

**Materials and Methods:** Data from the Area Resource File, US Census, National Cancer Institute, National Program of State Cancer Registries and SEER were used in this ecological study to build logistic regression and ordinal logistic regression models in a stepwise backwards fashion. All analyses were performed at the county level and results were then mapped across the US.

**Results:** Overall, 63% of US counties lack a urologist. In multivariate models, urologists were less likely to be found in non-metropolitan counties (OR 0.57, 95% CI 0.46-0.72) and rural counties (OR 0.03, 95% CI 0.02-0.06) than in metropolitan counties, which confirmed visually mapped models. Their location also appeared to be influenced by climate and county education levels, rather than traditional socioeconomic measures. Urologists under age 45 were three times less likely to be located in non-metropolitan counties as their older counterparts (OR 0.23 95% CI 0.17-0.30 compared to OR 0.58 95% CI 0.45-0.71). Annual prostate cancer mortality decreases by 5.04 cases per 100,000 (15.6%) when there is at least one urologist in that county compared to none. No additional prostate cancer mortality benefit was observed when urologist density increased above one per county.

**Conclusion:** Urologists are unevenly distributed throughout the US and more likely found in urban, well-educated counties with mild climate, and the maldistribution is likely to worsen as younger physicians continue to cluster in urban areas. While having at least one urologist in the county is associated with improved prostate cancer mortality, increasing urologist density after the first urologist only provides minimal benefits. Governing bodies must address urologist maldistribution in their calls for increasing the number of training positions.

**Poster # 44**

**LOCAL VARIATION IN PRIMARY TREATMENT OF LOCALIZED PROSTATE CANCER**

Matthew Cooperberg, MD, MPH, Jeanette Broering, MS, MPH and Peter Carroll, MD, MPH (Presented By: Matthew Cooperberg)

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**Introduction:** We aimed to characterize and quantify variation in the approach to primary management of localized prostate cancer at the level of clinical practice sites.

**Methods:** Data were abstracted from patients accrued to the CaPSURE national prostate cancer registry. Patients were accrued from the 36 clinical practice sites which contributed at least 30 patients to the registry, and represented all those diagnosed since 1990 with localized prostate cancer.
disease who received radical prostatectomy (RP), external beam radiation therapy (EBRT), brachytherapy, active surveillance/watchful waiting (WW), or primary androgen deprivation therapy (PADT) were included. Descriptive analyses were performed, and a random effects logit hierarchical model was constructed, controlling for year of diagnosis, age, comorbidity, PSA, Gleason score, clinical T stage, and percent of biopsy cores positive, to estimate the proportion of variation in primary treatment selection explicable by practice site. Analyses were conducted for all patients and for low-risk patients (Gleason score =6, PSA =10 ng/ml, clinical stage =T2a).

Results: 10,080 men were analyzed. The distribution among primary treatments at each clinical practice site varied widely: use of RP, for example, ranged from 12% to 95% of enrolled patients. Patterns of treatment are not reliably explained by patient risk distribution at each site. The proportion of variation attributable to clinical practice sites was 10% for PADT, 19% for WW, 21% for EBRT, 28% for RP, 37% for brachytherapy, and 75% for cryotherapy. For low-risk patients only, this proportion was higher for all treatment types except brachytherapy and cryotherapy. Only a small amount of the variation attributable to practice site can be explained by measured sociodemographic factors such as ethnicity, income, education, and geographic region. There are significant trends in treatments over time, including more use of PADT for intermediate- and high-risk patients, and more use of RP and WW for low-risk patients.

Conclusions: These data do not represent a random sampling of the United States population. However, the significant variation in practice patterns across individual clinical sites suggests that factors other than patient clinical and sociodemographic factors may be driving selection of primary treatment.

Poster # 45

RACE AND TIME FROM DIAGNOSIS TO RADICAL PROSTATECTOMY: DOES EQUAL-ACCESS MEAN EQUAL TIMELY ACCESS TO THE OPERATING ROOM? — RESULTS FROM THE SEARCH DATABASE

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Introduction and Objectives: African-American men with prostate cancer are at higher risk for cancer-specific death relative to Caucasians. We sought to determine whether significant delays in disease management contribute to this disparity. We hypothesize that in an equal-access health system, the time interval from diagnosis to treatment would not differ by race.

Methods: We identified 1,532 African-American and Caucasian men who underwent radical prostatectomy from 1988 to 2007 at one of the four Veterans Affairs Medical Centers that comprise the Shared Equal-Access Regional Cancer Hospital (SEARCH) database with known date of biopsy. We compared the time from diagnostic prostate biopsy to radical prostatectomy between ethnic groups using linear regression while adjusting for demographic and clinical variables. We also analyzed the risk of potential clinically relevant delays by determining the odds of delays >90 days and >180 days.

Results: Median time interval from diagnosis to surgery was 76 days for African-Americans and 68 days for Caucasians (p=0.004). However, after controlling for demographic and clinical variables, race was not associated with the time interval between diagnosis and surgery (p=0.09). Furthermore, race was not associated with increased risk of delays >90 days (p=0.45) or >180 days (p=0.31).

Conclusions: In a cohort of men, all undergoing radical prostatectomy in an equal-access setting, there was no significant difference between racial groups with regards to time interval from diagnosis surgery. Thus, equal-access includes equal timely access to the operating room. These findings need to be confirmed in patients being managed in other clinical settings and electing other treatment modalities.
Poster # 46

INFLAMMATION IS ASSOCIATED WITH MORE AGGRESSIVE PROSTATE CANCER
Joseph Klink, MD¹, Jayakrishnan Jayachandran, MD¹, Lionel Banez, MD¹, Leah Gerber, MS², Amy Lark, MD³, Robin Vollmer, MD¹ and Stephen Freedland, MD¹ (Presented By: Joseph Klink)
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Introduction: Inflammation may play a role in the development and progression of many cancers, including prostate cancer. We sought to test whether histological inflammation within prostate cancer was associated with more aggressive disease.

Methods: The H&E slides of the entire prostatectomy specimen were reviewed by a board certified pathologist on 244 men from a Veterans Affairs Medical Center treated from 1992 to 2004. The area with the greatest tumor burden was identified and the slides corresponding to that area were reviewed for the degree of inflammation in a blinded manner by a separate board certified pathologist. Inflammation was graded as absent (0), mild (1), or marked (2). We used logistic and Cox proportional hazards regression analysis to examine whether continuously coded inflammation score was associated with adverse pathology and biochemical progression, respectively.

Results: No inflammation was found in 44 (18%), while 129 (53%) and 71 (29%) had mild and marked inflammation. On univariate analysis, more inflammation was associated with greater risk of high-grade disease (Gleason 4+3 or higher; OR 1.6, p=0.04), positive margins (OR 1.7, p=0.01), capsular penetration (OR 1.7, p=0.02), seminal vesicle invasion (OR 2.2, p=0.01), and a trend for increased PSA recurrence risk (HR 1.3, p=0.07). After adjusting for pathological features, more inflammation remained significantly associated with risk of positive margins (OR 1.6, p=0.03) and seminal vesicle invasion (OR 2.2, p=0.04), but not capsular penetration (OR 1.3, p=0.31), high-grade disease (Gleason 4+3 or higher; OR 1.3, p=0.36), or PSA recurrence (HR 1.0, p=0.88). When only adjusting for pre-operative features, there was a trend for more inflammation to be associated with increased PSA recurrence risk (HR 1.3, p=0.07).

Conclusions: Inflammation within prostate cancer was associated with more advanced disease and PSA recurrence. This may be due to inflammatory mediators promoting malignant transformation of aggressive prostate cancer. Alternatively, more aggressive tumors may be more immunogenic. These findings corroborate growing evidence linking inflammation and aggressive prostate cancer. Given inflammation may be associated with progression risk when adjusting for pre-operative features, future studies should examine whether inflammation within the biopsy specimen can be used for clinical risk stratification.

Poster # 47

THE SHARED EQUAL ACCESS REGIONAL CANCER HOSPITAL (SEARCH) NOMOGRAM FOR RISK STRATIFICATION IN INTERMEDIATE RISK GROUP OF MEN WITH PROSTATE CANCER: VALIDATION IN THE DUKE PROSTATE CENTER (DPC) DATABASE
Jayakrishnan Jayachandran, Florian Schroek, MD, Leon Sun, MD, Leah Gerber, MS, Daniel Moreira, MD, Judd Moul, MD, FACS and Stephen Freedland, MD (Presented By: Jayakrishnan Jayachandran)
Duke University, Durham, NC

Introduction and Objectives: Randomized trials found adjuvant radiation delays biochemical recurrence among men with positive margins or extracapsular extension, but with increased complications. We developed the Shared Equal Access Regional Cancer Hospital (SEARCH) nomogram to better risk stratify men with intermediate risk pathology after prostatectomy (positive surgical margins and/or extracapsular disease without seminal vesicle or lymph node involvement). We sought to validate this nomogram in a tertiary referral center – the Duke Prostate Center (DPC).

Methods: Retrospective analysis of 465 men in the DPC cohort was done after excluding men with organ confined disease with negative margins and men with seminal vesicle or lymph node involvement. The predicted risk of biochemical recurrence free survival at 1, 3 and 5 years were estimated by the SEARCH and the Kattan postoperative nomograms. Calibration plots were generated and accuracy assessed with Concordance Index.
Results: Mean and median follow-up of men who did not recur were identical - 40 months. Approximately 24% of patients experienced biochemical recurrence. The SEARCH nomogram appeared well calibrated with good separation among risk-groups with ranges from <60% to >80% recurrence free survival at 5-years (see figure). In comparison, overall internal calibration appeared less robust for the Kattan nomogram. The SEARCH model had an overall predictive accuracy of 0.65, which compared favorably to the Kattan nomogram (0.56).

Conclusions: In an external dataset, the SEARCH nomogram to predict biochemical recurrence for men at intermediate risk after prostatectomy was well calibrated and performed better than the postoperative Kattan nomogram.

Poster # 48

PROSPECTIVE LONGITUDINAL COMPARISON OF QUALITY OF LIFE OUTCOMES FOLLOWING TREATMENT OF LOCALIZED PROSTATE CANCER
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Introduction: Quality of life (QOL) concerns factor prominently in prostate cancer management. We previously reported short-term QOL outcomes following treatment for prostate cancer. Herein we update our prospective outcomes analysis to reflect greater patient accrual and longer follow-up.

Methods: A prospective longitudinal survey of patients with newly diagnosed prostate cancer was initiated in 2001. All patients undergoing treatment by open radical prostatectomy (ORP), DaVinci robot-assisted prostatectomy (DVP), brachytherapy (BT), or cryotherapy (CT) were asked to complete the RAND-UCLA quality of life questionnaire before treatment and at 1, 3, 6, 12, 18, 24, 30, and 36 months following treatment. Patient demographics, disease characteristics, and outcomes were compared across treatment types with statistical analysis utilizing univariate and multivariate models.

Results: After exclusions for insufficient follow-up or adjuvant/salvage treatment, 750 patients treated between February 2001 March 2008 were included in the analysis. Mean follow-up for each treatment group was: 32 months for ORP, 19 months for DVP, 33 months for BT, and 22 months for CT. At 24 month follow-up, average percent of baseline function scores for urinary function/bother were: ORP 82%/88%, DVP 74%/82%, BT 89%/94%, CT 107%/96% (p<0.001/p=0.04). Corresponding scores for sexual function/bother were: ORP 45%/49%, DVP 40%/44%, BT 71%/74%, CT 48%/61% (p<0.001/p<0.001). Men undergoing BT or CT were 2.74 times more likely to return to 90% of baseline urinary function score compared to men undergoing ORP or DVP. CT and BT were also associated with greater return to 90% of baseline urinary bother scores, compared to ORP and DVP. In the multivariate model, men undergoing BT were more likely to return to baseline sexual function (HR=5.15, p<0.001) compared to men undergoing CT, ORP, or DVP. Rate of return to 90% of baseline sexual function was slowest for men undergoing ORP. Men having BT or CT had an 86% greater rate of return to baseline sexual function than men having ORP.

Conclusions: Prospective use of validated patient questionnaires offers a robust measure of QOL outcomes following prostate cancer treatment. Based on these measures, BT and CT are associated with superior outcomes with respect to urinary function and bother, compared to ORP and DVP. BT is associated with superior outcomes with respect to sexual function and bother.

Poster # 49

IMPACT OF DELAY FROM FIRST ELEVATED PROSTATE-SPECIFIC ANTIGEN TO RADICAL RETROPUBIC PROSTATECTOMY
Kenneth Nepple, MD, Stephen Hillis, PhD², Terry Wahls, MD² and Fadi Joudi, MD¹ (Presented By: Kenneth Nepple)
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Introduction and Objective: Previous studies have evaluated the impact of delay from prostate biopsy to radical retropubic prostatectomy (RRP) on oncologic outcome. Our objective was to evaluate the impact of delay from first elevated prostate-specific antigen (PSA) to RRP.

Continues on next page
Methods: We performed a retrospective review of RRP cases performed over a six year period at a Veterans Affairs hospital with an electronic medical record that allowed us to determine the initial date of PSA elevation (PSA >4.0). We collected data on the delay between elevated PSA and RRP, as well as pathologic stage and postoperative PSA.

Results: 112 men underwent RRP at a median age of 61.8 years. Median first elevated PSA was 5.24. Median time from first PSA elevation to RRP was 146 days (range: 37 to 1516 days). There was no association seen between delay and pathologic stage or Gleason grade at RRP (p=0.16 and 0.49). Patients with a positive surgical margin at RRP had a longer delay from elevated PSA to RRP (mean 338 days versus 263 days), but this relationship was not statistically significant (p=0.16). At a median follow-up time of 2.7 years, the length of delay was not different (p=0.26) in those with (n=38) and without (n=74) detectable PSA.

Conclusions: In a cohort of men with an antecedent abnormal PSA value who underwent RRP, delay from elevated PSA to RRP did not have an adverse impact on pathologic outcome.

Poster # 50

PREVALENCE AND PREDICTIVE FACTORS FOR THE DEVELOPMENT OF DE NOVO PSYCHIATRIC ILLNESS IN PATIENTS RECEIVING ANDROGEN DEPRIVATION THERAPY FOR PROSTATE CANCER

Christopher DiBlasio, MD¹, Jamin Brahmbhatt, MD¹, Reza Mehrazin, MD¹, Jessica Hammert, MD¹, John Malcolm, MD¹, Jamie Womack, MD², Matthew Kincade, MD¹, John Mancini, MD¹, Mitch Ogles, MD¹, Kimberly Lamar, PhD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹, Robert Wake, MD¹ and Beth Judge, MD² (Presented By: Christopher DiBlasio)

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Introduction and Objectives: Androgen deprivation therapy (ADT) remains a widely utilized modality for treatment of localized and advanced prostate cancer (CaP). While ADT-induced alterations in testosterone have demonstrated impacts on quality of life, the effects on mental health remain ill-defined. We investigated the prevalence of de novo psychiatric illness and predictive factors following ADT induction for CaP.

Methods: We retrospectively reviewed patients receiving ADT for CaP at our institution between 1/1989-7/2005, excluding men receiving only neoadjuvant ADT. Variables included age, race, body mass index, prostate-specific antigen (PSA), Gleason sum, clinical stage, ADT type (medical/surgical) and schedule (continuous/intermittent), and presence of pre-ADT and newly diagnosed psychiatric illness. The cohort was divided into three groups for analysis: pre-ADT psychiatric illness, de novo psychiatric illness, and no psychiatric illness. Data analysis utilized statistical software with p<0.05 considered significant.

Results: After exclusions, 395 patients with a mean age of 71.7 years at ADT initiation were analyzed. Thirty-four men (8.6%) were diagnosed with pre-ADT psychiatric illness. At mean follow-up of 87.4 months, 101 (27.9%) men were diagnosed with de novo psychiatric illness, most commonly including: depression (n=57; 56.4%), dementia (n=14; 13.9%), and anxiety (n=9; 8.9%). On multivariate analysis, increasing pre-ADT PSA was predictive of post-ADT anxiety (p=0.01). Overall and disease-specific survival outcomes were similar between groups.

Conclusions: De novo psychiatric illness was identified in 27.9% of men. While no predictive factors were identified for de novo psychiatric illness, increasing PSA was associated with de novo anxiety. Prospective investigation using validated instruments is requisite to further delineate the relationship between ADT and psychiatric health.

Poster # 51

FAMILY HISTORY MAY NOT PREDICT DEVELOPMENT OF PROSTATE CANCER DIAGNOSIS: RESULTS FROM A CONTEMPORARY SCREENING POPULATION

Christopher DiBlasio, MD¹, Reza Mehrazin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Changhong Yu, PhD², Michael Aleman, MD¹, Anthony Patterson, MD¹, Robert Wake, MD¹, Ithaar Derweesh, MD¹ and Michael Kattan, PhD² (Presented By: Christopher DiBlasio)

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Introduction and Objectives: Family history (FHx) of prostate cancer (CaP) has been regarded as a strong risk factor for subsequent disease development. Herein we investigate the prognostic importance of family history in a contemporary screening population.
**Poster Session I**

**Methods:** After IRB approval, all patients undergoing primary transrectal ultrasound-guided (TRUS) prostate biopsy for CaP detection at a single center at our institution (VAMC Memphis) between 2/2000-9/2007 were reviewed. Patients undergoing repeat biopsies were excluded. Variables included age at biopsy, race, clinical stage, prostate specific antigen (PSA), number of cores removed, TRUS prostate volume (TRUS PV), body mass index (BMI), FHx, and pathology results. Univariate/multivariate Cox proportional hazards regression analysis was performed to assess the importance of variables in predicting CaP development. S-PLUS 2000 statistical software was utilized with p<.05 considered significant.

**Results:** 1542 consecutive patients underwent primary TRUSB with a mean age of 64.4 (34.9-89.2) years, PSA of 20.8 (0.3-3900) ng/mL, number of cores of 9.7 (1-22) and TRUS PV of 42.6 (9.6-212.0) cm3. CaP was diagnosed in 561 (36.4%) patients. FHx was positive in 187 (12.1%) men. On univariate analysis, age (p<.0001), race (p<.0001), clinical stage (p=.003), TRUS PV (p<.0001), and PSA (p<.0001) were significant predictors of CaP development, while FHx (p=0.19), BMI (p=0.75), and number of cores (p=0.13) were not. On multivariable analysis, all variables were significantly predictive of CaP development except FHx (p=0.16) when adjusting for the remaining variables.

**Conclusions:** FHx did not predict the development of CaP on univariate or multivariate analysis. FHx may not play as pivotal a role as a risk factor for contemporary patients screened for CaP.

**Poster # 52**

**PUERTO RICAN MEN WITH PROSTATE CANCER EXHIBIT A HIGH INCIDENCE OF OBESITY WHICH POSITIVELY CORRELATES WITH GLEASON GRADE AND STAGE**

Ricardo Sanchez-Ortiz, MD (Presented By: Ricardo Sanchez-Ortiz)
University of Puerto Rico, San Juan, PR

**Introduction and Objective:** Despite their distinct cultures, patients of Central American, South American, and Caribbean descent have been traditionally grouped as “Hispanic” for epidemiological purposes (SEER database). No studies to date have described the prostate cancer characteristics of Puerto Rican men, a community with a unique heritage composed of European, African, and Native American influences.

**Methods:** In 2005, a prospective database was developed to collect clinical, pathologic, quality of life, and outcome data for all cancer patients treated at our Institute in Puerto Rico. Herein we describe the clinical and pathologic characteristics of the initial 100 consecutive prostate cancer patients treated with radical retropubic prostatectomy by a single surgeon.

**Results:** Mean age was 58.4 years with a mean body-mass index (kg/m²) of 28.9 (range: 22 to 38). Thirty eight percent of patients exhibited a BMI = 30 (obese), higher than reported in contemporary series as ranging between 17 to 24% (Freedland et al, Urology. 2007;9:495; Cancer. 2006;107:521). With an increasing BMI, patients exhibited a progressively higher risk of having Gleason score 7 or extraprostatic disease as follows: BMI < 25 (17%), BMI 25 to 29.9 (38%), BMI 30 to 34.9 (52%), and BMI = 35 (62%) (p = 0.041). For all patients, the mean pre-treatment serum PSA was 6.93; 82% of patients had clinical stage T1c and 92% of patients had undergone ≥ 8 biopsy cores with a median number of 2 positive cores. Biopsy Gleason scores were 2-6 in 76%, 3+4 in 10%, and =4+3 in 14%. Prostatectomy Gleason scores were 2-6 in 59%, 3+4 in 26%, =4+3 in 15%. Upgrading was seen in 22% and downgrading in 5% of patients. Pathologic features included extracapsular extension in 13%, seminal vesicle invasion in 2%, positive surgical margins in 9%, and positive lymph nodes in 3%.

**Conclusions:** This report constitutes the first description of the clinical features of men with prostate cancer treated in the United States territory of Puerto Rico. These data corroborate the high prevalence of obesity in the island and validate the previously reported correlation between BMI and tumors of more aggressive grade and stage in a racially unique cohort of patients. Additional prostate cancer research is warranted to elucidate whether epidemiological differences exist between “Hispanic” patients of Mexican and Central American descent and those with African-Caribbean heritage.
POSTER SESSION I

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Poster # 53

AGE AS A PREDICTOR OF BIOCHEMICAL FAILURE AFTER RADICAL PROSTATECTOMY
LaMont Barlow, Gina Badalato, MD, Mitchell Benson, MD and James McKiernan, MD (Presented By: LaMont Barlow)
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Introduction and Objectives: Preoperative PSA level, Gleason score, and tumor stage have all been shown to influence risk of biochemical failure (BCF) after prostatectomy. This study evaluates the effects of age on BCF-free survival in distinct groups of prostate cancer patients stratified by established preoperative risk factors.

Methods: Using the Columbia Comprehensive Clinical Database of Urologic Oncology, a retrospective analysis of all men treated with radical prostatectomy for prostate cancer from 1988 to 2008 was conducted. Patients were divided into two groups by age, and BCF-free survival rates were analyzed using Kaplan-Meier survival curves. The subgroups were stratified by preoperative PSA level, Gleason score, and clinical stage; multivariate analyses with cox proportional hazards models were used to further identify independent predictors of recurrence. Biochemical failure was defined as a single PSA level of 0.2 ng/ml or greater at least 28 days after surgery.

Results: 1984 patients were divided into groups 1 (n=1325, age 40-64) and 2 (n=659, age greater than or equal to 65). Five-year BCF-free survival rates were 80.6%(CI: 78.0-82.9%) and 75.6%(CI: 71.5-79.1%) for groups 1 and 2, respectively. In the univariate model, young age was significantly associated with a decreased overall risk of BCF (HR 0.77, p=0.013). However, in multivariate analyses accounting for PSA, Gleason score, and clinical stage, age was not shown to be an independent predictor of BCF (HR 0.97, p<0.0001). In patients with low-grade cancer, young age was associated with an even lower risk of BCF (HR 0.68, p=0.035), and this finding held true in the multivariate model (HR 0.77, p<0.0001).

Conclusions: Younger patients who undergo radical prostatectomy for prostate cancer tend to have decreased risk of recurrence, with a greater survival benefit seen in patients with low-grade disease. Age was only found to remain an independent predictor of cure in patients with low-grade cancer.

Poster # 54

PREDICTING PROSTATE BIOPSY OUTCOME: ARTIFICIAL NEURAL NETWORKS AND POLYCHOTOMOUS REGRESSION ARE EQUIVALENT MODELS
Nathan Lawrentschuk, MB, BS, FRACS¹, Gina Lockwood, PhD², Peter Davies, PhD², Andy Evans, MD, PhD³, Joan Sweet, MD³, Ants Toi, MD⁴ and Neil Fleschner, MD, MPH, FRCSC⁵ (Presented By: Nathan Lawrentschuk)
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Introduction: Complex models utilizing multiple inputs to derive a risk assessment may benefit prostate cancer (PC) detection where focus has been on prostate-specific antigen (PSA). Two primary techniques are available to assess the impact of multiple variables on outcome: polytomous regression (PR) and artificial neural networks (AN). Although regression is inherently more “understandable”, AN are superior in many settings. This study develops and compares AN and PR models for predicting biopsy results.

Methods: A sample of 3025 men undergoing TRUS guided biopsy (BX) at University Health Network, Toronto, Canada with PSA <10 ng/ml were selected. BX outcome was classified as benign, atypical small acinar proliferation or high-grade prostatic intraepithelial neoplasia (ASAP/PIN), non-significant (NSPC) or clinically significant (CSPC) PC. NSPC were Gleason 6, =3 positive cores <50% any core. PR and three layer AN models were developed to distinguish between BX categories. Predictors were age, PSA, abnormal digital rectal examination, positive transrectal ultrasound (TRUS), prostate volume and extended pattern BX (=10 cores).
Results: 44% of BXs were benign, 14% ASAP/PIN, 16% NSPC and 25% CSPC. Median age, PSA, and prostate volume were 64 yrs, 5.7ng/ml and 50cc. TRUS positive in 47%, DRE in 39%. PR and AN models did not differ on percentage BX outcomes correctly predicted (55%, 57% respectively), and provided extremely poor prediction for both ASAP/PIN (0% PR and AN) and NSPC (2% for both) outcomes. 74-78% of the ASAP/PIN were predicted to be benign, 2% NSPC and 20-24% CSPC. Similarly, for NSPC, 69-71% were predicted to be benign, 27-29% CSPC. Benign outcomes were well identified (86-88%), although 12-13% were classified as CSPC. CSPC was correctly identified in 65-66% with misclassifications largely benign (33% for both PR and AN).

Conclusions: Neither PR nor AN provided good predictions of the data. In particular, the ASAP/PIN and NSPC were not distinguished from benign or CSPC. Important predictors remain unidentified. In addition, unlike many other applications, AN did not perform better than PR. One explanation is that relationships between predictor and outcome variables in this application are quite simple whereas AN excels when relationships are complex with non-linearities and interactions. Inclusion of additional predictors may increase the complexity of the best-fit model and result in a superior performance by AN.

POSTER # 55

CAN WE PREDICT DOWN-STAGING OF CLINICAL T3 PROSTATE CANCER PRIOR TO RADICAL PROSTATECTOMY?
Seongil Seo, MD, Jongwook Park, MD¹, Seongsoo Jeon, MD¹, Moonki Jo, MD², Hyunn moo Lee, MD¹ and Hanyong Choi, MD¹ (Presented By: Seongil Seo)
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Objectives: Down-staging of clinical T3 (cT3) prostate cancer after radical prostatectomy (RP) is not uncommon due to the inaccuracy of the currently available staging modalities. Because selected down-staged cT3 patient can be a candidate for definitive RP, we determined the pre-operative predictors of down-staged cT3 prostate cancer.

Methods: We included 67 patients with cT3 stage prostate cancer treated with RP between 1998 and 2006 and reviewed their medical records retrospectively. The clinical stage obtained according to the DRE, the prostate biopsy findings and the imaging work-up. After determining the significant predictors of the down-staged cT3 patients, the diagnostic efficacy of each predictor was analyzed.

Results: Of a total 67 patients, 53 (79%)(mean age±S.D: 63±4.8) were down-staged after RP. The percent of positive cores had the strongest association with down-staging of cT3 (p=0.01, OR=6.3, 0.86=95%CI=8.0), followed by the baseline PSA (p=0.03, OR=5.0, 1.5=95%CI=481.8), the biopsy Gleason’s sum (GS) (p=0.03, OR=4.7, 1.3=95%CI=196.7) and the maximum tumor volume of the positive cores (p=0.05, OR=4.0, 1.0=95%CI=8.9). When the cut-off points of each predictor which were a PSA < 10ng/ml, a percent of positive cores = 30%, a maximum tumor volume of the positive cores = 75% and GS = 7 were combined, the sensitivity, specificity, PPV were 0.25, 1.00, 100%.

Conclusions: The percent of positive cores = 30%, the baseline PSA < 10ng/ml, the biopsy GS = 7, the maximum tumor volume of the positive cores = 75% were the significant predictors of down-staging cT3 disease after RP.

Poster # 56

SURGICAL MARGIN STATUS FOR RADICAL PROSTATECTOMY IN PATHOLOGICAL STAGE T2 DISEASE: A POPULATION-BASED STUDY
Nathan Lawrentschuk, MB, BS, FRACS¹, John Srigley, MD², Tom McGowan, MD³, Andy Evans, PhD, MD⁴ and Neil Fleschner, MD, MPH, FRCSG¹ (Presented By: Nathan Lawrentschuk)
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Introduction: It is well understood that in the treatment of prostate cancer with surgery, positive surgical margin (PSM) status varies between institutions and there is mounting evidence that high volume surgeons and centres obtain better oncological results. However, larger studies recording PSM for radical prostatectomy are from large centres of excellence and not on a population level. The aim of our study was to establish the province-wide PSM rate for pathological stage T2 disease prostate cancer and assess the overall and regional based PSM rates based on surgical volume.

Patients and Methods: A random audit of pathological reports from the Ontario Cancer Registry in Ontario, Canada was analyzed for PSM status among patients undergoing radical prostatectomy in 2005 and 2006. Data was collected within 43 regions known as Local Health Integration Networks (LHIN). The sampling consisted of a total of 1583 radical prostatectomies, representing around 60% of the provincial total. Only those with pathological stage T2 were considered as this is a more homogenous group. Regression analysis was performed to assess volume-margin associations.

Results: The province-wide surgical PSM rate for pathological stage T2 disease had a median of 32% (mean 33%). Regional rates of PSM ranged from 0-100% amongst a total of 43 regions (Figure 1). The volume of radical prostatectomies ranged from 2 to 67 per region. There was no significant correlation between volume and PSM (R = -0.2207, p <= 0.155).

Conclusion: The province-wide PSM rate for pathological stage T2 disease prostate cancer undergoing radical prostatectomy is higher than published centres of excellence. Although larger volume centres did better; results were not statistically significant which contradicts previously published data. Factors such as individual surgeon, patient selection, pathological processing and interpretation may explain differences.

Poster # 57

NATIONAL PATTERNS OF DIAGNOSIS AND TREATMENT OF LOCALIZED PROSTATE CANCER AT VETERANS ADMINISTRATION MEDICAL CENTERS
Ross Bauer, MD and Badar Mian, MD (Presented By: Ross Bauer)
Albany Medical Center, Albany, NY; Stratton VA Medical Center, Albany, NY

Introduction and Objectives: The Veterans Health Administration operates the largest healthcare network in the United States. A large proportion of VA patients are men over age 50. We sought to determine the trends for the detection and treatment of localized prostate cancer at the VA Medical Centers, and to investigate the changes in the pattern of care that may have occurred over time.

Methods: De-identified patient information was obtained from the VA Central Cancer Registry for all patients with clinically localized prostate cancer diagnosed and treated in the VA system between 1995 and 2005. Detailed records were available for 105,471 patients. Clinical staging was standardized to reflect the current AJCC cancer staging system. We analyzed the trends for the detection of cancer as well as the mode of therapy used for clinically localized prostate cancer over time.

Results: There was a steady increase in the number of men diagnosed with prostate cancer each year, ranging from 7,435 in 1995 to 10,935 in 2005. The majority of these men had clinic stage 2 disease. An increase in the utilization of monotherapies including Surgery (14.3 to 18.9%), Radiation (17.1 to 24.5%) and Hormonal therapy (17.2 to 17.9%). Combination therapy was utilized with increasing frequency from 7.1% in 1995 to 14.6% in 2005. These data were compared to other published national data yielding significant differences in pattern of initial care.

Conclusions: The number of patients diagnosed and treated at the VAMCs has more than doubled over the study period. This is of particular importance in terms of the need for additional resources and personnel to manage the increasing number of patients. While there was an increase in the PSA-detected cancers, the mode of initial diagnosis as well as treatment still varies significantly from published national data.
Poster # 58

PREOPERATIVE PREDICTORS OF ESTIMATED BLOOD LOSS AT THE TIME OF RADICAL RETROPUBIC PROSTATECTOMY
Jessica Lloyd, Lionel Banez, William Aronson, Martha Terris, Joseph Presti, Christopher Amling, Christopher Kane and Stephen Freedland
(Presented By: Jessica Lloyd)

Purpose: The literature currently contains conflicting data on the preoperative predictors of estimated blood loss (EBL) at the time of radical retropubic prostatectomy (RRP). As such, in this paper, we aim to retrospectively examine potential preoperative predictors EBL at the time of RRP in a cohort of patients from the SEARCH database, with the goal of lending some clarity to this ambiguous area of study.

Materials and Methods: A total of 1154 patients were identified in the SEARCH database who underwent RRP between 1988 and 2008 and had EBL data available. Various preoperative factors were considered, including age, body mass index (BMI), biopsy Gleason sum, SEARCH site at which the procedure was performed, ethnicity, preoperative PSA, clinical stage, and the year of the procedure. Prostate weight was used as a surrogate for prostate volume, as prostate volume was unavailable for many men in this sample. Multivariate linear regression analysis was used to characterize the relationship between preoperative variables and EBL.

Results: In our sample, median EBL was 900mL (SD 1032). The 5th percentile for EBL was 300mL and the 95th percentile was 2700mL. Four (4) patients (0.35%) had EBL > 10,000mL. EBL increased with increasing BMI and increasing prostate weight and decreased with more recent year of RRP (all p<0.001). The mean adjusted predicted EBL in men of normal weight (BMI<25kg/m2) was 843mL, while mean adjusted predicted EBL for men in the highest BMI group (>35kg/m2) was 1071mL. Similarly, predicted EBL for men with the smallest prostates (<20g) was 722mL, compared to 1406mL for men with prostates >100g. Finally, statistically significant differences between centers were observed, with mean adjusted predicted EBL at the various centers ranging from 844mL to 1094mL.

Conclusions: Both BMI and prostate weight, a surrogate for prostate size, are preoperative predictors of increased EBL. Prostate weight is of particular note, as a nearly two-fold increase in EBL was seen from the smallest weight-group (<20g) to the largest weight-group (>100g). Over time, average EBL significantly decreased. Finally, significant differences in EBL were observed between centers, possibly reflecting patient selection practices, among other influences. Based on our results, and those of similar studies, patients with multiple risk factors should be forewarned that they are at increased risk for higher EBL, which may translate into a greater need for blood transfusion.

Poster # 59

EFFECT OF TUMOR CHARACTERISTICS AND PATIENTS DEMOGRAPHICS ON THE CHOICE OF SECONDARY TREATMENT FOR RECURRENT PROSTATE CANCER AFTER RADICAL PROSTATECTOMY
Daniel Moreira, MD¹, Lionel Bañez, MD², Joseph Presti, Jr., MD³, William Aronson, MD⁴, Martha Terris, MD⁵, Christopher Kane, MD⁶, Christopher Amling, MD⁷ and Stephen Freedland, MD² (Presented By: Daniel Moreira)
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Objectives: Treatment decisions are complex and usually involve several variables. This is especially true for prostate cancer in which the clinical course is extremely variable and multiple treatments are available. The present study investigated the effect of tumor characteristics and patients demographics on secondary treatment for recurrent prostate cancer after radical prostatectomy among subjects from the Shared Equal Access Regional Cancer Hospital (SEARCH) database.

Methods: We analyzed data from 2320 men in the SEARCH cohort of whom 855 developed a PSA recurrence and 357 received salvage treatment during a median follow-up of 67 months after recurrence. Identification of factors associated with secondary treatment and treatment type was done using cumulative incidence function of the Kaplan-Meier method and Cox proportional hazard model. Competing risk analysis and multinomial logistic regression were used to identify factors associated with decisions towards one treatment option over the others.

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Results: In univariate analysis, the predictors of secondary treatment were capsular invasion, positive margins, seminal vesicle invasion, high pathological Gleason score, positive lymph nodes, short prostate-specific antigen doubling time (PSADT), early recurrence, more recent year of recurrence, younger age and higher pathological T stage (P< .01). In multivariate analysis, shorter PSADT, early recurrence, more recent year of recurrence were the significant predictors (P< .001). Predictors of radiotherapy were early recurrence, recent year of recurrence and positive margins (P< .05). Predictors of hormonal therapy were shorter PSADT, early recurrence, recent year of recurrence, seminal vesicle invasion, higher Gleason and positive lymph nodes (P< .05). Predictors of hormonal therapy over radiation were older age, positive nodes and high Gleason score (P< .05).

Conclusion: The present study showed treatment decisions are primarily based on disease severity. Age significantly influenced the decision of treatment with hormones over radiation. However, the overall risk of receiving secondary treatment significantly decreased after 70 years of age. Also, patients operated more recently were more likely to receive secondary treatment, even after adjustments for disease severity. The impact of this contemporary and more aggressive approach in treating recurrence on long-term survival, however, remains to be determined.

Poster # 60

ELEVATED SECRETED PROTEIN, ACIDIC, AND RICH IN CYSTEINE (SPARC) EXPRESSION IN PROSTATE CANCER CORRELATES WITH TUMOR METASTASIS AFTER RADICAL PROSTATECTOMY

Bungo Furusato, MD, Chad DeRosa, MD, Yongmei Chen, Christopher Cook, Jennifer Cullen, PhD, Gyorgy Petrovics, PhD, Shiv Srivastava, PhD, David McLeod, MD and Isabell Sesterhenn, MD (Presented By: Bungo Furusato)

Introduction and Objectives: Comparative gene expression signatures of well differentiated and poorly differentiated prostate cancer (CaP) along with knowledge based gene analysis highlighted alterations of SPARC, and genes linked to it, in poorly differentiated CaP. Quantitative determination of SPARC gene expression levels in prostate tumor cells has been associated with an increased risk of PSA recurrence, with poorly differentiated carcinoma with overall Gleason score 8-9. We hypothesized that determination of SPARC protein expression levels in prostatectomy specimens by immunohistochemistry (IHC) may have the potential to predict aggressive clinical behavior in post prostatectomy patients.

Materials and Methods: Fifty-four prostatectomies matched by Gleason grade and pathologic stage were studied. Twenty-seven patients with metastasis (N+ or M+) after the surgery were compared to 27 without metastasis. All specimens were processed as whole mounts and stained for SPARC by immunohisto-chemistry. The sections were incubated with anti-SPARC mouse monoclonal antibody (Zymed Laboratories, Inc., CA, USA) at a dilution of 1:160 for 1 hour, followed by 30 minutes in biotinylated horse antimouse (Vector, Burlingham, CA) at a dilution of 1:400, and ABC (Vector, Burlingham, CA) Vector VIP was used as chromogen. SPARC expression was scored by % of tumor cells positive on a scale of 1-4, staining intensity on a score of 1-3, and a combination of both. These scores were correlated with clinical-pathologic features.

Results: Higher SPARC protein expression was significantly associated with metastases compared to non-metastasis group after the prostatectomy by using Fisher exact test (p=0.0076) and ROC (AUC=0.789). SPARC protein expression was able to predict the development of metastases.

Conclusions: High SPARC expression in CaP is associated with an increased risk of tumor metastasis in this patient cohort. Quantitative determination of SPARC protein expression levels in radical prostatectomy specimens may have prognostic utility and may help stratify and treat patients with locally advanced CaP.
Poster # 61

ELEVATED C-MYC EXPRESSION IN PRIMARY PROSTATE TUMOR PREDICTS BIOCHEMICAL RECURRENCE

Dorota Hawksworth, MD¹, Lakshmi Ravindranath, MS², Inger Rosner, MD³, Yongmei Chen, PhD², Bungo Furusato, MD³, Jennifer Cullen, PhD², Isabell Sesterhenn, MD³, David McLeod, MD¹, Shiv Srivastava, PhD² and Gyorgy Petrovics, PhD² (Presented By: Dorota Hawksworth)
¹WRAMC Washington, DC; ²CPDR Rockville, MD; ³AFIP Washington, DC

Introduction and Objectives: The c-MYC oncogene overexpression / amplification and the PTEN tumor suppressor gene mutations or deletions are a recognized phenomenon in human carcinoma, including late stages of prostate cancer. Animal models demonstrate that unopposed c-MYC expression in benign prostate epithelium is sufficient to induce carcinogenesis, and the loss of only one copy of the PTEN gene is sufficient to interrupt cell signaling and initiate the process of uncontrolled cell growth. Quantitative expression of c-MYC and PTEN needs to be carefully evaluated for their prognostic features in primary prostate cancer.

Materials and Methods: Quantitative gene expression of c-MYC and PTEN was determined in laser capture microdissected (LCM) benign and neoplastic epithelial cells obtained from frozen prostatectomy specimens. 105 hormone naïve post radical prostatectomy patients were studied. Expression of c-MYC and PTEN genes, normalized to GAPDH, were measured by real-time RT-PCR in 210 specimens.

Results: Paired t-test analysis revealed significantly higher c-MYC (in 37.4% of patients) and lower PTEN (in 40.6% of patients) expression levels in tumor than in matched benign epithelial cells (p=0.0105 and p<0.0001, respectively). However, no correlation between the expression of the two genes was observed in this patient cohort (R=0.06, p=0.6111, Pearson correlation analysis). The elevated c-MYC expression levels in tumor tissues did demonstrate a strong relationship to patients’ biochemical recurrence (OR = 0.836; p = 0.0085, multivariate Cox proportional hazards model).

Conclusions: This study identifies elevated c-MYC expression in primary prostate tumor as a predictor of biochemical recurrence. As the deregulated c-MYC expression has been previously demonstrated in more aggressive subtypes of prostate cancer, its role as a prognostic indicator necessitates further investigation.

POSTER # 62

MALE-PATTERN BALDNESS AND PROSTATE CANCER RISK IN A MULTI-ETHNIC COHORT OF VETERANS RECEIVING PROSTATE NEEDLE BIOPSY

Jean-Alfred Thomas, MD¹, Lionel Bañez, MD², Kelly Anderson³, Loretta Taylor³, Lea Gerber, MS⁴, Nancy Crowe³, Tiffany Anderson³, Catherine Royal⁴, Delores Grant⁵ and Stephen Freedland, MD² (Presented By: Jean-Alfred Thomas)
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Introduction: There is epidemiologic evidence that suggests androgenetic alopecia (AA) or male-pattern baldness may be associated with increased risk of prostate cancer (CaP). Men with early onset baldness have been shown to be at increased risk for CaP. Studies have also suggested increased risk amongst the various types of AA patterns. We sought to examine the association between patterns of AA and risk of CaP in a multi-racial cohort of men undergoing prostate biopsy.

Methods: A total of 148 men undergoing prostate biopsy at the Durham Veterans Affairs hospital completed survey questionnaires which included an assessment of hair patterns. Participants were asked to describe their hair patterns at ages 30, 40, and at time of biopsy using the Hamilton/Norwood scale of baldness. Hair patterns were grouped into the following categories: no balding, frontal balding and vertex balding. Data were analyzed using chi-squared test and logistic regression controlling for possible confounding demographic and clinical variables.

Results: Median age of the participants was 61. Forty-two percent of patients reported their race as black, 57% as white, and 1% as other. Forty-four (35%) of patients were found to have abnormal DRE. Median pre-biopsy PSA was 4.95. Fifty-three (36%) of men biopsied were positive for cancer whereas 95 (64%) men had benign results. At age 30, 26% men reported balding (11% vertex; 17% frontal). Sixty-five (44%) of men reported balding (23% vertex; 34% frontal) at age 40. Men shown to have AA at age 30 were significantly at risk for having a positive biopsy (p=0.043). In particular, men demonstrating frontal balding patterns at age 30, were shown to have more than 3.5 higher risk of a positive biopsy than non-balding men (odds ratio: 3.74; 95% confidence interval: 1.33-10.53; p=0.012). No difference was seen between balding versus non-balding men in terms of high-grade disease.

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**Conclusion:** In a multi-racial cohort of men, all undergoing prostate biopsy, men who reported balding at age 30, particularly frontal balding, were at increased risk for being diagnosed with CaP. However, patterns of AA are not predictive of high-grade disease in this analysis. The underlying mechanism for this observed association between balding and CaP risk requires further study.

**POSTER # 63**

**PATTERNS OF PROSTATE CANCER TREATMENT: A COMPARISON OF PUBLIC AND PRIVATE PROVIDERS**

J. Kellogg Parsons, MD, MHS, Lorna Kwan, Sarah Connor, David Miller and Mark Litwin (Presented By: J. Kellogg Parsons)

**Introduction:** Little is known about differences in prostate cancer treatment patterns between private and public health care providers. Therefore, we evaluated the types of treatments prostate cancer patients received as part of a statewide public assistance program and compared them between private and public providers.

**Methods:** This was a cohort study of 559 men performed in IMPACT (Improving Access, Counseling and Treatment for Californians with Prostate Cancer). We collected demographic information, clinical variables, and provider type for all men enrolled in IMPACT between its inception in 2001 and June 2006. We included in the current study only those for whom initial treatment was administered during or within the 6 months preceding program enrollment. We performed multivariable logistic regression analyses to compare treatment patterns between public and private providers.

**Results:** There were no significant differences between private and public patients with respect to D’Amico risk criteria (p=0.76), year of enrollment in IMPACT (p=0.50), age at enrollment (p=0.59), Gleason grade (p=0.22), clinical stage (p=0.40), PSA (p=0.52), or Charlson comorbidity (p=0.57). Compared to public providers, patients treated by private providers were more likely to be white (37% versus 9%, p<0.001) and less likely to undergo radical prostatectomy (29% versus 54%, p<0.001). In multivariable analysis, privately treated patients were 2.5 times more likely to receive radiotherapy (OR 2.49, 95% CI 1.45 to 4.27, p = 0.001) and 4.5 times more likely to receive androgen deprivation (OR 4.44, 95% CI 2.03 to 9.73, p<0.001) than surgery. Multiple sensitivity analyses produced similar results. Among patients with low risk disease who did not receive hormones, privately treated patients were 2.5 times more likely to receive radiotherapy than surgery (OR 2.54, 0.92 to 7.02, p=0.07).

**Conclusions:** In this cohort of low-income, uninsured men, treatments for prostate cancer differed significantly between private and public health care providers. Treatment differences were independent of pre-treatment patient factors, Gleason grade, clinical stage, and D’Amico risk stratification. These data suggest substantial differences in processes of prostate cancer care between private and public providers and merit further investigation.

**Poster # 64**

**PATHOLOGIC OUTCOMES IN MEN MEETING CRITERIA FOR ACTIVE SURVEILLANCE OF PROSTATE CANCER**

Vincent Fradet, MD¹, Simon Conti¹, Marc Dall’Era, MD², Janet E. Cowan, MA¹ and Peter R. Carroll, MD, MPH¹ (Presented By: Vincent Fradet)

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**Purpose:** Active surveillance (AS) of prostate cancer has emerged as a viable management option for men with features of low risk disease. Five prospective studies have enrolled patients for AS with varying inclusion criteria. Here we evaluate the pathologic outcomes of men meeting published criteria for AS who elected immediate radical prostatectomy (RP) to assess the risk of undergrading and understaging in those who are candidates for AS.

**Materials and Methods:** Data were extracted from our institutional urologic oncology database for all men undergoing RP between 1996 and 2007. The primary outcome was pathologic upstaging, defined as occurrence of extracapsular extension (ECE) or seminal vesicle involvement (SVI). Pathologic upgrade was identified as a secondary outcome. We determined the proportion of men who would have qualified for each published AS study and the respective rates of upgrading and upstaging in each group.
**Results**: We identified 1,097 men who underwent RP with a mean age of 59. Overall, 28% of men experienced a Gleason upgrade, 21% had ECE and 11% had SVI. In men qualifying for published AS inclusion criteria, rates of upgrading varied between 23% and 35%, the incidence of ECE ranged from 7% to 19% and SVI ranged from 2% to 9%.

**Conclusions**: Varying entry criteria for AS show different rates of adverse pathologic features at RP. Predictably, fewer men meet the more stringent criteria, but these men had lower incidence of SVI and ECE. Such data can be used to advise men of the risks of AS.

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**Poster # 65**

**OUTCOMES AND IMPLICATIONS OF FOLLOW-UP BIOPSIES OF MEN ON ACTIVE SURVEILLANCE FOR LOW-RISK PROSTATE CANCER**

Hoyt Doak, Angela Smith, Matthew Coward, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

**Purpose**: Active surveillance (AS) is an important strategy for many men with low-risk prostate cancer. As part of AS program, many have advocated the use of follow-up biopsies (bx) to help monitor the disease. We evaluated the outcomes and implications of follow-up prostate bx in men in an AS program.

**Methods**: The AS program at our institution includes follow-up PSA, DRE, and a 12-core prostate bx at 6-12 months after diagnosis and every 1-2 years thereafter. (The selected interval was dependent on a variety of factors including age, health, PSA level and dynamic, DRE, and elements of patient/physician concern. Demographic and clinical characteristics, bx outcomes, and biochemical, pathological, and clinical follow-up are described.

**Results**: 71 men underwent initial bx and at least 1 follow-up bx as part of their active surveillance program. Entry characteristics were as follows: mean age 63.5 yrs (53-82 yrs), mean PSA = 6.1 (1.3 –23). 65/71(92%) had Gleason 3+3 disease, 4(6%) men had 3+4, 2(3%) men had 4+3. 67 men were cT1c and 4 were cT2. On repeat (2nd) bx, negative bx rate was 41% (29/71) and the positive bx rate was 59% (42/71). No differences were observed with regard to pre-treatment PSA, original grade, stage, age, or race between those with negative vs. positive 2nd bx. Cancer core length appears to be associated with a positive 2nd bx: Of pts with negative 2nd bx, 27/29(93%) had 1mm and 2/29(7%) had 2mm with no pt with 3mm or more on their original bx. Of those with positive 2nd bx, 12/42(29%) had 1mm, 15/42(36%) had 2mm, and 15(36%) had >=3mm on cores on original biopsies. Of those with a positive 2nd bx, 28 had no upgrading and 14 were upgraded. Of the 14 who had upgrading at 2nd bx, 10 had definitive treatment (tx) (6 RP, 4 XRT) and 4 were lost to FU. Of the 29 who had negative 2nd bx, none have undergone tx. Of the 28 who had positive repeat (but no upgrading), 2 underwent tx (1 RP and 1 brachy). Four patients with 2nd negative bx had a 3rd bx, and all were negative. 10 patients with positive 2nd bx had 3rd bx and all were positive. The PSAV trended higher in patients with negative vs. positive (no upgrade) vs. positive (upgrade) (-0.75 vs. 0.01 vs. 0.56 ng/ml/yr)

**Conclusion**: The study helps characterize the outcomes and implications of repeat prostate bx in pts on AS. These results suggest that repeat bx appear to be important in characterizing the volume, grade, and eventually decisions for treatment in men on active surveillance.

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**Poster # 66**

**GLEASON GRADE AT THE SURGICAL MARGIN: CORRELATION WITH PRIMARY GLEASON GRADE AND RECURRENCE**

Michael Feuerstein, MD¹, Tipu Nazeer, MD², Hugh Fisher, MD³, Ronald Kaufman, Jr., MD³ and Badar M. Mian, MD4 (Presented By: Michael Feuerstein)

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**Background**: A positive surgical margin (PSM) and Gleason grade following radical prostatectomy are negative prognostic factors in predicting biochemical recurrence. However, nearly half of patients with a positive margin do not have a biochemical recurrence. The Gleason grade at the PSM is not reported by pathologists. We sought to compare the primary Gleason grade with the grade at the PSM, and determine whether this could predict biochemical failure.
Methods: We retrospectively reviewed the charts of 142 men with a PSM. Original pathology slides were re-reviewed by a single pathologist to assign the primary and secondary Gleason grades, and the Gleason grade at the PSM. Patients were excluded if they had positive lymph nodes or seminal vesicles, or had received neoadjuvant therapy. Demographic and follow-up data, including PSA recurrence and time to recurrence, were analyzed to determine the role of PSM grade in predicting recurrence.

Results: Of the 142 patients reviewed, 102 patients met the inclusion criteria. Median follow up was 79 months. Thirty-five patients (32.7%) had a higher Gleason grade at the PSM than the primary grade within the specimen, and one patient had a lower grade at the PSM. Overall, PSA recurrence rate was 30.8%. Of the 84 patients with primary Gleason grade 3, 26 (31%) had Gleason grade 4 at the PSM. Patients with a higher grade at the PSM had a similar biochemical recurrence rate when compared to those with no upgrading. However, those with a higher-grade cancer at the PSM experienced biochemical failure much earlier (38.0 months) than those with no change in grade (64.0 months).

Conclusions: There was a significant discordance rate between the primary grade and the grade at the PSM. Although not statistically significant, patients with a higher Gleason grade at the PSM seem to have a much earlier time to recurrence. The Gleason grade at the PSM, after further validation, may be an important variable in predicting biochemical failure after radical prostatectomy.

Poster # 67

SURVEY BASED ANALYSIS OF RADICAL PROSTATECTOMY PRACTICE PATTERNS DURING RESIDENCY TRAINING
Jamin Brahmbhatt, MD, Reza Mehrazin, MD, Michael Aleman, MD, Ithaar Derweesh, MD, Anthony Patterson, MD, Robert Wake, MD and Christopher DiBlasio, MD (Presented By: Christopher DiBlasio)
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Introduction and Objectives: Radical prostatectomy (RP) remains the most common treatment employed for clinically localized prostate cancer (CaP). The advent of minimally-invasive approaches including pure laparoscopic (LRP) and robotic-assisted laparoscopic (RALRP) RP have introduced changes in residency training, such that open retropubic (ORP) RP is not performed as often. These changes potentially limit the ability of training programs to provide adequate training for this intricate procedure. This study assesses the general practice patterns pertaining to RP in residency training.

Methods: We performed a computer-based survey study of resident physicians throughout the United States. A 23-item survey was constructed and distributed to program directors for all accredited urology residency training programs. Program directors were asked to forward the survey to the residents in their program. Survey analysis was then performed to identify resident perspectives of current practice patterns in residency training pertaining to RP.

Results: A total of 106 residents responded to the survey. RALRP was reported as the most common technique employed (used in >50% of cases) by 50.9%, followed by ORP in 36.8%, and LRP in only 7.4%. 50.0% of residents reported feeling most competent with ORP, followed by RALRP (16.0%), and LRP (1.9%), while 32.1% felt equally competent in all techniques. 52.8% of residents reported performing >50% of the case with ORP compared to only 10.8% with RALRP and 6.6% with LRP approaches. When asked which technique one would employ most often in practice, 50.0% of residents reported RALRP compared to 43.3% for ORP, and 4.4% for LRP, while 2.2% reported all would be employed equally. 50.0% of residents reported that they felt RALRP offered the best outcomes for the surgeon, followed by ORP (21.7%), and LRP (2.2%), while 26.1% reported all were equal. Similarly, 45.7% of residents felt that RALRP offered the best patient outcomes versus 16.3% for ORP, and only 4.3% for LRP, while 32.6% felt that patient outcomes were equal across techniques.

Conclusions: The introduction of minimally invasive RP approaches does not appear to negatively impact resident training in ORP. While RALRP appears to be the most commonly performed RP technique, most residents still report feeling most competent with ORP. Nonetheless, residents reported feeling that RALRP provides the best outcomes for both the surgeon and the patient.
Poster # 68

DETECTABLE AND STABLE PSA AFTER RADICAL PROSTATECTOMY OCCURS OFTEN AND DOES NOT PREDICT DISEASE PROGRESSION
Sameer Deshmukh, BSE and James Mohler, MD (Presented By: Sameer Deshmukh)
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Introduction: Up to 35% of men will experience biochemical recurrence (BCR) after radical prostatectomy (RP), but only one-third of these men will develop metastatic disease. Salvage radiotherapy carries significant morbidity and androgen deprivation therapy negatively impacts quality of life. No consensus definition for BCR after RP is available, but the National Comprehensive Cancer Network (NCCN) in 2008 defined BCR as “an undetectable prostate-specific antigen (PSA) after surgery with a subsequent detectable PSA level that increases on two or more laboratory determinations.” In addition, PSA is not absolutely prostate specific; PSA is produced by many other tissues, especially bowel and breast. Ultra-sensitive PSA assays may detect serum PSA that does not change with time that leads to overtreatment.

Objectives: 1) Characterize men with detectable serum PSA after RP; 2) Apply NCCN criteria for BCR to this group of men; and 3) determine whether any clinical parameters distinguish men with undetectable PSA from men with detectable but unchanging PSA that may reflect extra-prostatic PSA and not recurrence.

Methods: Retrospective analysis of a database that contains 1153 men who underwent RP from 1992 to 2008 allowed study of 504 men who had at least 2 years of follow-up and all PSAs measured using a single ultrasensitive method. Men with detectable PSA were compared to men with undetectable PSA for age, PSA at diagnosis, clinical stage and Gleason grade, pathologic stage (pStage) and Gleason grade (pGG), and duration of follow-up.

Results: 327 men (65%) had undetectable PSA and appeared cured of prostate cancer. 99 men (20%) received salvage therapy for detectable PSA. 78 men (15%) had detectable PSA after RP, were not treated, and were followed for mean 4.5 (range 2-12) years. The 78 men were similar in PSA (7.9 vs. 7.2) and pGG (6.6 vs. 6.5) to the “cured” men and different from the “salvaged” men in all respects (PSA 12.3, pGG 7.2 and higher pStage). Of these men, 46 maintained low levels of PSA but 32 met NCCN criteria for BCR. The 32 men who met NCCN criteria for BCR and the 46 men with low levels of PSA were clinically similar (PSA 7.6 vs. 8.2; pGG 6.7 vs. 6.5; pStage similar).

Conclusions: Delivering salvage treatment to all men with detectable PSA after RP will overtreat 15% of men who undergo RP. When NCCN criteria are used to decide BCR, 6% of all men undergoing RP will still be overtreated.

Poster # 69

FACTORS AFFECTING DELAYED PSA RECURRENCE AFTER RADICAL PROSTATECTOMY
Arthur Caire, MD, Leon Sun, MD, PhD, Oludotun Ode and Judd Moul, MD (Presented By: Arthur Caire)
Duke University Medical Center

Purpose: To identify the clinical factors that predict PSA recurrence (PSAR) more than five years after radical prostatectomy (RP) and to examine distant metastatic rate and disease specific death for patients with delayed PSAR in comparison to patients with early PSAR.

Materials and Methods: A cohort of 4561 men who underwent RP between 1988 and 2008 was retrieved from the Duke University Prostate Cancer Center. Patients who did not have PSAR were excluded. PSAR was defined as a PSA level of 0.2 ng/mL or greater after post-operative PSA had declined to zero. Race, age, body mass index, PSA, surgical margin, pathological Gleason sum, pathological tumor stage, and prostate weight underwent univariate analysis in comparison to time of PSAR (=5 vs >5 years). Those factors significant in univariate analysis underwent binary logistic regression. Kaplan Meier survival curve was performed between the two groups with regards to metastatic rate and disease specific death.

Result: Patients with pathological Gleason sums > 7 are less likely to have delayed PSAR than those with pathological Gleason sums < 7. A lower PSA increased the chance of delayed PSAR. The 10 year disease specific survival rate for those with PSAR < 5 years after surgery was 89.4% while it was 95.7% for those who had PSAR later than 5 years after surgery (p=0.025).

Conclusion: Lower pathological Gleason sums and lower PSA increase the likelihood of delayed PSAR. Patients who have delayed PSAR are less likely to have disease specific death.
DO OLDER MEN HAVE HIGH RISK DISEASE AND POORER PSA RECURRENCE?
Arthur Caire, MD, Leon Sun, MD, PhD, David Xu and Judd Moul, MD (Presented By: Arthur Caire)
Duke University Medical Center

Purpose: To identify risk of disease in older men and compare PSA recurrence (PSAR) between age groups to determine if increased prostate cancer screening will benefit older men's outcome.

Materials and Methods: A cohort of 4561 men who underwent radical prostatectomy between 1988 and 2008 was retrieved from the Duke University Prostate Cancer Center. Patients were stratified into age groups: <60, 60-70, and >70. Kaplan Meier survival was analyzed between the three age groups. The patients were divided into 2 groups based on year of prostatectomy: <2000 and ≥2000. Race, age, PSA, body mass index (BMI), prostate weight, tumor volume, pathological Gleason sum, and pathological tumor stage underwent univariate analysis comparing year of surgery groups. Race, age, BMI, PSA, prostate weight, tumor volume, pathological Gleason sum, and pathological tumor stage underwent multinominal logistic regression stratified by age groups.

Results: Older men have higher risk of PSAR than younger men (p <0.001). Race, age, BMI, PSA, prostate weight, tumor volume, and pathological T stage were significantly different between year of prostatectomy groups. Pathological Gleason had no significant difference based on year of surgery (p=0.063). Older men have higher pathological T stage, tumor volume, and diagnostic PSA than younger men. Older men do not have significantly different pathological Gleason scores than younger men.

Conclusion: Older men have higher risk disease and increased risk of PSAR in comparison to younger men. Increased screening and early diagnosis will decrease high-risk disease and improve outcome among older men.

THE PERFORMANCE OF FREE PSA IN UROLOGICAL PRACTICE
Andrew Bourne, MD, Robert Wayment, MD, Aaron Benson, MD and Thomas Tarter, MD, PhD (Presented By: Thomas Tarter)
Southern Illinois University School of Medicine, Springfield, IL

Objectives: A higher specificity of free PSA (fPSA) in prostate cancer (PCa) screening has been shown through end of study biopsy data, or from biopsy data compared retrospectively to fPSA. However, there are no published reports on the performance of fPSA in everyday urological practice with the inherent variables of multiple laboratories, physician bias, and patient attitudes toward screening. The purpose of this study is to evaluate the performance of fPSA in urological practice.

Methods: The records of 231 consecutive men seen in consultation for an elevated PSA (2.5–ng/ml) and a normal prostate exam were reviewed. All of the men were offered additional risk assessment with fPSA. A prostate biopsy was recommended if the total PSA was > 2.5 ng/mL, and the proportion of fPSA was < 25% of the total. The PCa risk was calculated from fPSA and age, or by the NCI PCa risk calculator for those men with only total PSA. We then compared the estimated PCa risk with the observed PCa detection rate using a 2-tailed Chi-square test in the overall biopsy group, and in groups at high risk of developing PCa with family history (FH) and/or African American race (AA).

Results: Thirty-four men (15%) requested a prostate biopsy, and 197 men (85%) underwent additional testing. In the additional testing group, a prostate biopsy was not recommended in 40 men (20%) because 16 (8%) had a total PSA < 2.5ng/ml, and 24 (12%) had a proportion of free PSA > 25%. The estimated risk of PCa in this group was 15.4%. PCa was detected in 2 men from this group through subsequent screening. In the additional testing group, a prostate biopsy was not recommended in 40 men (20%) because 16 (8%) had a total PSA < 2.5ng/ml, and 24 (12%) had a proportion of free PSA > 25%. The estimated risk of PCa in this group was 15.4%. PCa was detected in 2 men from this group through subsequent screening. A prostate biopsy was recommended in 154 men (80%), and 128 (65%) had a biopsy. The mean estimated risk of PCa in the biopsy group was 32%, and the PCa detection rate was 33%. In the group of men at high risk of developing prostate cancer (AA and/or FH) the estimated PCa risk was 32%, and the PCa detection rate was 49% (p=0.029). In the group of Caucasian men with a FH, the estimated PCa risk was 31% and the PCa detection rate was 46% (p=0.076). In the group of AA men, the estimated PCa risk was 32% and the PCa detection rate was 60% (p=0.038).

Conclusions: Of men seen in consultation for an elevated PSA in our practice, most (85%) preferred repeat testing with fPSA, and 20% safely avoided a biopsy. Men at high risk of developing prostate cancer, especially African Americans, may not benefit from additional fPSA testing, as the estimated risk of PCa is lower than the actual PCa detection rate.
POSTER # 72

PROSTATE-SPECIFIC ANTIGEN DENSITY (PSAD) VERSUS PROSTATE-SPECIFIC ANTIGEN (PSA) IN PREDICTING BIOCHEMICAL RECURRENCE FOLLOWING RADICAL PROSTATECTOMY

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(Presented By: Brian T. Kadow)

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Introduction and Objectives: To determine if prostate-specific antigen density (PSAD) is a superior predictor of biochemical recurrence following radical prostatectomy compared to preoperative serum prostate-specific antigen (PSA) level alone.

Methods: We retrospectively identified 781 patients who underwent radical prostatectomy at Loyola University Medical Center between 1996 and 2003. PSAD was calculated using both prostatic weight (PSADW) and volume (PSADV) obtained from the prostatectomy specimen. Biochemical recurrence was defined as at least two consecutive follow-up PSA values greater than or equal to 0.02 ng/mL. Relevant demographic, clinical, and pathologic data were gathered and analyzed using univariate and multivariate logistic regression, as well as area under receiver operating characteristic curve (AUROC) analyses.

Results: In univariate analysis, preoperative serum PSA (p<0.001, AUROC=0.663) and PSADW (p<0.023, AUROC=0.702) were both significant predictors of biochemical recurrence, while PSADV fell short of statistical significance (p=0.080, AUROC=0.688). In a multivariate analysis controlling for patient age, clinical stage, pathologic stage, prostatectomy Gleason score, extracapsular extension, percent of tumor involvement in the specimen, perineural invasion, seminal vesicle involvement, and margin status, PSA (p<0.001, AUROC=0.776), PSADV (p<.001, AUROC=0.769), and PSADW (p<0.001, AUROC=0.785) were all found to be independent predictors of biochemical recurrence. The AUROC for the multivariate analysis including PSA was then compared to those of PSADW and PSADV. There were no statistical differences in their predictive abilities (p=0.547 and p=0.185, respectively), indicating that PSADV and PSADW were no better than PSA alone at predicting biochemical recurrence following radical prostatectomy.

Conclusions: Although serum PSA, PSADW, and PSADV were all excellent predictors of biochemical recurrence in our cohort of patients, none was superior to the other. PSAD based on the pathologic specimen does not appear to provide any additional prognostic information over PSA alone.

Poster # 73

DOES EARLY PSADT AFTER RADICAL PROSTATECTOMY, CALCULATED USING PSA VALUES STARTING WITH THE FIRST DETECTABLE PSA VALUE, CORRELATE WITH STANDARD PSADT? A REPORT FROM THE SEARCH DATABASE GROUP

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Purpose: A short PSA doubling time (PSADT) following recurrence after radical prostatectomy (RP) portends a poor prognosis and poor response to salvage treatment. However, this is based upon PSADT calculated using PSA values ≥0.2 ng/mL. We sought to determine if PSADT calculated from the first detectable PSA after RP to the first PSA =0.2 ng/mL (early PSADT or ePSADT) correlated with “standard”PSADT (henceforth PSADT) calculated using values ≥0.2 ng/mL.

Methods: We used Spearman’s correlation to determine the correlation between ePSADT and PSADT among 157 men in the SEARCH database who underwent RP between 1988 and 2005 and had a calculable ePSADT and PSADT. We systematically examined ePSADT cut-points and their positive and negative predictive value (PPV and NPV, respectively), to predict aggressive recurrences (PSADT<9 months).
**Results:** ePSADT was significantly, though poorly, correlated with PSADT ($r=0.30$, $p<0.001$). ePSADT more accurately predicted PSADT among men with long ePSADT. Of men with an ePSADT $\geq 20$ or $=15$ months, the NPV for an aggressive recurrence was 98% and 93%, respectively. However, among men with an ePSADT $<3$ months, only 39% had aggressive recurrences.

**Conclusions:** Though ePSADT and PSADT were significantly related, the overall correlation was poor. This was highlighted by the fact only 39% of men with the shortest ePSADT ($<3$ months) had a PSADT $<9$ months. However, long ePSADT correlated well with long PSADT and is thus useful in identifying men at low-risk for prostate cancer-specific mortality very early in their recurrence.

**Poster # 74**

**EXERCISE AND PROSTATE CANCER IN A COHORT OF VETERANS UNDERGOING PROSTATE NEEDLE BIOPSY**

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**Introduction:** Epidemiologic evidence suggests exercise is associated with prostate cancer (CaP) risk reduction. Exercise has also been shown to confer quality of life improvements in men being treated for CaP. Finally, exercise modulates key molecular pathways that are relevant for CaP growth. We sought to further characterize this relationship by examining the effect of exercise on CaP risk among men undergoing prostate needle biopsy.

**Methods:** 171 men undergoing a prostate biopsy at the Veterans Administration Hospital in Durham, NC were asked to complete a personal history survey which included an assessment of current exercise behavior. Participants were asked average frequency of mild, moderate, and strenuous intensity exercise in a typical week, as well as average duration. Total current exercise was calculated by multiplying the frequency of exercise sessions per week within each intensity category by the average reported duration, weighted by an estimate of the metabolic equivalent (MET), summed across all intensities and expressed as average total MET hrs/wk. Specifically, exercise intensities were as follows: mild (3 METs, e.g., easy walking, yoga), moderate (5 METs, e.g., brisk walking, tennis), and strenuous (9 METs, e.g., running, vigorous swimming). Data were analyzed using rank sum analysis.

**Results:** Of the 171 men undergoing prostate biopsies who were asked to complete the survey, 116 had complete data. The median age of participants was 63 yrs and racially, 53% reported white, 46% black, and 1% other. The median BMI, waist circumference, and % body fat were 29.2 kg/m², 42 inches, and 28.8% respectively. Prior to biopsy, median PSA was 5.5 ng/ml and 36% of participants had an abnormal digital rectal exam. Prostate biopsy revealed prostatic malignancy in 49 patients (42%) and benign pathology in 67 (58%) patients. Men with CaP reported significantly fewer MET hrs/wk of exercise ($p = 0.006$). Additionally, among men with cancer, those who had higher Gleason grades (>7) reported less exercise; however, this trend did not reach statistical significance ($p = 0.09$).

**Conclusions:** Men who reported exercising more had a lower risk of having CaP and among men with cancer, they tended to have lower grade disease. Further investigation is required to confirm these findings in a larger sample size and to better characterize the molecular mechanisms through which exercise may affect the risk of developing CaP, especially high-grade disease.

**Poster # 75**

**IMPROVING PROSTATE CANCER DETECTION — DEVELOPMENT OF A NOVEL VIRTUAL REALITY SIMULATOR FOR TRANSRECTAL ULTRASOUND GUIDED BIOPSY TRAINING**

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**Introduction:** Transrectal ultrasound-guided prostatic biopsy (TRUS) is the gold standard for the detection of prostate cancer (PCa). There are numerous biopsy schemes described in the literature since the original sextant biopsy plan was implemented. We present the design of a new virtual reality simulator for TRUS, which allows training doctors to perform multiple different biopsy schemes in either axial or sagittal views and may facilitate TRUS teaching.
Materials and Methods: This system design uses a regular “end-firing” TRUS probe, which is standard throughout North America. The TRUS probe is held and manipulated directly by the trainee. Movements of the probe are tracked with a micro-magnetic sensor, to dynamically slice through a patient’s 3D prostate volume to provide real-time continuous TRUS views. Transrectal ultrasound scans during prostate biopsy clinics were recorded. These cases form the database for the images viewed by the trainee on the simulator. Prostate phantom molds were made from an agar gelatin mixture, and were designed to accurately replicate the haptic environment during a transrectal ultrasound guided biopsy, in which the user is looking at the ultrasound monitor whilst performing the biopsy. Each prostate was virtually embedded in a block of agar, which provides an access surface similar to the rectal wall. The entire mold was fixed in a box with a circular port access hole intended to mimic the anus.

Results: Data from 50 patients attending for prostatic biopsy were successfully acquired, segmented and integrated into the virtual reality prostate biopsy simulator. Two agar gelatin prostate molds were successfully constructed and integrated into a box with an agar rectum. The completed virtual reality prostate biopsy simulator therefore uses real patient images, and is able to provide simulation for 50 cases, with a haptic interface that uses a standard TRUS probe and biopsy needle. The simulator was tested by 5 experts in TRUS to confirm content validity.

Conclusions: A virtual reality TRUS simulator has successfully been created, with promising content validity. Further content, face, and transfer validity studies are planned in order to develop this technology further.

Poster # 76

ROLE OF MAGNETIC RESONANCE SPECTROSCOPIC IMAGING IN PATIENTS DIAGNOSED WITH PROSTATE CANCER MANAGED WITH ACTIVE SURVEILLANCE

Vincent Fradet, MD, John Kurhanewicz, PhD, Janet Cowan, MA, Alexander Karl, MD, Badrinath R. Konety, MD, MBA and Peter R. Carroll, MD, MPH (Presented By: Vincent Fradet)
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Introduction and Objective: There is increasing evidence that magnetic resonance spectroscopic imaging (MRI/MRSI) of the prostate helps in the prediction of pathologic findings at surgery or cancer recurrence after treatment. However, little is known about the role of these techniques in the context of active surveillance. Therefore, in this retrospective cohort study, we determined the role of MRI/MRSI on disease progression in patients diagnosed with prostate cancer and managed with active surveillance.

Methods: We identified all patients diagnosed with prostate cancer, that are managed with active surveillance, that had given consent for research and that had undergone an MRI/MRSI exam of their prostate. We considered the first exam after diagnosis. We excluded 11 patients because of missing data, and 3 patients because of high-risk cancer at diagnosis. Two urologists interpreted the radiologist’s report independently and blinded from outcome. The inter-observer agreement was substantial (Kappa coefficient 0.79 for MRI and 0.72 for MRSI) and differences were solved by review amongst the two observers. The main predictor was whether a lesion suspicious for cancer was detected at MRI or was metabolically active at spectroscopy (MRSI). Univariate and multivariate Cox models were fitted to assess time to cancer progression defined as biopsy upgrading, PSA velocity of more than 0.75ng/mL/year or initiation of treatment more than 6 months after diagnosis. Covariates were age at diagnosis, year of diagnosis, percent positive biopsy cores at diagnosis, and PSA density at diagnosis.

Results: Our final cohort included 114 patients that were imaged at least once. The mean age at diagnosis was of 63.4 (SD 8) years. The mean follow-up time was 65.6 (SD 32) months. 68 (61%) patients had a metabolically active lesion at MRSI and 79 (69%) had an anatomically suspicious lesion at MRI. Patients with a metabolically active lesion at spectroscopy were at higher risk of cancer progression (HR 2.30; 95%CI 1.05-5.05) than patients without such a lesion. Patients with an anatomically suspicious lesion at MRI had a higher risk of cancer progression (HR 3.34; 95%CI 1.34-8.37) than patients without such a lesion.

Conclusions: Patients diagnosed with prostate cancer and managed with active surveillance that have a lesion suspicious for cancer or a metabolically active one seen at MRI/MRSI may be at higher risk of cancer progression.
**Poster Session I**

**Poster # 77**

**MAGNETIC RESONANCE IMAGING-TRANSRECTAL ULTRASOUND FUSION: A PLATFORM FOR IMAGE-GUIDED FOCAL THERAPY OF PROSTATE CANCER**

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Bethesda, MD

**Introduction and Objectives:** As a result of an increase in small, localized, low-risk prostate cancer, there has been recent interest in focal therapy to decrease the morbidity associated with whole gland therapy. We evaluated the feasibility of a novel platform for image-guided focal therapy of prostate cancer. This platform combines the high sensitivity of magnetic resonance imaging (MRI) with real-time guidance of transrectal ultrasound (TRUS) imaging to target prostate lesions.

**Methods:** Non-castrated male canines were used as animal models. 3 Tesla T2-weighted endorectal MRI were obtained as reference images. A surrogate prostate cancer lesion was created using agents visible on MRI but not on transrectal ultrasound. The animals were rescanned in MRI suite to localize the surrogate prostate cancer lesion. These MRI images were fused with ultrasound images with the help of real-time electromagnetic feedback from sensors attached to the TRUS probe. Spatial tracking of the TRUS probe enabled registration of TRUS images to MRI to accurately guide and target intraprostatic surrogate prostate cancer lesions. A final MRI scan was obtained to localize both surrogate lesions and target injections and to calculate spatial accuracy.

**Results:** MRI and TRUS image-fusion was feasible in all animals. Mean distance of the image-guided injection from the established lesion was 4.26 ± 1.96mm, with a range from 2.02-6.53mm.

**Conclusions:** MRI-TRUS fusion system may be a promising platform for image-guided diagnosis and focal therapy of adenocarcinoma of the prostate. Ongoing work by our group and others are exploring the role of imaging in prostate cancer diagnosis and therapy. This system is currently being used in clinical protocols for prostate cancer diagnosis. Future studies will continue to evaluate the feasibility of this novel platform for image-guided focal therapy.

**Poster # 78**

**THE USE OF NOVEL HISTOLOGY GUIDED MASS SPECTROMETRY IDENTIFICATION OF A SPECIFIC FRAGMENT OF MEKK2 DISCRIMINATES CANCER FROM UNINVOLVED PROSTATE TISSUE**

Lisa Cazeres, MS5, Raymond Lance, MD, Savvas Mendrinos, MD³, Mary Ann Clements, BA², Paul Schellhammer, MD⁴, Richard Drake, PhD² and O. John Semmes, PhD¹ (Presented By: Raymond Lance)

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**Introduction:** Direct profiling of proteins in tissue sections using a technology termed MALDI mass spectrometry imaging (MALDI-MSI) provides a platform for providing molecular detail to the clinical pathologist.

**Methods:** A total of 72 frozen tissue blocks were acquired from prostatectomy tissue. The frozen blocks yielded 36 sections of benign tissue (distal from tumor site), 36 sections of PCA containing tissue (glenasen grades 6-10) with 25 harboring benign adjacent tissue and 2 samples with adenosis. Cryo-sectioning was performed on a Microm HM 505E cryostat at -20°C. A mirror cryosection at 8µm was stained with hematoxylin and eosin as a guide, and analyzed by a pathologist to determine tissue morphology. Two additional serial sections at 10µm were mounted on conductive Indium-Tin Oxide (ITO) coated glass slides (Bruker Daltonic, Billerica, MA) and used for MALDI-MSI. Confirmatory immunohistochemistry was used to identify the putative marker.
**Results:** To investigate the potential of MALDI-MSI for the diagnosis of prostate cancer we examined prostate cancer specific protein/peptide expression profile on a total of 72 prostate tissue samples derived from 59 patients. We found that specific protein/peptide expression changes correlate with the presence or absence of prostate cancer. The over-expression of a single peptide at m/z = 4355 was able to accurately define cancer tissue from adjacent normal tissue. Tandem mass spectrometry analysis identified this marker as MEKK2, a member of the MAP kinase signaling pathway. The utility of MEKK2 as a tissue marker for prostate cancer was orthogonally confirmed by immunohistochemistry. A total of 75% (n=26) of the PCa regions exhibited average intensity values for the m/z 4355 peak above the average intensity for benign regions. **Conclusions:** MALDI-MSI was used to identify MEKK2 as a biomarker discriminating cancer from benign in tissue samples.

**Poster # 79**

PERI-PROSTATIC LIDOCAINE ANESTHETIC BLOCK DURING TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY IS NOT ASSOCIATED WITH INCREASED COMPLICATION RATES

Christopher DiBlasio, MD¹, Reza Mehrzad, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ (Presented By: Christopher DiBlasio)

¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

**Introduction and Objectives:** Peri-prostatic lidocaine anesthetic (PLA) block has shown superior patient-tolerability and has become routine during transrectal ultrasound-guided biopsy (TRUSB) for prostate cancer (CaP) diagnosis. To date, no study has compared differences in complication rates between PLA to non-PLA TRUSB. This study aims to assess the impact of PLA blockade on complications following TRUSB.

**Methods:** After IRB approval, we retrospectively reviewed all patients undergoing TRUSB for CaP detection at a single center at our institution (VAMC Memphis) between 2/2000-9/2007. Patients undergoing repeat biopsy were excluded. Variables included age at biopsy, race, clinical stage, prostate specific antigen (PSA), number of cores removed, receipt of PLA, prostate volume (TRUSPV), body mass index (BMI), pathology results, and complications. All patients received instillation of 1% viscous lidocaine gel per rectum prior to the TRUSB; the PLA group also received 5 cc of 1% lidocaine into each respective neurovascular bundle. SAS statistical software was utilized with p<.05 considered significant.

**Results:** After exclusions, 1542 consecutive patients underwent TRUSB with a mean age of 64.4 years (34.9-89.2), PSA of 20.8 ng/ml (0.3-3900), BMI of 28.1 kg/m2(13.9-58.4) and TRUSPV of 42.6 cm3(9.6-212). 494 (32.0%) patients received PLA while 1048 (68.0%) did not. CaP was diagnosed in 561 (36.4%) patients. Overall, 47 (3.1%) patients experienced complications. Complication rates were similar between groups (p=0.13), with 14 (2.8%) complications occurring in the PLA group versus 33 (3.2%) in the non-PLA group. Importantly, the PLA group underwent removal of a greater mean number of cores (11.9 vs. 8.3, p<.0001) and demonstrated a greater mean TRUSPV (46.6 vs. 40.6 cm3, p<.0001). The percentage of patients requiring early termination of TRUSB prior to reaching the targeted number of cores was significantly higher in the non-PLA group (45.5% vs. 14.3%, p=0.04). The number of cores removed was the only significant predictor of complication risk (univariate, p=0.001; multivariate p<.0001).

**Conclusions:** PLA provides excellent pain control during TRUSB with comparable complication rates to non-PLA methods. PLA is a safe method of anesthesia for patients undergoing TRUSB.
INCREASING THE NUMBER OF CORES REMOVED DURING TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY IMPROVES CANCER DETECTION

Christopher DiBlasio, MD¹, Reza Mehrzarin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ (Presented By: Christopher DiBlasio)
¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

Introduction and Objectives: Transrectal ultrasound-guided biopsy (TRUSB) remains the mainstay for prostate cancer (CaP) diagnosis. Cancer detection rates can be variable depending on the number of cores removed, particularly with large volume glands. This study aims to determine if the number of cores removed at TRUSB is associated with cancer detection.

Methods: After IRB approval, we retrospectively reviewed all patients undergoing TRUSB for CaP detection at a single center at our institution (VAMC Memphis) between 2/2000-9/2007. Patients with incomplete data and those undergoing repeat biopsies were excluded. Variables included age at biopsy, race, clinical stage, prostate specific antigen (PSA), number of cores removed, prostate volume by TRUS (TRUSPV) and digital rectal exam, body mass index (BMI), family history and pathology results. SAS statistical software was utilized with p<.05 considered significant.

Results: After exclusions, 1542 consecutive patients underwent TRUSB with a mean age of 64.4 years (34.9-89.2), PSA of 20.8 ng/ml (0.3-3900), BMI of 28.1 kg/m² (13.9-58.4) and TRUSPV of 42.6 cm³ (9.6-212). CaP was diagnosed in 561 (36.4%) patients overall. TRUSB was performed for elevated PSA in 1084 (70.3%) patients, palpable abnormality in 442 (28.7%) and unspecified in 16 (1.0%). Cancer was detected in 35.4% of patients when removing <10 cores, 38.1% when removing > 10 cores, 40.4% when removing >12 cores, and 45.3% when removing >15 cores. On multivariate analysis, number of cores removed remained a significant predictor of CaP diagnosis (p<.0001) after adjusting for other variables. Interestingly, mean TRUSPV was significantly lower in the cancer detection group (37.3 cm³ vs. 45.5 cm³, p<0.0001).

Conclusions: Smaller prostate volumes appear to be associated with higher cancer detection rates. Removing a greater number of cores, and in particular >15 cores, especially in smaller-sized glands, may provide improved CaP-detection rates. Further prospective investigation is requisite in order to determine the optimal number of cores to remove per given prostate volume.

PERI-PROSTATIC LIDOCAINE ANESTHETIC BLOCK IMPROVES CANCER DETECTION DURING TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY

Christopher DiBlasio, MD¹, Reza Mehrzarin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, MD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ (Presented By: Christopher DiBlasio)
¹University of Tennessee Health Sciences Center, Dept. of Urology, Memphis, TN; ²University of Tennessee Health Sciences Center, Dept. of Preventive Medicine, Memphis, TN

Introduction and Objectives: Peri-prostatic lidocaine anesthetic (PLA) block has shown superior patient-tolerability and has become routine during transrectal ultrasound-guided biopsy (TRUSB) for prostate cancer (CaP) diagnosis. This study aims to compare differences in pathology and cancer-detection rates between PLA and non-PLA TRUSB.

Methods: After IRB approval, we retrospectively reviewed all patients undergoing TRUSB for CaP detection at a single center at our institution (VAMC Memphis) between 2/2000-9/2007. Patients undergoing repeat biopsy were excluded. Variables included age at biopsy, race, clinical stage, prostate specific antigen (PSA), number of cores removed, receipt of PLA, prostate volume (TRUSPV), body mass index (BMI), pathology results, and complications. All patients received instillation of 1% viscous lidocaine gel per rectum prior to the TRUSB; the PLA group also received 5 cc of 1% lidocaine into each respective neurovascular bundle. SAS statistical software was utilized with p<.05 considered significant.
**Results:** After exclusions, 1542 consecutive patients underwent TRUSB with a mean age of 64.4 years (34.9-89.2), PSA of 20.8 ng/ml (0.3-3900), BMI of 28.1 kg/m²(13.9-58.4) and TRUSPV of 42.6 cm³(9.6-212). 494 (32.0%) patients received PLA; 1048 (68.0%) did not. CaP was diagnosed in 561 (36.4%) patients: 197 (39.9%) in the PLA group versus 364 (34.7%) in the non-PLA group (p=0.02). Similar detection rates of atypical small acinar proliferation were observed between groups (p=0.7). While the PLA group had a significantly greater mean number of cores removed at TRUSB (11.9 vs. 8.3, p<.0001) and a greater percentage of African-American men (50.6% vs. 32.9%, p<.0001), this group also demonstrated a greater mean TRUSPV (46.6 vs. 40.6 cm³, p<.0001). PLA was a significant predictor of cancer diagnosis on univariate (p=0.02) and multivariate (p<.0001) analysis. Other predictors of CaP diagnosis on multivariate analysis included age at biopsy (p=.0009), race (p=.0004), and PSA (p=.0001).

**Conclusions:** PLA demonstrated significantly increased rates of CaP detection and predicted CaP detection on both univariate and multivariate analysis. Whether these findings are related to the number of cores and racial composition of the PLA group or a biologic effect on prostate tissue is unclear. Further investigation into the cellular effects of lidocaine on prostatic stroma is requisite.

**Poster # 82**

**USE OF STATIN MEDICATIONS MAY DECREASE CANCER DETECTION RATES DURING TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY**

Christopher DiBlasio, MD¹, Reza Mehrazin, MD¹, Michael Maddox, MD¹, Jamin Brahmbhatt, MD¹, Jim Wan, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹ and Robert Wake, MD¹ (Presented By: Christopher DiBlasio)

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**Introduction and Objectives:** Statin medications have shown an association with reduced risk of developing advanced prostate cancer (CaP), but have not been shown to reduce the overall risk of CaP. The effects of statins are thought to arise from its effects on the sex steroid pathway. This study aims to assess the impact of statin use on pathologic outcomes and cancer detection at the time of initial TRUSB.

**Methods:** After IRB approval, we retrospectively reviewed all patients undergoing TRUSB for CaP detection at a single center at our institution (VAMC Memphis) between 2/2000-9/2007. Patients undergoing repeat biopsy were excluded. Variables included age at biopsy, indication for biopsy, race, clinical stage, prostate specific antigen (PSA), receipt of statin medications prior to TRUSB, TRUS prostate volume (TRUSPV), body mass index (BMI), and pathology results. SAS statistical software was utilized with p<.05 considered significant.

**Results:** After exclusions, 1542 consecutive patients underwent TRUSB with a mean age of 64.4 years (34.9-89.2), PSA of 20.8 ng/ml (0.3-3900), BMI of 28.1 kg/m²(13.9-58.4) and TRUSPV of 42.6 cm³(9.6-212). TRUSB was performed for elevated PSA in 1084 (70.3%) patients, palpable abnormality in 442 (28.7%) and unspecified in 16 (1.0%). 935 (60.6%) patients were receiving statins at the time of TRUSB. Clinical variables were similar between groups, except the statin group demonstrated a higher mean BMI (p<.0001) and a lower mean PSA (p=0.03). CaP was diagnosed in 561 (36.4%) patients: 322 (34.4%) in the statin group versus 239 (39.4%) in the non-statin group (p=0.04). However, on multivariate analysis, receipt of statin medications did not independently predict an association with CaP diagnosis when adjusting for other variables (p=0.99).

**Conclusions:** While statin use was associated with a reduced incidence of CaP detection on TRUSB, multivariable analysis failed to identify a significant association between statin use and the study endpoint. Further prospective investigation into this association is requisite to further elucidate the potential chemoprotective effects of statin medications in this patient population.
**Poster # 83**

**NOMOGRAM TO PREDICT PROSTATE CANCER DIAGNOSIS ON TRANSRECTAL ULTRASOUND-GUIDED PROSTATE BIOPSY IN A CONTEMPORARY SERIES**

Christopher DiBlasio, MD¹, Michael Maddox, MD¹, Reza Mehrazin, MD¹, John Malcolm, MD¹, Changhong Yu, PhD², Michael Aleman, MD¹, Ithaar Derweesh, MD¹, Anthony Patterson, MD¹, Robert Wake, MD¹ and Michael Kattan, PhD² (Presented By: Christopher DiBlasio)

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**Introduction and Objectives:** Transrectal ultrasound-guided biopsy (TRUSB) remains the mainstay for prostate cancer (CaP) diagnosis. Numerous variables have shown associations with development of CaP. We present a nomogram that predicts the probability of detecting CaP on TRUSB.

**Methods:** After IRB approval, all patients undergoing primary TRUSB for CaP detection at a single center at our institution between 2/2000-9/2007 were reviewed. Patients undergoing repeat biopsies were excluded. Variables included age at biopsy, race, clinical stage, prostate specific antigen (PSA), number of cores removed, TRUS prostate volume (TRUSPV), body mass index, family history, and pathology results. S-PLUS 2000 statistical software was utilized with p<.05 considered significant. Cox proportional hazards regression models with restricted cubic splines were utilized to construct the nomogram. Validation utilized bootstrapping, and the concordance index (CI) was calculated based on these predictions.

**Results:** 1542 consecutive patients underwent primary TRUSB at a mean age of 64.4 years (range: 34.9-89.2). Mean PSA was 20.8 ng/mL (range: 0.3-3900), mean number of cores removed was 9.7 (range: 1-22) and mean TRUSPV was 42.6 cm³ (range: 9.6-212.0). CaP was diagnosed in 561 (36.4%) patients. The nomogram generated demonstrated a CI of 0.802 when validated internally.

**Conclusions:** We have developed and internally validated a model that predicts CaP detection in men undergoing TRUSB in a contemporary series of patients.

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**Poster # 84**

**PROSTATE EVASIVE ANTERIOR TUMOR SYNDROME**

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**Introduction:** At our institution, we believe the number of patients presenting with a raised prostate-specific antigen (PSA) and clinical findings suggestive of anterior predominant tumors to be significant- particularly in patients with prior negative biopsy or those with low volume disease undergoing active surveillance. We review our experience with such patients and delineate the role of magnetic resonance imaging (MRI) in identifying tumours by comparing to pathology.

**Patients and Methods:** A retrospective review of our institutional database and records was undertaken to identify patients with anteriorly predominant prostate tumours on MRI whom had also undergone prostate biopsy.
Results: We identified 30 patients with anterior predominant tumors on MRI whom also had at least one biopsy for prostate cancer. Thirteen patients were undergoing active surveillance of prostate cancer and the remaining 17 had prior negative prostate biopsies. Prostate biopsy in association with MRI revealed 24 patients with cancer (Gleason grade 3+3=14; 3+4=3; 4+3=4; 8/9=3) whilst one patient has high-grade prostate intreptelial neolasia (HGPIN), two were negative and a further patient refused repeat biopsy. MRI correlated with biopsy findings in 26/30 (87%) patients (including one re-biopsy refusal counted as negative). MRI was usually triggered by presenting PSA or PSA velocity. Thirteen patients had radical prostatectomies with 8/13 (62%) having positive surgical margins.

Conclusion: There is a subset of patients either having negative TRUS biopsy or low volume disease undergoing active surveillance who should be considered for MRI and further biopsy as their pathology may be aggressive. A new entity may be merging with anterior predominant tumours that are non-palpable and we believe the term prostate evasive anterior tumor syndrome (PEATS) to be appropriate. This requires further analysis in a large prospective database with consideration for triggers as to when to conduct an MRI and targeted biopsies.

Poster # 85

64-SLICE MULTIDETECTOR CT VERSUS MRI FOR PREOPERATIVE ASSESSMENT OF SEMINAL VESICLE INVASION IN PROSTATE CANCER: A PROSPECTIVE STUDY

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Introduction: In prostate cancer, preoperative identification of seminal vesicle invasion (SVI) is important for staging and prognosis and may modify treatment selection and planning. The purpose of this study was to compare contemporary multidetector CT (MDCT), with endorectal MR and surgical pathology, to determine the accuracy of delineating SVI in patients with intermediate to high-risk prostate cancer. Our secondary aim was to develop a standardized evaluation system for interpreting SVI with MDCT reporting.

Patients and Methods: This was a prospective, single-institution cross-sectional study. Patients with histologically diagnosed prostate carcinoma had MDCT and MR imaging before radical prostatectomy. Inclusion criteria were a prostate specific antigen (PSA)>10ng/ml, Stage T2c, Gleason score =7. MDCT were reported in regard to five key factors potentially indicating SVI from which a standardized evaluation system or “invasion index” was created. Scores were assigned on a scale of 0–(score of 0, definitely absent; score of 1, probably absent; score of 2, possibly present; score of 3, probably present; and score of 4, definitely present- maximum score of 20). The results of MRI and MDCT were compared with histopathology with statistical analysis undertaken.

Results: 30 patients were enrolled and underwent surgery. 4 patients had seminal vesicle invasion at histology. The accuracy of modalities was similar with MRI and MDCT having similar sensitivity (75, 75%), specificity (81, 78%) positive predictive values (50, 43%) and negative predictive values (95, 95%) respectively. On MDCT the SVI index when positive at histology had a mean score 15.0 (range 12-20) whilst when SV Invasion was absent, the mean score was 4.0 (range 0-12) (p< 0.01).

Conclusion: In patients considered to be at greater risk for SVI, pre-operative assessment using MDCT appears to have similar accuracy to MR. Further, a standardized evaluation system for interpreting SVI that may be used for CT reporting is feasible. Both findings may have implications for image modality selection and stratifying patients prior to treatment decisions in selected patients with prostate cancer.
POSTER # 86

THE ASSOCIATION BETWEEN STATIN USE AND BIOCHEMICAL RECURRENCE FOLLOWING RADICAL PROSTATECTOMY: RESULTS FROM THE SEARCH DATABASE
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Introduction: Though controversial, evidence suggests statins may reduce the risk of advanced prostate cancer and recently statin use was shown to be associated with reductions in PSA among men without prostate cancer. While men on statins at the time of brachytherapy appear to have better outcomes, statins do not appear to influence outcomes after external beam radiotherapy. No studies to date have examined the association between statin use and PSA recurrence after radical prostatectomy.

Methods: We examined 1150 men from the Shared Equal Access Regional Cancer Hospital (SEARCH) Database who were treated with radical prostatectomy. As very few men operated on before 1996 reported being on statins, we excluded men treated prior to 1996. Time to PSA recurrence was compared between men on statins at the time of their radical prostatectomy and those who were not on a statin using Cox proportional hazards models adjusted for age, race, body mass index, center, biopsy Gleason score, clinical stage, pre-operative PSA and year of surgery.

Results: In total, 276 (24%) men were taking a statin at the time of radical prostatectomy. On average, statin users were 1.1 years older (p=0.01) and underwent radical prostatectomy more recently (median year of surgery 2005 vs. 2001; p<0.001). Statin users were diagnosed at lower clinical stages (67% vs. 58% T1 disease; p=0.005) and with lower PSA levels (6.0 vs. 7.1, p=0.001). However, statin users tended to have higher biopsy Gleason scores (23% =4+3 vs. 14%; p<0.001). After adjusting for multiple clinical factors, statin use was associated with a 26% lower risk of PSA recurrence (HR 0.74; 95% CI 0.54-1.01, p=0.058), though this did not reach statistical significance. These results were little changed by further adjustment for pathological features.

Conclusions: In our cohort of men undergoing radical prostatectomy statin use was associated with a reduction in the risk of biochemical recurrence, which was almost statistically significant. Ultimately, if these findings are confirmed in larger studies and/or randomized trials, it may be prudent to prescribe a statin to all men undergoing radical prostatectomy.

POSTER # 87

PREOPERATIVE PSA KINETICS DO NOT PREDICT PATHOLOGIC UPGRADING IN CONTEMPORARY PATIENTS DIAGNOSED WITH GLEASON 6 PROSTATE CANCER
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Introduction: As many as 50% of patients diagnosed with Gleason 6 prostate cancer are found to harbor higher grade cancer on final pathologic evaluation. We evaluated the utility of PSAV (PSA velocity) and PSADT (PSA doubling time) to identify patients at risk for pathologic upgrade with Gleason 6 cancer.

Materials and Methods: 272 consecutive patients at our institution initially diagnosed with Gleason 6 cancer and ultimately undergoing robotic radical prostatectomy between 2001 and 2007 were included. Preoperative characteristics, at least two PSA measurements prior to biopsy, TRUS prostatic volume, digital rectal exam (DRE), history of previous biopsy and number of cores taken were evaluated to find significant factors in surgical pathologic upgrading. PSAV and PSADT were calculated with at least 2 PSA measurements greater than 6 months apart prior to biopsy and measured at a priori groupings. PSA density and PSA were log transformed for normalization.

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Results: A total of 133 (49%) patients were upgraded to Gleason sum 7 or higher postoperatively. These patients had a higher mean PSA (6.5 vs 4.7, p<.001), higher mean PSA density (.19 vs .13, p<.001), were more likely to have any core with >50% cancer (16% vs 7%, p=.014) and have cancer detected bilaterally (38% vs 25%, p=.019). A similar percentage of patients in both group had a previous negative biopsy (p=.25). 17% of both groups had clinical T2 disease (p=.99). Percentage of patients with PSAV greater than 20 1, 2 or 3 ng/ml/yr was similar between the groups (p=.33, .15, .49, and .38 respectively). Percentage of patients with PSA doubling time above cutoffs of 3 or 10 years was also not significantly different between the two groups (p=.65, p=.25 respectively). Most patients in both groups received extended biopsy schemes (>10 cores) (75% v 84%, p<.13). On multivariate logistic regression analysis in a model including PSA, PSA density, >50% cancer detected in any core, and bilateral cancer detected, only bilateral cancer (OR 1.380 95% CI 1.034 –1.850) remained a significant predictor of pathologic upstaging.

Conclusion: In this contemporary prostatectomy cohort, preoperative PSA V and PSADT were not predictive of pathologic upgrading in patients with clinical Gleason 6 prostate cancer. In the multivariate analysis, only the presence of bilateral cancer detected on biopsy was a significant predictor of pathologic upstaging.

Poster # 88

INITIAL EXPERIENCE AND FEASIBILITY OF TARGETED TRANSRECTAL ULTRASOUND—MAGNETIC RESONANCE IMAGE FUSION GUIDED PROSTATE BIOPSIES
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Bethesda, MD

Purpose: Currently, a prostate biopsy is performed using sextant or extended biopsy schemes with ultrasound guidance. MRI prostate imaging is able to identify suspicious prostatic lesions. In order to biopsy these lesions a novel platform was created that fuses real-time transrectal ultrasound images with previously obtained MRI images to guide biopsies. We describe the feasibility and initial experience in MRI-US fusion targeted prostate biopsies.

Materials and Methods: After obtaining consent, a high field (T3) endo-coil MRI of the prostate was performed capturing T2 weighted, DCE (dynamic contrast enhanced), DWI (diffusion weighted imaging) and spectroscopy imaging. Prostate lesions were identified and scored for suspicion of cancer by a radiologist. Under general anesthesia a traditional 12 core prostate biopsy was performed. Then biopsies of MRI targeted lesions were performed using the guidance of ultrasound and MRI fused images. These biopsies were accomplished by using a custom spatially tracked ultrasound probe with an electromagnetic tracking system and real-time prostate ultrasonography images fused to the pre-operative MRI images. Visualization of US images and projected needle pathways on the corresponding MRI images guided prostate biopsies to the targeted lesions.

Results: USfusion biopsies were performed in 45 patients with a mean age 62 years old (49 –79) and a mean PSA 8.1 (0.3 –46.9). 31 patients had prior prostate biopsies with 20 positive for prostate cancer. Fourteen patients had never had a biopsy. 599 standard sextant biopsy cores and 323 tracked biopsy cores from MRI lesions were obtained. Overall, 14% (82/599) of the sextant cores and 17% (56/323) of the tracked cores were positive. Of the 45 patients, 27 patients had a positive biopsy, with 16 (59%) positive both on sextant and tracked biopsies, 4 (15%) only positive on tracked biopsies, and 7 (26%) only positive on sextant biopsies. Tracked biopsies of MRI lesions with low, moderate, or high suspicion were positive for cancer in 5% (9/168), 22.5% (18/80) and 42% (29/69), respectively. In14 patients with highly suspicious MRI lesions 21% (41/196) of the sextant cores and 29% (31/106) of the tracked cores were positive.

Conclusions: This phase I study demonstrates the feasibility of targeting MRI prostatic lesion using US images fused to prior obtained MRI images. This novel platform may allow the application of prostate biopsies and other therapies incorporating MRI imaging.
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Poster # 89

TRANSRECTAL CONTRAST-ENHANCED ULTRASOUND OF THE PROSTATE: COMPARISON WITH WHOLE-MOUNT PROSTATECTOMY SPECIMENS IN 23 PATIENTS
Joseph Zola, MD, Cyrillo Araujo, MD, Ethan Halpern, MD, Fleming Forsberg, PhD, Peter McCue, MD and Edouard Trabulsi, MD (Presented By: Joseph Zola)
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Purpose: To compare contrast-enhanced transrectal ultrasound with whole-mount prostatectomy specimens and determine if the use of contrast material improves the detection rate of prostate cancer.

Materials and Methods: Transrectal ultrasound was performed in 23 subjects with prostate cancer prior to radical prostatectomy. Each gland was evaluated with gray-scale and wide-band harmonic ultrasound at baseline and again during intravenous infusion of a microbubble contrast agent. Focal areas of contrast enhancement were identified prospectively in the transverse plane at the base, midgland and apex of the prostate. Directed biopsies were obtained from areas with suspicious enhancement patterns. Patients subsequently received a routine transrectal ultrasound-guided biopsy of the prostate consistent with the standard of care. Biopsy results were compared with whole-mount prostatectomy specimens.

Results: 67 foci of prostate cancer were detected at pathology. Multiple cancer foci were present in 20 of the 23 prostate specimens. Baseline ultrasound identified 36 distinct foci of cancer. Contrast-enhanced imaging detected an additional 12 cancer foci not seen by traditional ultrasound. Total positive cores were 41/88 (46.5%) utilizing contrast-enhanced imaging versus 47/162 (29%) with standard grayscale. Detection of high-grade cancer (gleason 7 or greater) was 44% (18/41 cores) with enhanced imaging versus 29% (14/47 cores) with traditional ultrasound. Mean volume of cancer per core was 53% with directed biopsy versus 37% with grayscale. The contrast-enhanced imaging failed to detect 15 cancer foci found by routine biopsy.

Conclusion: Contrast-enhanced ultrasound can improve the sensitivity for detection of high grade, high volume prostate cancer.

Poster # 90

PROSTATE VOLUMES ARE INDEPENDENT PREDICTORS OF PROSTATE CANCER AND HIGH GRADE DISEASE ON PROSTATE NEEDLE BIOPSY
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Introduction and Objectives: The relationship between prostate volume and the risk of prostate cancer remains a significant question. Current evidence suggests that decreased size of the gland is a risk factor for increased detection of cancer. Additionally, some have suggested that men with smaller glands are more likely to harbor higher-grade prostate cancer. We sought to further evaluate this relationship using a prospectively collected prostate biopsy database.

Materials and Methods: We analyzed 507 consecutive patients undergoing 10-12 core prostate needle biopsy between 9/04 and 8/07 by a single urologist. Demographic and pathologic data were collected prospectively including age, family history, DRE, PSA, Gleason grade, IPSS, total gland and transitional zone (TZ) volumes on ultrasound. Gland and TZ volumes were categorized by quartiles. Multivariate logistic regression was used to assess the relationship between gland volumes and biopsy result. A separate analysis was performed for identification of high-grade disease.

Results: Increasing total gland volume independently decreased the risk of prostate cancer with an OR of 0.35 (95% CI 0.14-0.90) in the highest quartile compared to the lowest quartile. The highest TZ volume quartile had an odds ratio (OR) of 0.37 (CI 0.15-0.94) for having a positive biopsy compared with the lowest quartile. Increasing total and TZ volume quartiles were associated with a decreased risk of high-grade cancer (p<0.05 for trend). Additionally, even men in the second quartile of total volume had a significantly lower risk of high-grade disease than the men in the lowest quartile (OR=0.27, CI 0.09-0.83). In the largest volume quartiles for total and TZ, the risk of high-grade cancer was reduced by 80% (OR=0.20, CI 0.05-0.78) and 87% (OR=0.13, CI 0.03-0.53), respectively, compared to the lowest quartiles.
**Conclusions:** There is a highly important relationship between gland size and the diagnosis of prostate cancer on biopsy which cannot be explained simply by volume sampling error in larger glands. The independent effect exerted by increasing TZ size is consistent with BPH as the principal driver of elevated serum PSA in men with larger prostates. Conversely, men with smaller glands not only have a greater risk of prostate cancer, but a greater risk of high-grade disease. Identification of the molecular and hormonal factors responsible for this phenomenon will be important in furthering our understanding of this disease.

**Poster # 91**

**PREDICTIVE VALUE OF AN UNDETECTABLE ULTRASENSITIVE PSA AFTER RADICAL PROSTATECTOMY**
Jeffrey La Rochelle, MD, Stephen Riggs, MD, Brian Calimlim, BS, Robert Reiter, MD and Jean deKernion, MD (Presented By: Jeffrey La Rochelle)
UCLA

**Introduction:** An undetectable PSA (<0.2) value after radical prostatectomy is a good prognostic sign after radical prostatectomy. However, patients still suffer biochemical failure in the years following surgery. We attempted to determine if an undetectable ultrasensitive PSA (<0.01) identifies a subset of patients at very low risk of future biochemical failure.

**Methods:** From the UCLA Prostate Cancer database, we identified 268 patients with an undetectable usPSA at 1-4 months post-op, 126 patients with an undetectable PSA at 1 year, and 131 patients with an undetectable usPSA at 2 years.

**Results:** 5-yr biochemical recurrence- or treatment-free survival was 87% for those undetectable at 1-4 months, 90% for those at 1 year, and 95% for those at 2 years. Stratifying by risk factors (pre-op PSA >10, Gleason 8-10, non-organ confined disease) revealed a significant difference between those with 0 risk factors and 1+ risk factors and an undetectable usPSA at 1-4 months (5 yr biochem. recurrence-free survival 92% vs 82%, p=0.03).

**Conclusion:** An undetectable usPSA in the early post-operative period identifies a subset of patients at low-risk of subsequent biochemical failure.

**Poster # 92**

**EVALUATION OF THE INCIDENCE OF A SECOND UROLOGIC MALIGNANCY (BLADDER CANCER AND KIDNEY CANCER) IN MEN WITH A DIAGNOSIS OF PROSTATE CANCER**
Angela Smith, Matthew Coward, Douglas Kelly, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

**Purpose:** This study examined the rates of a second urologic malignancy in patients with a diagnosis of prostate cancer –in particular the co-incidence of renal carcinoma and bladder carcinoma.

**Methods:** We examined data from the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) sample from 2004. (The NIS represents 20% of all hospital discharges in the United States.) The patients were identified using the Clinical Classification Software (CCS). CCS is a tool for grouping patient diagnoses and procedures into manageable categories. The CCS compresses the 12,000 diagnosis codes of the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-C) into 259 mutually exclusive categories. Univariate logistic regression models were built to determine if prostate cancer is an independent risk factor for bladder and kidney cancer. The regression controlled for age, sex, tobacco, and comorbidities. Comorbidities were identified using comorbidity software that assigns variables that identify comorbidities in hospital discharge records using the diagnosis coding of ICD-9-CM as described by Elixhauser et al (1998).

**Results:** Patients with a diagnosis of prostate cancer were found to have higher odds of having a concomitant diagnosis of bladder cancer (odds ratio [OR], 2.05; P= 0.001). Patients with a diagnosis of prostate cancer were also found to have higher odds of having a concomitant diagnosis of kidney cancer (OR, 1.43; P=0.001). African Americans had the highest odds of having a diagnosis of prostate cancer and a concomitant diagnosis of bladder cancer (OR, 2.16; P=0.001) compared with Caucasians (OR, 2.01; P=0.001) and Hispanics (OR, 2.03; P=0.001). African Americans also had higher odds of having a diagnosis of prostate cancer and a concomitant diagnosis of kidney cancer (OR, 1.85; P=0.001) compared with Caucasians (OR, 1.37; P=0.001). The odds of having a diagnosis of prostate cancer and a concomitant diagnosis of kidney cancer were not significant when comparing Hispanics to Caucasians.
Conclusions: The presence of prostate cancer seems to have a significant association with the incidence of bladder cancer and of kidney cancer. Further investigation is necessary to determine whether these findings are secondary to differences in access to health care or detection bias or whether there are genetic or environmental factors that predispose patients to multiple urologic malignancies.

Poster # 93

LYMPH NODE DENSITY IS STRONGLY ASSOCIATED WITH DISEASE-SPECIFIC SURVIVAL IN PATIENTS UNDERGOING NODAL DISSECTION FOR PENILE CANCER
Robert Svatek, Paul Hegarty, MD, Jordan Kincaid, Kris Gaston, MD, Phillipe Spiess, MD, L.C. Pagliaro, MD and Curtis Pettaway, MD (Presented By: Robert Svatek)
MD Anderson, Houston, TX

Introduction: The presence of nodal involvement is the most important prognostic factor for survival in patients with penile cancer. However, the outcome for patients with proven nodal disease is variable. It has been observed that the number of lymph nodes involved with tumor and the location and extent of nodal disease, as reflected in nodal staging classification, significantly impacts the probability of survival. However, neither the number of involved lymph nodes nor the nodal stage captures the completeness of the lymphadenectomy or the degree of pathologic processing. The concept of lymph node density (LND) has been utilized as a prognostic factor for other solid tumors. This variable simultaneously incorporates the extent of the nodal dissection and the nodal disease burden. We sought to explore the prognostic value of LND for predicting survival in patients with penile cancer and nodal metastasis.

Methods: Following IRB approval, combined retrospective (n=75) and prospective (n=88) data collection was performed on consecutive patients with squamous cell carcinoma of the penis treated at M.D. Anderson Cancer Center between 1979 and 2007. We identified 45 patients with penile cancer and nodal metastasis who underwent a nodal dissection with curative intent. The value of lymph node density was explored following conversion to a categorical variable by grouping into 2 or 3 categories based on equal percentages.

Results: The median follow-up duration was 23.74 months for all patients (range, 7.2-78.4 months). At the time of data censoring, 22 patients had died, including 18 (82%) from penile cancer and 4 from other causes. Median lymph node density for patients alive or dead of other causes was 3.5% (IQR, 2.7-5.9%) compared to 35.4% (IQR, 10.3-80%) for those patients dead of disease (P<0.001). The median 5-year DSS estimates for patients with LND =6% (88%, 95% CI 53.8-94.2%) was significantly improved compared to those patients with LND >6% (30%, 95%CI 11.8-55.1%) (P<0.001). In multivariate analysis, LND retained statistical significance with DSS (HR, 8.6; 95%CI, 1.6-45.9;P=0.011) but TNM 2002 pathologic nodal staging was not significantly associated with death from disease.

Conclusions: Lymph node density is strongly associated with DSS in patients with nodal metastasis. Application of this concept to penile cancer patients represents a significant improvement in prognostication over the current nodal staging system.

Poster # 94

PET/CT TO IDENTIFY PENILE SQUAMOUS CELL CARCINOMA (SCCA) METASTATIC LYMPH NODES: FRIEND OR FOE
Matthew Collins, MD¹, Hadyn Williams, MD¹, Ronald Lewis, MD² and James Brown, MD² (Presented By: Matthew Collins)
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Introduction: Due to the significant potential morbidity of inguinal and pelvic lymphadenectomy, the search for an imaging modality that can accurately determine cancerous lymphatic metastases continues. Initial 18F-FDG PET/CT studies have reported 80% sensitivity and 100% specificity in the detection of inguinal and obturator lymph node metastasis. Further, a 100% sensitivity in detection of deep inguinal and obturator nodes has been suggested. We review a single experience of PET/CT imaging of penile cancer to assess for accuracy and potential negative impact on clinical management.
Methods: Five patients diagnosed with penile SCCA at a single institution underwent staging PET/CT since the initiation of the fused modality. Of these, 3 subsequently underwent inguinal (and 1 also pelvic) lymph node dissection. PET/CT findings were compared to the histological findings of these procedures. Decision to proceed with lymphadenectomy was based on clinical judgment of a single urologist and all fused PET/CT imaging was assessed by a single experienced radiologist.

Results: PET/CT was accurate, to date, in 2 patients: a patient with liver and lung metastases and a second patient without evidence for metastases. The former received chemotherapy and the latter observation. Three patients, none having received chemotherapy or radiation, had false negative findings on PET/CT. One patient after partial penectomy for T3 disease, was felt to have inflammation on PET/CT, but pathology demonstrated a 2cm right inguinal metastatic node. A second patient’s PET/CT demonstrated a 1cm left inguinal node. Pelvic lymphadenectomy demonstrated SCCA in the node of Cloquet (PET/CT re-reviewed and this felt to be the positive site) but a subsequent inguinal lymphadenectomy also demonstrated inguinal disease. A third patient initially negative for metastases on both PET/CT and clinical exam subsequently developed a palpable node approximately 1 month later. It was positive for cancer on repeat PET/CT and on histology.

Conclusions: Our review shows that false negative PET/CT studies can occur, even with disease affecting the deep inguinal and pelvic nodes. Given the possible therapeutic benefit of lymphadenectomy, urologists must be aware of this risk. Secondly, as suggested in previously studies and by our patient who developed a large positive node within 1 month, PET/CT is poor in detection of micro-metastasis and close follow-up in these patients is imperative.

Poster #95

PENILE CARCINOMA: RESULTS FROM THE CALIFORNIA CANCER REGISTRY
Jonathan Silberstein, MD¹, Sydney Saltzstein, MD, MPH², Christopher Kane, MD² and Tracey Downs, MD² (Presented By: Jonathan Silberstein)
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Purpose: Penile carcinoma (PC) is a rare disease in the US. This study aimed to review epidemiologic characteristics and survival for PC patients using a large, population-based database.

Methods: The California Cancer Registry (CCR) was reviewed from the years 1988-2004. All cases of PC were identified, and tumors were classified by histologic subtype and stage. Annual age-adjusted incidence rates were calculated for the overall population and subdivided by stage and ethnicity. Actuarial mortality rates were calculated.

Results: From 1988-2004, 2870 cases of PC were identified, squamous cell carcinoma (SCC) accounted for 87% of all PC (n=2507), Kaposi sarcoma (KS) was the second most common variant accounting for 4.6% (n=132), and 4.4% (n=127) were identified as penile carcinoma “not otherwise specified”. Melanoma, basal cell and adenocarcinoma each accounted for about 1% of the total cohort. The age-adjusted incidence rate for the overall population was 1.34/100,000. Seventy-two percent (n=1965) of PC were found in Whites, 5.5% (n=149) in Blacks, 18.6% (n=503) in Hispanics and 3.9% (n=105) of Asian/Pacific Islanders. The mean age at diagnosis was 62.6 years. Hispanic men were found to have a younger mean age at diagnosis (55.9 years, p<0.01). Within this cohort, 39.3% (n=1128) presented with carcinoma in situ (CIS), 35.9% (n=1032) with localized disease, 15.7% (n=453) with regional disease and 2.8% (n=80) with distant disease. Men were diagnosed with CIS at significantly younger ages (mean 59.2 years) as compared with all other stages (mean 65.3 years). Patients with CIS have improved survival as compared with all other stages of PC; 91.6% versus 74.3% at five years. (P<0.05). Whites were found to present with CIS more frequently than other ethnicities (P<0.05).

Conclusion: PC is an uncommon tumor and our review of the CCR is one of the largest cohorts reported. SCC is the most common subtype followed by KS. While PC has demonstrated a decreasing incidence over the sixteen years of study, KS has demonstrated a greater rate of decline then other histologic subtypes. Hispanics are diagnosed with PC at a younger age then other ethnicities. Patients diagnosed with CIS have better survival than those diagnosed with more advanced disease. Blacks and Hispanics present with higher stage of disease and significantly decreased survival compared with Whites.
Poster # 96

CLINICAL OUTCOMES IN CLINICAL STAGE III NSGCT PATIENTS WHO ACHIEVE A COMPLETE RADIOGRAPHIC RESPONSE TO CHEMOTHERAPY AT THE SITE OF EXTRA-RETROPERITONEAL DISEASE
Timothy A. Masterson, MD, Brett S. Carver, MD, Robert J. Motzer, MD, George J. Bosl, MD and Joel Sheinfeld, MD (Presented By: Timothy A. Masterson)
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Background: Integration of platinum-based chemotherapy and surgical resection of residual masses is essential in the management of advanced NSGCT. In patients with extra-retroperitoneal (ERP) tumors, resection of residual disease is based upon the radiographic response to induction chemotherapy. In this study, we compared the progression free and overall survival in patients with ERP disease who achieved a complete radiographic response (R-CR) and in patients who underwent resection of ERP residual masses demonstrating fibrosis.

Methods: Between 1989 and 2003, 237 patients with clinical stage III NSGCT underwent induction chemotherapy followed by RPLND. Following chemotherapy, 107 demonstrated an R-CR to treatment at the ERP site of disease. Of the remaining 130 patients with radiographic evidence of residual ERP disease, all underwent excision within 6 weeks of RPLND. Of these, 86 (66%) had fibrosis only on pathologic review (P-CR). Probabilities of progression-free and disease-specific survival were estimated by the Kaplan-Meier method. Cox proportional hazards regression analysis was used to determine the prognostic significance of risk factors for progression and survival.

Results: Median follow-up time was similar for both R-CR and P-CR patients (44.5 and 50.7 months, respectively). Overall, P-CR patients were more likely to have intermediate/poor IGCCCG risk disease (57% vs. 46%, p = 0.019) and require second-line chemotherapy (35% vs. 18%, p = 0.008) than those with an R-CR. Despite this, clinical outcomes were better for men with a P-CR regarding 5-year progression-free survival (92% versus 72%), and disease-specific survival (96% versus 87%), respectively. Predictors of disease progression include the RP residual CT mass after chemotherapy (p = 0.008), while undergoing resection of residual disease at the ERP site was protective (p = 0.024).

Conclusions: Our data suggests that patients who experience a R-CR at the ERP site of disease after chemotherapy carry a higher risk of disease progression and disease-specific mortality compared to those with fibrosis only at the time of resection of residual ERP disease. Therefore, a R-CR of ERP disease after chemotherapy does not ensure the absence of residual micrometastatic viable disease at the ERP site. Our findings support a continued policy of aggressive surgical resection of all sites of residual disease and close observation during the first 2 years after chemotherapy in those observed after R-CR.

Poster # 97

SECOND OPINION PATHOLOGY IN TERTIARY CARE OF PATIENTS WITH UROLOGIC MALIGANCIES
Robert Wayment, MD¹, Bourne Andrew, MD¹, Kay Paul, MD, PhD² and Thomas Tarter, MD, PhD¹ (Presented By: Thomas Tarter)
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Objective: The purpose of this study is to evaluate the utility of second opinion pathology in patients who are seen in consultation for urologic malignancies.

Methods: We retrospectively reviewed the records of all patients who were seen at our institution in consultation for urologic malignancy from August 2002 to April 2008. All available pathologic slides were reviewed by the urologic oncologist with an in-house pathologist at the time of consultation, and compared with the referral diagnosis. Discrepant diagnoses were reviewed by at least 2 pathologists. Diagnostic disagreements were graded as minor or major according to the significance of their effect on treatment or prognosis. We report the proportion and types of diagnostic discrepancies and their impact on patient care.

Results: A total of 264 patients were seen in consultation for urologic malignancies. Of these, 213 had pathologic material available for review: prostate cancer 117 (55%), bladder cancer 83 (39%), testis cancer 5 (2%), renal pelvis or ureter 5 (2%), retroperitoneal tumors 2 (1%), and kidney
cancer 1 (0.5%). Disagreement with the original diagnosis was found in 22 cases (10.3%), of which 18 (8.4%) were classified as major and 4 (1.9%) were classified as minor. Interventions avoided or delayed were prostate biopsy in 1 patient, management of metastatic prostate cancer in 1 patient, partial nephrectomy in 1 patient, management of urothelial carcinoma in situ in 1 patient, and radical cystectomy in 5 patients. Interventions recommended were radical prostatectomy in 1 patient and radical cystectomy in 1 patient. Post-treatment pathology was available in 12 of the 22 cases of disagreement (55%), and the second opinion pathologic diagnosis was supported in 11 of the 12 (92%).

Conclusion: A second opinion review of surgical pathology in patients seen in consultation for urologic malignancy can result in major therapeutic and prognostic changes which significantly impact patient care. Our results support the practice of pathologic review by the urologic oncologist and pathologist as part of the consultation for urologic malignancy.

Poster # 98

THE IMPACT OF A MULTIDISCIPLINARY APPROACH IN THE MANAGEMENT OF UROLOGIC MALIGNANCIES: DOES IT INFLUENCE DIAGNOSTIC AND TREATMENT DECISIONS?
Angela Smith, Matthew Coward, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

Introduction: It has been recognized that multidisciplinary teams may improve management decisions for patients with malignancies. Study of the potential influences of such tumor boards in urologic cancers remains uncertain. We prospectively studied the effect of such multidisciplinary approach on the diagnosis (dx) and treatment (tx) decisions of patients newly presenting to our institution with urologic malignancies.

Methods: 269 consecutive new patients presenting to our institution with an outside diagnosis of a urologic malignancy for diagnostic or treatment considerations. Each saw one or more health care provider from the areas of urology, radiation oncology, or medical oncology with additional consultation by radiology and pathology, and further support by providers in the other areas (e.g. genetics, social work, research). All cases were reviewed and discussed at a tumor board with all members of the different subspecialties present. Re-evaluation of the outside dx and tx plan was undertaken. Based on this team review and approach, patients were classified as follows: 1) no change dx / no change tx; 2) no change dx / change tx; 3) change dx / no change tx; 4) change dx / change tx. Changes in dx also included any significant pathological or radiological changes in stage / grade. Changes in tx involved significant changes in overall treatment modality (e.g. surgery to radiation) or addition of a treatment modality (surgery to chemo. + surgery).

Results: Cohort was comprised of patients with the diagnosis of prostate ca. (34%), bladder ca. (23%), renal ca. (35%), testicular ca. (5%), and other (1%). As shown, only 35% of patients had no changes in dx or tx, 38% had a change in dx or tx, 10% required further analysis (i.e. “other”), and 17% were N/A. Changes in dx were most common in bladder ca. (22%) and renal ca. (17%), and less often in prostate ca. (10%) and testicular ca. (0%). Changes in tx were most common in bladder ca. (43%) followed by kidney ca. (36%) testicular ca. (29%) then prostate ca. (21%).

Conclusions: A multidisciplinary team approach affects the diagnostic and management decisions in a significant number patients with a newly diagnosed urologic malignancy.

Poster # 99

URACHAL ADENOCARCINOMA DURING PREGNANCY: A MULTIDISCIPLINARY-APPROACH
Anthony Huong, MD¹, Marium Holland, MD², Jerrie Refuerzo, MD², Joan Mastrobatista, MD², Michael Frumovitz, MD² and Steven Canfield, MD¹ (Presented By: Anthony Huong)
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Purpose: Urachal carcinoma during pregnancy is virtually unreported, and poses a unique challenge in management.

Continues on next page
Methods: A 36-year-old woman at 21 weeks gestation presented with gross hematuria. An 8cm bladder dome tumor was seen on pelvic ultrasound. Transurethral resection confirmed the diagnosis of urachal adenocarcinoma. CT scan revealed two suspicious lymph nodes in the left pelvis. The fetus was not considered viable at 21 weeks, and state law mandated a termination of pregnancy to be performed prior to 22 weeks, giving the physicians and patient few days to decide on her therapeutic course. A multidisciplinary team was assembled. Options discussed included: 1) immediate termination of pregnancy followed by surgical resection; 2) immediate or delayed chemotherapy and delivery at term, followed by surgery for response; and 3) observation until term, followed by simultaneous delivery and surgery. The patient chose the third option. However, her membranes ruptured 3 weeks later, prompting immediate action. She agreed to a controlled delivery and definitive surgery.

Results: Urology began the approach by opening to avoid disruption of the urachus, and dissecting with wide margins down to the bladder. This allowed exposure of the gravid uterus for the MFM and GYN/ONC team, who then performed a c-section and supravesical hysterectomy. The enbloc excision with partial cystectomy and extended pelvic lymph node dissection was then completed by urology. Pathology revealed a 6.5cm adenocarcinoma with negative margins and lymph nodes (0/17). Mother and infant have done well.

Discussion: Urachal adenocarcinoma is rare. Currently, enbloc resection for early-stage disease can confer a good prognosis. The value of chemotherapy or radiotherapy is still investigational. This case illustrates a successful approach to balancing oncological, maternal and fetal outcomes. A literature search revealed only one other reported case in pregnancy, for which complete resection with hysterectomy and termination of pregnancy was performed. Ultimately what this case imparts is the value of a carefully considered multidisciplinary approach to problems, and how evidence based practice must always be driven by patient values.

POSTER # 100

DUPLICATE RESEARCH PRESENTATIONS IN PROSTATE CANCER AT THE AUA AND EAU ANNUAL MEETINGS
Lawrence Yeung, George Pop, David Ball, Susan Fesperman, Johannes Vieweg and Philipp Dahm
(Presented By: Lawrence Yeung)
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Introduction and Objectives: Major international urological meetings are invaluable to the dissemination of new research findings. Given the time and space constraints of meeting programs, investigators who present the same paper at multiple meetings prevent other presentations of other potentially important original research from discussing their work. We conducted an observational study to determine the incidence of duplicate abstract presentations at recent American Urological Association (AUA) and European Urological Association (EAU) annual meetings.

Methods: We cross-referenced all clinical research presentations related to prostate cancer presented at the 2006 AUA and EAU annual meeting with the corresponding annual meetings of the EAU and AUA, respectively from 2005, 2006 and 2007 using a defined search strategy based on author names, abstract titles, study design and objectives. All data-abstraction was performed in duplicate by two independent reviewers to assure accuracy. Statistical analysis was performed using the Fisher’s exact and Chi-square test, as well logistic regression analysis. All testing was two-sided with an alpha of 0.05.

Results: We identified 282 and 312 clinical research studies on prostate cancer at the 2006 EAU and AUA annual meetings, respectively. The overall duplication rate of AUA abstracts was 19.2%. Of the duplicated abstracts, 80.0% were presented at the EAU annual meeting the same year. Duplication of EAU abstracts was identified in 20.9%. The percentage of duplicated presentations was higher for abstracts originating from North America (14.1%) than Europe (8.5%) with an odds ratio of 2.5 (95%CI 1.5-4.4; p=0.001). Authors who presented the same research at both meetings altered their presentations in a variety of ways: Different study title (40.8%), first (14.1%) or senior author (18.3%), and increased (8.5%) or decreased (14.1%) sample size. In addition, changes in the reported length of follow-up (6.5%) and the direction of the results (10.0%) were observed.

Conclusions: Approximately one in five clinical research abstracts on prostate cancer presented at the AUA annual meeting are also presented at the EAU meeting, and vice-versa. Inconsistencies between duplicate abstracts raise concerns about the integrity of the underlying studies. Stricter enforcement of submission guidelines and improved dissemination of research findings from both meetings may help limit this practice.
Prostate, Kidney and Bladder Cancer: Clinical and Basic Research and Minimally Invasive Therapy

Poster # 101

DENOSUMAB IN PATIENTS WITH BONE METASTASES FROM PROSTATE CANCER AND ELEVATED URINE N-TELOPEPTIDE LEVELS DESPITE INTRAVENOUS BISPHOSPHONATE (IV BP) THERAPY: RESULTS OF A RANDOMISED PHASE II TRIAL

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Introduction and Objective: Prostate cancer (CaP) bone metastases usually appear osteoblastic (bone forming), but are also characterized by osteolytic (bone destroying) activity which produces elevated bone resorption markers, such as urinary N-telopeptide (uNTx). Elevated uNTx levels are associated with skeletal-related events (SREs), disease progression, and death. Osteoclasts, whose formation, function, and survival depend on the receptor activator of NF-κB ligand (RANKL), mediate bone resorption. Denosumab, a fully human monoclonal antibody, inhibits RANKL to reduce osteoclast-mediated bone destruction. In this study, we evaluated the safety and efficacy of denosumab in advanced cancer patients with bone metastases and elevated uNTx (>50 nM/mM creatinine [Cr]) while previously receiving IV BP therapy.

Methods: Patients were stratified by cancer type and screening uNTx (50–or >100) and randomized to continue IV BP every 4 weeks (Q4W) or receive subcutaneous denosumab 180 mg Q4W or 180 mg Q12W for the 25-week treatment period. The primary endpoint was the percentage of patients achieving uNTx <50 at week 13.

Results: Of 111 enrolled patients, patients with CaP represented 45% of the study population (41% of patients had breast cancer and 14% had multiple myeloma or other solid tumors). At week 13, 69% (22/32) of patients with CaP in the denosumab arms achieved the primary endpoint of uNTx <50, compared with 19% (3/16) of the IV BP cohort (p < 0.001). At week 25, 69% of patients with CaP in the denosumab arms achieved uNTx <50, compared with 31% in the IV BP cohort (p = 0.014). All CaP patients in the IV BP group received zoledronic acid. The effect of denosumab on reduction of uNTx levels was similar for patients with moderate (50–) and high (>100) screening uNTx. SREs tended to be lower in the denosumab arms than in the IV BP cohort. The incidence and types of adverse events were similar in both treatment groups and similar to those for the entire population. One serious adverse event (hypophosphatemia) was reported and possibly related to denosumab treatment.

Conclusion: Among patients with prostate cancer-related bone metastases and elevated uNTx despite IV BP treatment, those on denosumab had a rapid and sustained reduction in bone resorption (as noted by reduced levels of uNTx (<50) than those treated with IV BP. Phase III trials of denosumab for prevention and treatment of skeletal complications of bone metastases in patients with CaP are in progress.

Funding: This study was supported by Amgen Inc.
PHASE II STUDY OF TREATMENT WITH 5-ALPHA REDUCTASE INHIBITORS (5ARIS) IN LOW RISK PROSTATE CANCER
Jerome Levesque, MD², Michele Lodde, MD³, Thierry Dujardin, MD⁴, Rabi Tiguert, MD⁴, Louis Lacombe, MD¹ and Yves Fradet, MD⁴ (Presented By: Michele Lodde)
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Objective: The PCPT trial showed a 25% reduction of prostate cancer (PCA) incidence in men treated with 5ARIs. We studied the impact of a treatment of low risk PCA patients with 5ARIs on follow-up (FUp) biopsy outcome.

Materials and Methods: Patients with a low risk PCA (Gleason < 7, PSA <10ng/ml, < 3 biopsy cores) on 12 cores TRUS biopsy were offered a treatment with 5ARIs. Patients were followed with PSA, digital rectal examination and a first follow-up TRUS biopsy after 6 to 12 months of therapy and yearly thereafter. The presence of cancer, Gleason score, high grade PIN, ASAP, Inflammation and atrophy were recorded at diagnosis and at each successive biopsies.

Results: We recruited 101 patients (median age 65.75 y.o). Median follow up was 21.7 months. All patients had a first FUp biopsy after a median time of 7.5 months. The median prostate volume at diagnosis was 45.9 ml and decreased to 37 ml to remain around the 36 ml thereafter. Median PSA at diagnosis was 6.4 ng/ml and decreased to 4.7ng/ml and 3.6ng/ml at the first and second FUp biopsy, respectively. At first FUp biopsy 46 patients (45.5%) were still positive for cancer. Eighteen patients had a second FUp biopsy and 6 of them resulted positive for cancer (30%). For the total length of the study, Gleason score up grading was seen in 24.7% of the cases (21=G7, 4=G>7); All Gleason>7 were detected at the first FUp biopsy. Only one Gleason 7 was detected at second FUp biopsy. Eight patients (7.9%) had definitive treatment (2 radiotherapy, 5 radical prostatectomy and 1 hormonetherapy. Median time to treatment was 16 months.

Conclusions: Treatment of low risk PCA with 5ARIs resulted in a negative first FUp biopsy in 54.5% providing a positive reinforcement to expectant management. Indeed, 92.1% of patients are still under surveillance after 21.7 months of average FUp, which is slightly higher than average expectant management series (76-80%) and maybe due to the reducing effect of 5AR on the PSA. In 24.7% of the patients a higher Gleason score have been early detected (median time of 7.5 months) selecting precociously patients requiring definitive treatment.

DIETARY OMEGA-3 FATTY ACIDS, COX-2 GENETIC VARIATION, AND AGGRESSIVE PROSTATE CANCER RISK
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Background: Dietary intake of long-chain omega-3 polyunsaturated fatty acids (LC n-3) may reduce inflammation and in turn decrease risk of prostate cancer development and progression. This potential effect may be modified by genetic variation in COX-2, a key enzyme in fatty acid metabolism and inflammation.

Methods: We used a case-control study of 466 men diagnosed with aggressive prostate cancer and 478 age- and ethnicity-matched controls. Diet was assessed with a semi-quantitative food frequency questionnaire, and nine COX-2 tag single nucleotide polymorphisms (SNPs) were genotyped. We used logistic regression models to estimate odds ratios (ORs), 95% confidence intervals (CIs), and p-values for association and interaction.

Results: Increasing intake of LC n-3 was strongly associated with a decreased risk of aggressive prostate cancer (trend p<=0.0001). The OR (95% CI) for prostate cancer comparing the highest to the lowest quartile of omega-3 intake was of 0.37 (0.25 –0.54). The LC n-3 association was modified by the rs4648310 COX-2 SNP (interaction p=0.02). In particular, the inverse association was even stronger among men with this variant SNP. This reflected the observation that men with low LC n-3 intake and the variant rs4648310 SNP had an increased risk of disease (OR = 5.49; 95% CI: 1.80-16.7), which was reversed by increasing intake of LC n-3.

Conclusions: Dietary LC n-3 PUFAs appear protective for aggressive prostate cancer, and this effect is modified by the COX-2 SNP rs4648310. Our findings support the hypothesis that LC n-3 may impact prostate inflammation and carcinogenesis through the COX-2 enzymatic pathway.
Poster # 104

TREATMENT FAILURE IS ASSOCIATED WITH DIFFERENT DOSING REGIMENS OF LEUTINIZING HORMONE RELEASING HORMONE AGONIST THERAPY FOR PROSTATE CANCER
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Introduction: Leutinizing Hormone Releasing Hormone (LHRH) agonist therapy is one of the mainstays of prostate cancer treatment. Several dosing regimens currently exist: calendar based, intermittent, and a testosterone-based (T-based) regimen we have previously reported. We investigated the differences in treatment failure rates (i.e., evidence for androgen resistance) based on dosing regimen.

Methods: We evaluated 1617 patients with prostate cancer who received LHRH agonist therapy in the Kaiser Permanente Southern California Cancer Registry from Jan 2003-December 2006. Patients were grouped according to their respective dosing regimen; calendar based, intermittent dosing, or T-based. Calendar based is defined as patients who are re-dosed with LHRH-agonist every 3 months. Intermittent dosing is defined as patients who are re-dosed with LHRH-agonist based on the patient’s PSA level, irrespective of testosterone levels. T-based is defined as patients who are re-dosed with LHRH-agonist whenever serum testosterone (T) level rises above 50ng/dl. We defined treatment failure as 2 consecutive rises in PSA measurement (with a minimum of 3 PSAs) following the last dose of LHRH-agonist. Cox proportional hazards regression was used to estimate the Hazards Ratio (HR) for failure between the three groups.

Results: A total of 692 patients who received an LHRH agonist as primary mono-therapy for prostate cancer fit our study criteria. Calendar based dosing was employed in 325 patients, 252 received T-based dosing, and 115 underwent intermittent dosing regimens. After controlling for all demographic and prostate cancer-related variables, the relative risk for treatment failure was significantly lower for T-based dosing (HR = 0.65, p= 0.02) and for intermittent dosing (HR = 0.70, p = 0.04) compared to standard calendar dosing. In this multivariate analysis, Gleason’s > 8 (HR=2.03, p<0.01), pre-treatment PSA > 20 (HR=2.06, p<0.01) and stage 3-4 (HR=1.93, p<0.01) were the only other variables to predict for treatment failure.

Conclusions: During the time period studied, T-based and Intermittent dosing regimens of LHRH-agonist had lower rates of treatment failure based on measurements for early androgen resistance, when compared to standard calendar dosing. In both T-based and intermittent dosing, testosterone levels are allowed to recover above castrate levels of serum T, possibly explaining a decreased risk for time to androgen independence.

Poster # 105

DEPRESSION IN A FEASIBILITY STUDY OF TELEPHONE INTERPERSONAL COUNSELING FOR AFRICAN AMERICAN MEN WITH PROSTATE CANCER ON ANDROGEN DEPRIVATION THERAPY AND THEIR PARTNERS
Gerald Bennett, PhD², Stephen Looney, PhD², James Brown, MD, Martha Terris, MD¹, Rosalind Jones, DNP², Thomas Joshua, MS² and Cheryl Robinson, MSN² (Presented By: James Brown)
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Introduction and Objectives: African Americans (AA) have higher incidence and mortality rates for prostate cancer (PCa) than any other subpopulation. AA patients with advanced PCa face the stress of the diagnosis, its symptoms, and the wide-ranging physical, cognitive and emotional side effects of androgen deprivation therapy (ADT). Stress caused by this constellation of conditions may lead to depressive symptoms. Partners, typically the patient’s main source of social support, also face these stressful circumstances. If coping resources and skills of the dyad are insufficient to limit the negative impact on well being, depression is likely. As part of a feasibility study, the abilities of AA men and their partners to manage ADT-related depression were evaluated using the Center for Epidemiological Studies Depression Scale (CES-D) and the Relationship Assessment Scale (RAS).

Methods: 9 dyads (a man with PCa who began ADT within the past month and a partner) were randomly assigned to telephone interpersonal counseling (TIP-C) (5 dyads) or usual care (4 dyads). The groups were compared at baseline, completion of TIP-C at 6 weeks, and at one-month follow-up using repeated measures analysis.

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Results: Mean scores for both the men and their partners nearly reached a baseline CES-D cutoff score of 16 indicative of clinically significant depression. Women partners reported slightly greater baseline depression (CES-D 15.11 +/-13.43) than the men (CES-D 14.78 +/- 11.68). The trend for the RAS score (p=0.06) shows that the PCa experience has potential for positive or negative changes in relationship satisfaction. Although a statistically significant difference between the TIP-C and usual care groups was not found in this small sample, improvements in depression were seen in both patient and partner mean CES-D scores: 10.22± 9.42 for men and 13.55 ±11.73 for women.

Conclusions: Men with advanced PCa requiring ADT, and their partners, report relatively high levels of baseline depression. Female partners report more depression initially and over time. The PCa experience may improve or worsen relationship satisfaction. Thus, ADT-related depression is a clinical problem that should be addressed as a couple for men with advanced PCa. Couples were very satisfied with TIP-C and demonstrated excellent protocol adherence. We therefore believe additional study of TIP-C in couples facing advanced PCa is warranted.

Funding: This research was funded by the Georgia Cancer Coalition.

Poster # 106

TOXICITY RESULTS OF A PROSPECTIVE PHASE II TRIAL USING SALVAGE HIGH INTENSITY FOCUSED ULTRASOUND (HIFU) FOR THE TREATMENT OF RECURRENT PROSTATE CANCER AFTER RADIOTHERAPY
Venu Chalasani, MB, BS, Carlos H. Martinez, MD, Darwin Lim, MD and Joseph Chin, MD (Presented By: Venu Chalasani)
University of Western Ontario, London, Ontario

Objectives: To evaluate the safety of salvage high intensity focused ultrasound (HIFU) as a treatment for recurrent prostate cancer after failed radiotherapy (either external beam radiotherapy or brachytherapy).

Materials and Methods: From April 2006 to August 2008, as part of a prospective phase II study, 39 patients with recurrent prostate cancer after radiotherapy have been treated with the Sonablate® 500. All patients had staging studies and prostatic biopsies to confirm the presence of local disease and the absence of metastatic disease. The majority of patients were external beam radiotherapy (EBRT) failures (32 patients), with the remainder being brachytherapy failures (7 patients). Patients have had follow up according to the trial protocol, with visits at 21 days, 45 days, 90 days and 180 days. Adverse event data was collected prospectively by a designated trial nurse, and graded according to the National Cancer Institute Common Terminology Criteria for Adverse Events (CTCAE) Version 3. Health related quality of life (HRQoL) was assessed using the SF-36.

Results: The mean age was 68 years, mean pre-operative PSA was 3.8ng/ml, mean prostatic size was 25ml, mean IPSS was 7.9, and the mean IIEF was 9.1. Mean length of hospital stay was 1 day. There were no deaths in this series. There have been two cases (5%) of urethro-rectal fistula; one of which required surgical correction. No patient has required surgical intervention for incontinence. Other complications have included urinary retention in 3 patients, urinary tract infection in 4 patients, and urinary incontinence in 1 patient. Three patients have required transurethral resection of the prostate (TURP). No fecal incontinence has been reported. No statistically significant difference in HRQoL was noted between baseline and day 180. Biochemical disease free recurrence rates are not yet available.

Conclusions: This prospective series of salvage HIFU has had a low toxicity rate, opening the possibility of a minimally invasive treatment for radiotherapy failures with low morbidity. This minimally invasive treatment may replace salvage cryotherapy as the preferred modality for the treatment of radiotherapy failures.

Poster # 107

PHASE I STUDY OF AV-951 (KRN951), A POTENT AND SELECTIVE VASCULAR ENDOTHELIAL GROWTH FACTOR RECEPTOR (VEGFR)-1,-2, AND -3 TYROSINE KINASE INHIBITOR, IN PATIENTS WITH ADVANCED SOLID TUMORS
Ferry A.L.M. Eskens, MD², Pankaj Bhargava, MD¹, Maja J.A. de Jonge, PhD², Brooke Esteves, MS¹, Monette Cotreau, PhD¹, John Ryan, MD¹, Leny Van Doorn, PhD², Toshiyuki Iseoe, PhD¹, Kunihiko Hayashi, BS¹, Lena Eckman, MS¹, Herman Burger, PhD² and Jaap Verweij, PhD²
(Presented By: Ferry A.L.M. Eskens)
¹AVEO Pharmaceuticals, Inc., Cambridge, MA; ²Erasmus University Medical Center, Rotterdam, Netherlands; ³Kirin Pharma Company, Ltd., Tokyo, Japan; ⁴Quintiles AB, Uppsala, Sweden
Introduction and Objectives: AV-951, a small-molecule tyrosine kinase inhibitor, inhibits the phosphorylation of VEGFR-1, -2, and -3 at subnanomolar concentrations (IC50, 0.21, 0.16, and 0.24 nM, respectively) and inhibits c-Kit and platelet-derived growth factor receptor (PDGFR)-beta at 10-times higher concentrations (IC50, 1.63 and 1.72 nM, respectively). This study was a phase I, open-label, dose escalation study to determine the maximum tolerated dose (MTD), dose limiting toxicities (DLT), pharmacokinetics (PK), and preliminary anti-tumor activity of AV-951 in patients with advanced solid tumors unresponsive to standard therapy.

Methods: AV-951 was administered orally, once daily, using a 4 weeks on/2 weeks off schedule at a daily dose of 1.0, 1.5, or 2.0 mg. In addition to assessing MTD, DLT, and PK profile, the effects of AV-951 on tumor blood flow were studied using dynamic contrast enhanced MRI (DCE-MRI). Tumor response was assessed according to response evaluation criteria in solid tumors (RECIST).

Results: A total of 40 patients (26 male, 14 female) were enrolled at AV-951 doses of 1.0 (n = 16), 1.5 (n = 16), and 2.0 mg (n = 8). The MTD was 1.5 mg. In the 2.0-mg cohort, DLTs included grade 3 proteinuria, grade 3 ataxia, and grade 4 intracranial hemorrhage in 1 patient each. The primary toxicity across all doses was hypertension (HTN), which was dose dependent and could be controlled with standard anti-hypertensive agents. Two patients in the 1.5-mg cohort required dose reduction to 1.0 mg for control of HTN. PK analysis revealed dose-dependent peak plasma concentrations and drug exposure. DCE-MRI imaging analysis indicated a decrease in tumor perfusion in selected patients. Among 9 patients with renal cell carcinoma, 2 patients had confirmed partial responses at 2.0 (n = 1) and 1.5 mg (n = 1) lasting 128 and 42 weeks, respectively, and 7 patients had stable disease (lasting >12 weeks) at 1.0 (n = 5), 1.5 (n = 1), and 2.0 mg (n = 1). Clinical activity was also observed in patients with colon and lung cancers (Eskens, F.A.L.M., et al. Presented at: AACR 2008; Abstract LB-201).

Conclusions: AV-951 was safe and well tolerated at a daily dose of 1.0 and 1.5 mg. The primary toxicity was dose-dependent HTN, a biomarker of VEGFR inhibition. Clinical activity was observed across all dose levels. In future combination studies, AV-951 may be administered at 1.0 or 1.5 mg doses.

Funding: Kirin Pharma Co., Ltd.; AVEO Pharmaceuticals, Inc.

Poster # 108

LONG TERM SUCCESS RATE OF RADICAL PROSTATECTOMY WITH NEOADJUVANT DOCETAXEL AND ADT FOR HIGH RISK LOCALIZED PROSTATE CANCER
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Introduction: Previous studies have shown significant relapse rates for patients with high risk prostate cancer, leading to many patients undergoing radiotherapy if high risk features are present. We report 5 year oncological outcomes for this group of patients, who were treated with combined neoadjuvant androgen deprivation therapy (ADT) and docetaxel followed by radical prostatectomy.

Materials and Methods: All patients who underwent radical prostatectomy between July 2002 - December 2003 by a single surgeon were reviewed. From this cohort, 27 patients were identified who were defined as high risk (either PSA > 20, and/or clinical stage >T2c, and/or Gleason = 8), who had combined neoadjuvant ADT and docetaxel. Parameters evaluated included PSA, Gleason score, % involvement of biopsy cores, use of adjuvant therapy, pathological parameters, and PSA recurrence. None of the 27 patients have been lost to follow up. Biochemical disease free survival was estimated using the Kaplan Meier method.

Results: The mean age was 58.3 years, mean pre-operative PSA was 14.4, and the median biopsy Gleason score was 8. The majority of patients (66.7%) had one high-risk feature; 25.9% and 7.4% had two and three high-risk features respectively. Median follow up was 62 months. Two patients had positive lymph nodes, 5 patients had seminal vesicle involvement, and 5 patients (18.5%) had positive margins. Gleason score was downgraded in 18.5%, and upgraded in 18.5%. Pathological stage was pT0 in 7%, pT2 in 41% and pT3 in 52%. Five patients underwent adjuvant radiotherapy, and 3 patients had salvage radiotherapy. One patient had a non-prostate cancer or treatment related death. A total of 11 patients (40.7%) have had biochemical failure. Five year actuarial biochemical disease free survival was 62%.

Conclusion: At a median follow up of 62 months, 59.3% of patients remain free of biochemical relapse. Radical prostatectomy with combined neoadjuvant androgen deprivation therapy and docetaxel provides good 5-year oncological outcomes in select high risk patients.
PHASE III 12-MONTH RANDOMIZED, OPEN-LABEL, PARALLEL-GROUP STUDY (CS21) OF DEGARELIX VERSUS LEUPROLIDE IN PATIENTS WITH PROSTATE CANCER

Neal Shore, MD¹, Laurence Klotz, MD², Laurent Boccon-Gibod, MD³, Fritz Schröder, MD⁴, Cal Andreou, MD⁵, Bo-Eric Persson, MD, PhD⁶, Per Cantor, MD, PhD⁶, Jens-Kristian Jensen, MSc⁶ and Tine Kold Olesen, MD⁷ (Presented By: Neal Shore)

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Introduction and Objectives: Androgen deprivation (AD) remains the main medical treatment for advanced prostate cancer (PCa). The aim of this study was to evaluate the efficacy and safety of degarelix, a new GnRH blocker, compared with leuprolide over 1 year of treatment of PCa.

Methods: Patients with histologically confirmed PCa (all stages), for whom AD therapy was indicated (except neoadjuvant hormonal treatment) were recruited. Patients were randomized to one of three treatments: a degarelix SC starting dose of 240 mg (40 mg/mL) for 1 month with monthly maintenance doses of 160 mg (40 mg/mL; Group A) or 80 mg (20 mg/mL; Group B), or monthly IM injections of leuprolide depot 7.5 mg (Group C). The primary endpoint was testosterone (T) suppression (serum T levels ≤0.5 ng/mL during monthly measurements from Day 28 through Day 364). Effectiveness of degarelix was to be determined by showing that: 1] 95% response rate and a lower bound of the 95% confidence interval [CI] = 90%; 2] Non-inferiority to leuprolide 7.5 mg.

Results: In total, 610 patients (mean age 72 years; median T 3.93 ng/mL [interquartile range 2.89–5.10], median prostate-specific antigen [PSA] 19.0 ng/mL [8.70–24.5]) were included. Patients were well balanced between groups. Both doses of degarelix met the criteria for non-inferiority to leuprolide for the primary endpoint (response rate): Group A (n=202): 98.3% (95% CI: 94.8-99.4); Group B (n=207): 97.2% (95% CI: 93.5-98.8); Group C (n=201): 96.4% (95% CI: 92.5-98.2). At Day 3, T levels were ≤0.5 ng/mL in 95.5% and 96.1% of patients in degarelix groups A and B, and 0% in Group C; at Day 14 the corresponding numbers were 99.5%, 100% and 18.2%. After 14 days, median PSA levels had declined by 65%, 64% and 18% in Group A, B and C, respectively; after 28 days PSA had declined by 83%, 85% and 68%. Safety profiles of the treatments were in line with AD therapy. More patients receiving degarelix experienced injection site reactions (40% vs <1% with leuprolide); no systemic allergic reactions were observed.

Conclusions: Degarelix showed a response rate of 97-98% and was non-inferior to leuprolide at maintaining low T levels during the 1-year treatment period. Degarelix achieved a significantly faster reduction in both T and PSA compared with leuprolide and represents an effective therapy for inducing and maintaining AD in patients with prostate cancer.

PHASE II STUDY OF NEOADJUVANT ERLOTINIB (TARCEVA) IN PATIENTS WITH MUSCLE-INVASIVE BLADDER CANCER UNDERGOING RADICAL CYSTECTOMY: UPDATED RESULTS AND CORRELATIVE MOLECULAR RESULTS

Matthew Coward, Angela Smith, Raj Kurpad, Matthew Nielsen, William Kim, Eric Wallen and Raj Pruthi (Presented By: Matthew Coward)

Introduction: Despite surgical therapy, only 50% of patients undergoing radical cystectomy will experience long-term disease-free survival. Effective adjuvant therapies, especially those with lower toxicity and which are easily-administered, would represent a significant advancement in the treatment. One such biological target that has been implicated in urothelial carcinoma has been the epidermal growth factor receptor (EGFR) family (erbB family). This study seeks to evaluate the clinicopathological efficacy of neoadjuvant erlotinib (Tarceva) – a EGFR inhibitor – for invasive bladder cancer in patients undergoing radical cystectomy.

Methods: This phase II trial studied the effect of neoadjuvant erlotinib (150 mg qd X 4 weeks) before radical cystectomy on the pathological CR rate (P0 rate) in cystectomy specimens. Correlative molecular study was also performed on TURBT and cystectomy tissue samples in the first 10 patients. Patients selected for study will include those with histologically-confirmed muscle invasive bladder cancer (clinical stage T2) who have undergone initial TURBT.
**Results:** 20 patients have undergone neoadjuvant erlotinib therapy followed by cystectomy. On surgical pathology, 6 pts (30%) were pT0, 9 pts <=pT2, 4 pts pT3/4, and one node positive (pT0N1). The overall pT0 rate was 30%, organ-confined rate 70%, and LN-positive rate 5%. At a median follow of 12 months, 2 pts have recurred and 1 has died of other causes (MI). Erlotinib was tolerated in all patients with 11 patients having a drug rash (2 grade 3), and 1 patient with diarrhea. Interestingly all pT0 patients had a rash and 10/11 patients with a rash had organ-confined disease. (Erlotinib-associated rash has been associated with better DSS in lung cancer patients.) Correlative studies – including mRNA extracted from TURBT and cystectomy specimens evaluating gene expression – have shown a lower expression of HRas, p85, and FGFR3 in pT0 patients suggesting that these pathways may play a role in cellular survival beyond typical EGFR cellular pathways. **Conclusions:** The EGFR-inhibitor erlotinib, when given neoadjuvantly, may have beneficial effects on operative pathology and short-term outcomes in patients undergoing radical cystectomy for invasive bladder cancer. Current analysis is underway to examine the molecular and correlative impact of neoadjuvant therapy in these patients, with HRas, p85, and FGFR3 pathways having a putative role in lack of response to EGFR inhibition.

**Poster # 111**

**CYTOKINE RESPONSE TO INTRAVESICAL BLADDER CANCER THERAPY**
Frances Martin, MD, Tracy Robinson, Stephen Culp, MD and Ashish Kamat, MD (Presented By: Frances Martin)
MD Anderson Cancer Center

**Introduction and Objective:** Most bladder tumors present as non-muscle invasive disease and are treated with transurethral resection followed by intravesical immunotherapy, most commonly with Bacillus Calmette Guerin (BCG). A large number of patients respond to therapy while others may develop recurrent disease or disease progression. Early detection of patients who do not respond to therapy may prompt earlier intervention and improve survival. In a prospective study, we evaluate urinary levels of cytokines to differentiate responders from non-responders after treatment with BCG.

**Materials and Methods:** Urine samples from patients with confirmed non-muscle invasive transitional cell carcinoma (Stage Tis, Ta, or T1) were collected at baseline and after the last intravesical BCG treatment. Samples were assessed for interleukins 2 and 8 (IL-2, IL-8), and urinary tumor necrosis factor-related apoptosis-inducing ligand (TRAIL). Routine follow-up cystoscopy and maintenance therapy were performed for 24 months or until evidence of recurrence. Linear regression analysis was used to assess for an association between recurrence of tumor and post-therapy cytokine levels. Analyses were controlled for age, gender, stage, grade, and the presence or absence of CIS.

**Results:** A total of 80 patients were evaluated. Recurrence of tumor occurred in 23 (34.9%) patients at a median time of 6.4 months. Although post-treatment urinary levels of TRAIL and IL-8 did not show a significant association with recurrence, there did exist a significant inverse relationship between urinary IL-2 levels and recurrence (p<0.05).

**Conclusions:** Urinary levels of IL-2 after intravesical BCG therapy may differentiate responders to BCG from non-responders and be a marker to predict tumor recurrence. Although not statistically significant, urinary IL-8 levels did show a similar trend to IL-2 levels and may be used as a secondary marker of response to therapy.

**Poster # 112**

**PERIOPERATIVE OUTCOMES OF ROBOTIC PROSTATECTOMY FOR PROSTATE CANCER IN THE OBESE AND MORBIDLY OBESE**
Ronney Abaza, MD (Presented By: Ahmad Shabsigh)
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**Objective:** The feasibility of robotic prostatectomy in the obese patient with body mass index (BMI) 30 or greater has been demonstrated, although with increased complications. We sought to assess perioperative outcomes of robotic prostatectomy and lymphadenectomy in the morbidly obese (BMI 40 or greater) as compared with the obese.

**Methods:** We reviewed the charts of the last 50 patients with BMI greater than 30 who underwent robotic prostatectomy with lymphadenectomy at our institution and compared perioperative outcomes for those with BMI 30-39 and 40 and above.

Continues on next page
Results: Six patients were morbidly obese (BMI 41-51, mean 45.8) and 44 obese (BMI 30-39, mean 33). All 50 procedures were completed robotically, no patients required transfusion or drain placement, and all were discharged on postoperative day one. Mean nodal yield was 11.2 (range 3-28) and 17.2 (range 9-34) nodes (p=.04), mean operative times were 196 (range 130-412) and 180 (range 143-212) minutes (p=.43), and mean blood loss was 137cc and 158cc (p=.42) in the obese and morbidly obese, respectively. Mean catheterization time was 5.8days (4-11days) in obese and 4.5days (3-6days) in morbidly obese patients (p=.009). Only one patient in each group with T2 disease had positive margins (5.3% overall) while 5/10 (50%) obese patients with T3 disease had positive margins as did one of two (50%) morbidly obese patients.

Conclusions: Robotic prostatectomy is feasible in the obese and morbidly obese. Perioperative outcomes are not unfavorable for the morbidly obese such that robotic surgery should be offered regardless of weight.

Poster # 113

EARLY PATIENT RESULTS OF NOVEL TECHNIQUE FOR ROBOTIC PARTIAL NEPHRECTOMY
Ronney Abaza, MD (Presented By: Ahmad Shabsigh)
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Objectives: We previously reported a novel technique for laparoscopic or robotic partial nephrectomy involving preplaced bolster sutures that was developed and evaluated in a porcine model. We now report our intial patient experience applying this technique, which may allow reduced warm ischemia time as well as minimization of healthy parenchyma sacrificed during tumor excision.

Methods: After 7 partial nephrectomies in pigs, the technique was applied in 5 patients robotically as follows. Prior to vascular clamping, suture needles are placed in the parenchyma along the tumor length under laparoscopic ultrasound guidance. Resection is performed within the inner surface of the needles. Suture material is left attached to the needles with vascular clamping only after placing all needles. The base of resection is oversewn, and the pre-placed needles are then passed out of the parenchyma with LapraTy clips placed under tension completing the bolsters.

Results: The mean warm ischemia time (WIT) in the animals was 14:41min without complications after 2 weeks of survival. In the initial five human patients, mean tumor size was 2.1cm with mean WIT of 13min (range 10-15min), EBL of 115cc (75-200cc), and largest thickness of normal kidney around the tumors of 0.75cm or less.

Conclusions: Pre-placement of needles with attached bolster sutures before vascular clamping under laparoscopic ultrasound guidance is a technically feasible approach to performing robotic partial nephrectomy. In addition to using the pre-placed needles as a guide for resection, the pre-placed bolsters may reduce warm ischemia time.

Poster # 114

DOES A POSTOPERATIVE URINARY LEAK AFTER ROBOT ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY AFFECT URINARY CONTINENCE? AN ANALYSIS OF THE LEARNING CURVE
Carlos Martinez, MD, Venu Chalasani, MB, BS, Darwin Lim, MD, Reem Al Bareeq, MD, Geoff Wignall, MD and Stephen Pautler, MD (Presented By: Carlos Martinez)
University of Western Ontario, London, Ontario

Introduction and Objectives: Anastomotic leak occurs in 10-15% of patients undergoing robot assisted laparoscopic radical prostatectomy (RALRP); however it is unclear whether there are any long term effects from this complication. We investigated whether postoperative anastomotic leak was associated with incontinence in the initial series of RALRP.

Methods: A prospective institutional database was used as the data source. All consecutive cases of RALRP performed before April 2008 were included in the analysis. This cohort of patients includes the initial series of patients (i.e. the learning curve). No patients were lost to follow up. Patients were divided into two groups –those who had no leak (Group 2), and those who did have a postoperative leak (Group 1). Urinary function outcomes were evaluated in the two groups. All patients completed a self administered standardized urinary continence evaluation.
Results: There were 154 patients in the group for analysis. Of this group of 154 patients, 7.1% of patients had a postoperative leak, which was diagnosed clinically and confirmed with a cystogram. There was no statistically significant difference between the two groups with regards to age, intraoperative times (median: 192 vs. 206 minutes), anastomosis time (median: 48.5 vs. 42.0 minutes), estimated blood loss (median: 150 vs. 200 cc), BMI (28.2 vs. 27.7 kg/m²), Gland size (43.9cc vs. 43.06cc) for Group 1 vs. Group 2 respectively. Length of stay was longer in the group which had a leak (8 days vs. 3 days; p<0.0001). There was no statistically significant difference in continence between the two groups of patients at 3 months (p=0.46), 6 months (p=0.66), or 12 months (p=0.38). No correlations with urethral strictures, bladder neck contractures or other adverse reactions were noted for the group of patients who had a postoperative leak.

Conclusion: Patients who have a postoperative urinary leak have a longer length of stay, but do not have an increased risk of urinary retention, urinary incontinence, urethral stricture, bladder neck contractures or anastomosis time.

Poster # 115

PATHOLOGIC VALUE OF ANTERIOR PERIPROSTATIC TISSUE MAY BE OF LIMITED UTILITY
Serge Ginzburg, MD³, Ilene Staff¹, Joseph Tortora¹, Alison Champagne¹, Andrew Salner, MD¹, Joseph R. Wagner, MD¹ and Vincent P. Laudone, MD² (Presented By: Serge Ginzburg)
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Objective: To establish oncologic utility of anterior periprostatic tissue.

Materials and Methods: After IRB approval was obtained, a prospective database was used to evaluate 250 consecutive robotic assisted laparoscopic prostatectomies (RALP). Pathology reports were retrospectively evaluated, including anterior periprostatic tissue (APT) specimens. Presence of prostatic tissue, lymph nodes and their positivity was recorded. Only specimens containing APT were included in analysis.

Results: Two hundred and fifty RALP procedures were performed by a single surgeon between January 2007 and June 2008. Two hundred and fifteen cases had APT submitted for pathologic analysis. Forty-seven surgical specimens (22%) had positive margins, with 3(1.4%) at the anterior prostatic margin. Sixteen APT specimens (7.4%) contained one lymph node. None of the APT specimens were positive for neoplasm including those patients with an underlying anterior positive margin. All APT lymph nodes were negative for malignancy.

Conclusion: APT dissection may have surgical utility in allowing visualization of dorsal venous complex and bladder neck. Despite the presence of occasional lymph nodes, oncologic utility of APT appears significant only in the rare cases of positive anterior surgical margins.

Poster # 116

DOES DEFINITION OF SPACES AND DELAYED URETERAL TRANSECTION IMPACT ONCOLOGIC RESULTS AFTER ROBOT-ASSISTED RADICAL CYSTECTOMY?
Matthew Sheldon, Rameela Chandrasekhar, MA, Gregory Wilding, PhD, Hyung Kim, MD, James Mohler, MD and Khurshid Guru, MD
(Presented By: Matthew Sheldon)
Roswell Park Cancer Institute, Buffalo, NY

Purpose: Ureteral transection has been commonly advocated during initial dissection when performing robot-assisted radical cystectomy (RARC). Despite a lack of tactile feedback, a new approach of “definition of spaces and delayed ureteral transaction” optimizes surgical exposure and may lead to better oncologic results.

Materials and Methods: From October 2005 to January 2008, RARC was planned in 106 consecutive cases. Early ureteral transection was performed in the first 55 cases (group 1), and the technique of “definition of spaces and delayed ureteral transaction” was used in 46 cases (group 2). The groups were compared for demographic characteristics, operative parameters, and immediate oncologic outcomes.
**Results:** Age, sex, BMI and ASA score were similar in the two groups. The total OR time for group 2, which incorporated the technique of “definition of spaces and delayed ureteral transaction”, was longer than it was for group 1. The rates of surgical margin positivity were 13% in group 1 versus 7% in group 2.

**Conclusion:** Despite a lack of tactile feedback, the technique of “definition of spaces with delayed ureteral transaction” during robot-assisted radical cystectomy facilitates this complex surgical procedure and appears to improve oncologic results. A larger series with longer follow-up will be required to evaluate oncologic performance.

**Poster # 117**

**IMPACT OF PREVIOUS ABDOMINAL SURGERY ON ROBOT-ASSISTED RADICAL CYSTECTOMY**

Bertram Yuh, MD¹, Matthew Sheldon, BA³, Anees Fazili, BA⁴, Rameela Chandrasekhar, MA², Hyung Kim, MD², James Mohler, MD³ and Khurshid Guru (Presented By: Khurshid Guru)

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**Purpose:** To determine the effect of previous abdominal surgery (PAS) on operative outcomes and complications post robot-assisted radical cystectomy (RARC).

**Materials and Methods:** 75 consecutive patients were scheduled for RARC between 2005 and 2008. Two patients were excluded from our analysis because they were converted to open radical cystectomy prior to surgery; one patient could not tolerate steep Trendelenburg well and the other patient had rectal invasion. It should be noted that neither of the two excluded patients had PAS. The remaining 73 patients underwent RARC with bilateral extended pelvic lymph node dissection and urinary diversion. Lysis of adhesions was performed robotically and laparoscopically. Records were reviewed to assess the impact of PAS on operative outcomes and complications up to three months after surgery.

**Results:** In the 73 remaining patients that underwent RARC, 37 (51%) had PAS; 6 (16%) had PAS above the umbilicus and 31 (84%) had PAS either just below or both just above and below. The patients with PAS were similar to those without PAS with respect to blood loss, transfusion requirement, operative time, lysis of adhesion time, length of ICU stay, overall hospital stay, and the need for reoperation; however patients with PAS were older (p<.01). The overall postoperative complication rate was higher in the group with PAS (p=.04) than for the group without PAS (p=0.04). Patients with PAS below the umbilicus had a longer hospital stay than patients with surgery above the umbilicus (p=0.01). Complications were not related to number of PAS.

**Conclusion:** Previous surgery increased risk for postoperative complications in patients undergoing RARC. PAS did not affect ability to perform RARC; no conversions occurred in 73 consecutive patients. However, PAS implies increased risk of postoperative complications.

**Poster # 118**

**IMPACT OF BODY MASS INDEX ON PERIOPERATIVE OUTCOMES DURING THE LEARNING CURVE FOR ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY**

Venu Chalasani, MB, BS, Carlos H. Martinez, MD, Darwin Lim, MD, Reem Al Bareeq, MD, Geoff Wignall, MD and Stephen Pautler, MD (Presented By: Venu Chalasani)

University of Western Ontario, London, Ontario

**Introduction:** Obesity, defined as body mass index (BMI) greater than 30, has in previous studies of robotic assisted laparoscopic radical prostatectomy (RALRP) been a risk factor for worse perioperative outcomes. We evaluated whether BMI adversely affected perioperative outcomes.

**Methods:** A prospective collected database of 150 RALRP performed by a single surgeon was analyzed using STATA. Obesity was defined as BMI = 30; normal BMI < 25; and overweight as 25-30. Two separate analyses were performed: firstly, the first 50 cases (the initial learning curve) and secondly the entire cohort of 150 RALRP. The following outcomes were evaluated: overall duration of surgery; length of individual steps during the procedure; estimated blood loss (EBL); length of stay (LOS); and postoperative complications (leaks and incisional hernia).
Results: In the initial cohort of 50 cases there were 14 obese patients (BMI = 30). Obese patients were slightly younger than non-obese patients (BMI < 30), at 58 vs. 62 years respectively (p=0.01). They were statistically comparable for PSA and Gleason score. There was no statistically significant difference between obese and non-obese patients with regards to operative times (253 mins. vs. 243 mins.); port placement times (23 mins. vs. 26 mins.); and EBL (457ml vs. 451ml). LOS was longer in the obese group (4.3 days vs. 2.9 days). There was no statistically significant difference in the postoperative outcomes of leak rates, positive margin rates, and incisional hernia rates. In the entire cohort of 150 patients, when comparing obese patients (BMI = 30) to those with a normal BMI (BMI < 25), there was no statistically significant difference in operative times (215 mins. vs. 198 mins.); EBL (350ml vs. 193ml; p=0.06); LOS (3.8 days vs. 3.2 days); positive margin rates; or the complications of leak and incisional hernia.

Conclusion: Obese patients do not have an increased risk of prolonged operative time, blood loss, positive margins or the postoperative complications of incisional hernia and leak during the initial part of the learning curve.

Poster # 119

APICAL MARGINS AFTER ROBOT-ASSISTED RADICAL PROSTATECTOMY: DOES TECHNIQUE MATTER?
Matthew Sheldon, Adam Perlmutter, DO², Anees Fazili, BA¹, Wei Tan, MA², Shaozeng Zhang, MD², Gregory Wilding, PhD², Hyung Kim, MD², James Mohler, MD² and Khurshid Guru, MD² (Presented By: Matthew Sheldon)
¹Northwestern University Feinburg School of Medicine; ²Roswell Park Cancer Institute, Buffalo, NY

Objective: The apex is the most common site of an involved surgical margin after robot-assisted radical prostatectomy. We assessed the impact of two surgical techniques for dorsal vein control on surgical margins rates.

Materials and Methods: From August 2005 to January 2008, 480 patients underwent robot-assisted radical prostatectomy at Roswell Park Cancer Institute. The Roswell Park Cancer Institute Quality Assurance Committee required robotic prostatectomy database that was interrogated to identify all patients with the presence of prostate cancer at the apex on final pathology. The rate of positive apical margins was compared between two surgical techniques. Group 1 consisted of 145 patients who underwent apical dissection after cold incision of the dorsal venous complex (DVC) without prior suture ligation and group 2 consisted of 158 patients who underwent suture ligation of the DVC prior to apical dissection.

Results: Of 480 patients, 303 patients (63%) had prostate cancer in the apex. Age, BMI, PSA, and clinical stage were similar in both groups. The overall apical positive margin rate was 5%. Group 1 patients had an apical positive margin rate of 2%, while Group 2 had a positive margin rate of 8% (p=0.02). Mean operative blood loss estimated by the attending anesthesiologist was 331cc and 268cc in Group 1 and Group 2, respectively (p=0.044). One patient in Group 1 required blood transfusion.

Conclusion: Cold incision of the dorsal venous complex prior to suture ligation reduces the rate of apical margin involvement during robot-assisted radical prostatectomy.
COMPARISON OF LYMPH NODE YIELD BETWEEN ROBOTIC-ASSISTED AND OPEN PELVIC LYMPHADENECTOMY FOR PROSTATE CANCER
Anthony Polcari, MD, Cynthia Fok, MD, Michael Woods, MD, Robert C. Flanigan, MD and Marcus L. Quek, MD (Presented By: Anthony Polcari)
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Introduction and Objective: Pelvic lymphadenectomy (PLND) is an important component in the surgical management of clinically-localized prostate cancer. Despite the prognostic information gained from a PLND, controversy still exists with regard to the extent of dissection necessary and its potential therapeutic benefit. Since the adoption of widespread PSA screening, the number of patients with lymph node metastases has declined dramatically, from 25% to about 5%. While the number of lymph nodes removed at prostatectomy is dependent on several factors, including the extent of dissection, the meticulousness of the pathologic evaluation, and anatomic variability, little is known about the effect of minimally-invasive approaches. We evaluated the lymph node yield among patients undergoing robotic-assisted radical prostatectomy (RARP) with PLND and compared this with the number of nodes obtained during either open standard or extended PLND.

Methods: Among 89 consecutive patients undergoing RARP at our institution, 43 underwent concomitant PLND (Group I), which included all lymphatic tissue overlying the external iliac vein and in the obturator fossa. This was compared with consecutive patients undergoing open radical retropubic prostatectomy with a “standard” PLND using a similar template (Group II, n=53) or an “extended” template which included the external iliac, obturator, and hypogastric lymph nodes (Group III, n=43).

Results: The mean number of lymph nodes obtained per patient was 7.8 (range: 1 to 26) in Group I, 7.3 (range: 0 to 17) in Group II, and 14.8 (range: 6 to 31) in group III. The mean number of lymph nodes removed was similar among patients undergoing robotic vs. open standard lymph node dissection (p= 0.85), while the average number of nodes obtained during an open extended dissection was greater than either of the other two groups (p<0.05). Lymph node metastases were found in 4.6% of patients in Group I, 1.8% in Group II, and 18.6% in Group III.

Conclusions: Lymph node yield during RARP with PLND is comparable to an open approach using a similar template. An open extended node dissection yields more nodes and identifies a greater number of patients with lymph node involvement.

LAPAROSCOPIC RADICAL NEPHRECTOMY FOR STAGE =T2 RENAL CELL CARCINOMA
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Purpose: Laparoscopic radical nephrectomy has assumed a prominent role in the management of renal tumors. However, the experience is primarily limited to stage T1 renal carcinoma. We report our series of patients undergoing pure laparoscopy in the treatment of larger or locally advanced, but M0, renal cancers.

Materials and Methods: We retrospectively reviewed patients undergoing laparoscopic radical nephrectomy for intended cure of a primary renal malignancy. All operations were performed using a 4-port, transperitoneal pure laparoscopic approach. Peri-operative and post-operative parameters were examined as well as cancer-specific outcomes.

Results: Thirty-four patients were identified with non-metastatic renal tumors and stage >T1 (mean pre-operative tumor diameter 9.1 cm). Thirty-three (97%) of the operations were successfully completed laparoscopically, with mean operative time and blood loss of 262 minutes and 200 mL, respectively. The specimen was morcellated in 26%. Final pathologic assessment yielded pT2N0/Nx in 25 (mean 9.3 cm), pT3aN0 in 2 (mean 10.0 cm), pT3bN0 in 3 (mean 8.2 cm), pTxN1 in 2 (mean 8.4 cm), pT3bN2 in 1 (11 cm), and pT2N0M1 in 1 (9 cm). Average duration of hospitalization was 2.7 days (range 1-9) and the single complication included cystotomy during intact specimen extraction. At a mean follow-up of 47 weeks, all patients are alive and 90% are free of disease.

Conclusions: Pure laparoscopic radical nephrectomy is feasible in patients with larger tumors and lymph node or renal vein involvement. Although more technically challenging, morbidity remains low with the minimally invasive approach without apparent compromise of cancer outcomes.
**Poster # 122**

**TRIANGLE OF MARCILLE REVISITED: IMPLICATIONS ON LYMPH NODE YIELD DURING ROBOT-ASSISTED EXTENDED PELVIC LYMPH NODE DISSECTION**

Lawrence Jenkins¹, Matthew Sheldon, BA¹, Rameela Chandrashekhar, MA², Gregory Wilding, PhD², Hyung Kim, MD², James Mohler, MD² and Khurshid Guru, MD² (Presented By: Lawrence Jenkins)

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**Purpose:** To determine effect of definition of the “Triangle of Marcille” on lymph node yield during robot-assisted extended pelvic lymph node dissection.

**Material and Methods:** 82 patients underwent robot-assisted radical cystectomy with extended pelvic lymph node dissection at our institution from November 2005 to May 2008. The first 19 patients were excluded from our analysis to minimize the influence of a learning curve. The subsequent 58 consecutive patients were separated into patients without definition of the “Triangle of Marcille” (n=34) and patients with definition of the “Triangle of Marcille” (n=24). All patients were compared for preoperative and operative parameters, and immediate pathologic outcomes.

**Results:** The two groups were similar in age, BMI, and sex. Operative time (311 vs. 450 minutes, p=<0.0001) and lymph node dissection time (43 vs. 83 minutes, p=<0.0001) was longer in patients who had the “Triangle of Marcille” developed. However, the average lymph node yield increased from 20 to 27 (p=0.003) when the “Triangle of Marcille” was developed. EBL, complication rates, and pathologic stages were similar in the two groups.

**Conclusion:** Definition of the “Triangle of Marcille” during robot-assisted extended lymph node dissection results in a more thorough extended pelvic lymph node dissection.

**Poster # 123**

**SURGICAL MANAGEMENT OF RENAL MASSES: TECHNOLOGY VERSUS ONCOLOGY**

Joe Miller, MD, Bradley Schwartz, MD and Thomas Tarter, MD, PhD (Presented By: Thomas Tarter)

Southern Illinois University School of Medicine, Springfield, IL

**Objective:** Despite improvements in technology and surgical technique with comparable oncologic outcomes, a recent study found that the type surgery performed for renal masses depends less on patient or tumor characteristics and more on surgeon practice style. This suggests fundamental differences in the perspectives and priorities of urologic oncologists and endourologists. We hypothesize a coordinated approach involving a urologic oncologist and endourologist may reduce the impact of “surgeon factors.” We analyzed the coordinated practice pattern of two surgeons at a single academic institution and report surgical, functional, and short-term oncologic outcomes of patients undergoing open radical nephrectomy (ORN), open partial nephrectomy (OPN), laparoscopic radical nephrectomy (LRN), and laparoscopic partial nephrectomy (LRP).

**Methods:** A prospectively compiled database of all patients undergoing treatment of a renal mass at our institution was queried. Demographic, clinical and pathologic characteristics were compiled from patient records. Results were compared between treatment groups using nonparametric ANOVA.

**Results:** From January 2004 to January 2008 120 patients underwent treatment for presumed renal malignancy by two surgeons. There were no statistically significant differences in gender, mean ASA, or smoking history between treatment groups. Eighty-two patients (68%) were managed with minimally invasive surgery. Patients in the ORN and were more likely symptomatic than all other groups upon presentation (p<0.001). The mean pre-operative creatinine was significantly lower in the OPN group compared to all other groups (p<.05). Patients undergoing ORN or LRN had significantly larger tumors than those undergoing OPN, or LPN (p<0.001). Tumor stage and grade were highest among patients undergoing ORN (p<0.001), and the positive margin rate was also significantly higher compared to other modalities (p<0.001). Hospital stay was shortest among the minimally invasive and nephron-sparing groups (p<0.001). Post-operative serum creatinine concentrations were lowest for the partial nephrectomy groups (p<0.001). Complications were not statistically different between the groups and were comparable to previously published series.

**Conclusions:** A coordinated approach involving both a urologic oncologist and endourologist reduces the impact of “surgeon factors” on the surgical management of renal masses.

*Continues on next page*
Poster # 124

ROBOTIC ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY: INITIAL EXPERIENCE AND OUTCOMES
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Introduction: Nephron sparing surgery is an established treatment for patients with small renal masses, renal insufficiency, or solitary kidneys. Although technically challenging, laparoscopic partial nephrectomy has emerged as an alternative to open nephron sparing surgery. The DaVinci surgical system may enable faster and greater technical proficiency, facilitating a minimally invasive approach to more difficult lesions and reducing ischemia times. We report the outcomes of the first 50 robotic assisted laparoscopic partial nephrectomy (RALPN) operations performed at our institution.

Methods: 47 patients underwent 50 RALPNs performed by 3 surgeons for suspicious renal lesions during one year. Intraoperative ultrasound was employed to define tumor margins. Vascular control was obtained with bulldog clamps. Biopsies were taken to assess margin status on frozen section. Hemostasis and reconstruction were accomplished with electrocautery, various hemostatic agents, and intracorporeal suturing.

Results: 49 RALPN operations for 56 masses were completed robotically. One operation required conversion to open surgery due to severe hypercapnia. Median ischemia time was 30 minutes (range 0 to 48). Median estimated blood loss was 50 cc (range 50 to 800 cc). No patients required intraoperative transfusion; one patient received 2 units of packed red blood cells postoperatively. There was one major complication—puleless dysrhythmia due to myocardial infarction during port site closure. Median preoperative creatinine was 1.1 (range 0.6 to 1.7); median change in creatinine postoperatively was 0 (range -0.6 to 0.5). Median length of stay was 3 days (range 1 to 6). Median pathologic tumor size was 2.5 cm (range 1.2 to 6). Histogram of the tumors was clear cell renal cell carcinoma (RCC) in 27, papillary RCC in 12, oncocytoma in 5, collecting duct RCC in 3 (single patient), angiomyolipoma in 3, benign cyst in 3, chromophobe RCC in 3, and glomus tumor in 1. 46 patients had T1 disease; 3 patients had T3a disease. 3 patients were treated asynchronously for bilateral tumors. 5 patients were treated for multiple tumors.

Conclusions: RALPN appears to be a feasible and safe alternative to laparoscopic or open partial nephrectomy. As use of the DaVinci robot in urology becomes widespread, RALPN may emerge as a more accessible minimally invasive approach to nephron sparing surgery.

Poster # 125

CRITICAL EVALUATION OF COMPLICATIONS IN LAPAROSCOPIC PARTIAL NEPHRECTOMY
Lucas Noguera, MD, Darren Katz, MD, Rodrigo Pinochet, MD, Jordan Kurta, MD, Caroline Savage, PhD, Angel Cronin, PhD, Bertrand Guillonneau, MD, Karim Touijer, MD and Jonathan Coleman, MD (Presented By: Darren Katz)
Memorial Sloan-Kettering Cancer Center, New York, NY

Introduction and Objectives: In selected patients, nephron sparing surgery (NSS) can be performed openly or by a laparoscopic partial nephrectomy (LPN). LPN offers the benefits of minimally invasive surgery, but there is concern about the potential increased complication rate. Therefore, we assessed our experience with LPN with a focus on complications and evaluated potential perioperative variables which may predict for adverse events.

Methods: All patients who underwent LPN at our institution between November 2002 and January 2008 were included totaling 144 patients. Complication and hospitalization information was obtained from a prospectively maintained database and was verified retrospectively for every patient. Identified complications were graded using standard reporting criteria (National Cancer Institute Common Toxicity Criteria Version 2.0) which facilitated a comparison between other contemporary open and laparoscopic cohorts.

Results: In total 39 complications occurred in 29 (20%) cases. Of these, 20 (51%) were urologic and 19 (49%) were non-urologic. Individual adverse events by grade were as follows: grade I- 6 (15.4%); grade II- 19 (48.7%), grade III- 11 (28.2%), and grade IV- 3 (7.7%). No grade V complications occurred. The most common urologic complication was peri-operative hemorrhage in 9 patients (6.2%). 15 (10.4%) patients needed readmission post-operatively. Median follow-up was 52 weeks. Univariate analysis identified increased American Society of Anesthesiologists risk score (ASA score; odds ratio [OR] 2.99, 95% confidence interval [CI] 1.28, 6.94), non-elective indication for surgery (OR 0.21, 95% CI 0.07, 0.65 p=0.007) and ischemia time (OR 1.31; 95% CI 1.00, 1.71) as significantly associated with complication risk. On multivariate analysis, longer ischemia time was associated with increased estimated blood loss (95% CI 3, 57; p=0.03).
Conclusion: Complications affected 20% of patients undergoing LPN. The majority (64%) were grade 2 or less. ASA score, non-elective indication for surgery and greater ischemia time were significant predictors of a perioperative event. These findings were comparable with other large contemporary series of open and laparoscopic partial nephrectomy. Standardized criteria of reporting complications related to NSS are essential for prospective evaluation of operative outcomes and to allow meaningful risk assessment and pre-operative counseling for individual patients.

Poster # 126

A PHASE II EVALUATION OF ROBOT-ASSISTED LAPAROSCOPIC EXTENDED PELVIC LYMPH NODE DISSECTION FOR TRANSITIONAL CELL CARCINOMA OF THE BLADDER WITH 2ND LOOK OPEN EVALUATION

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Introduction and Objectives: Invasive transistion cell carcinoma (TCC) of the bladder is a high grade, potentially lethal disease associated with poor outcomes after inadequate surgery. Robot-assisted radical cystectomy has been reported to be safe with acceptable surgical margins, however the completeness of the pelvic lymph node dissection (PLND) is difficult to measure by anatomic descriptions and node counts alone. Therefore we started our experience with this procedure with an IRB approved protocol whereby a robot-assisted (RA) PLND is followed by a second look open PLND.

Methods: 10 RA-cystectomy/PLND cases were performed by a single surgeon (JWD) followed by a second look open PLND by a 2nd surgeon (AMK, HBG, CPND). Cases were assessed for pathologic results and lymph node yield by 8 regions (see table). Cases 1-4 were performed with a daVinci standard model and cases 5-10 with the S model.

Results: In 8 cases, bladder pathology was pT2 or less, N0, negative margins; there was 1 pT3aN0 and 1 pT1N1 (1/44 nodes positive- captured by RA-PLND). All surgical margins were negative. Console times averaged 2.3 hours for cystectomy and 2 hours for PLND. In cases 1-2 only the lower common iliac to distal nodes were attempted. In cases 3-4, all 8 zones were attempted but the robotic arms could not reach above mid-common iliac. In cases 5-10, the S model could reach all 8 zones with an 96% average yield all nodes. Of 80 total lymph node zones from the 10 cases the 2nd look results were: no tissue submitted in 57 (71%), tissue submitted with no nodes in 10 (13%), and tissue submitted with nodes in 13 (16%). The figure shows the breakdown of lymph node counts by case and region.

Conclusions: RA-PLND with the standard model daVinci gives adequate access to lymph nodes from the mid-common iliacs distally, and may be associated with a learning curve for time efficiency and completeness. The S-model gives greater access to lymph nodes from the mid-common up to the para-caval/para-aortic. The 2nd-look open dissection may be the safest model for negotiating the learning curve for this procedure for this disease with high lethal potential. Funding: Departmental.
Poster # 127

ROBOT ASSISTED RADICAL CYSTECTOMY: SURVIVAL RESULTS
Aaron Martin, MD, MPH¹, Rafael Nunez, MD¹, Raju Thomas, MD², George Martin, MD¹, Rodney Davis, MD², Michael Woods, MD², Robert Ferrigni, MD¹, Paul Andrews, MD¹ and Erik Castle, MD¹ (Presented By: Aaron Martin)
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Objective: To assess overall and disease specific survival rates of patients undergoing robot assisted radical cystectomy (RARC) as compared to historical open cystectomy data.

Materials and Methods: Survival, pathologic, and demographic data on all patients undergoing robot assisted radical cystectomy for bladder cancer from both Tulane University Medical Center and Mayo Clinic Arizona was collected. Of 70 total RARCs performed, we only included those with at least one year follow up from the time of surgery. Statistical software was used to create survival curves to be compared to the historical open cystectomy literature.

Results: Thirty-six of 70 patients were identified as having at least 1 year follow up data from the date of surgery. The mean follow-up time was 23 months. Overall survival rates at 12 and 36 months were 89% and 72% respectively. Disease-specific survival rates were 89% and 76% at 12 and 36 months respectively. These results are comparable to survival rates found in the open cystectomy literature. As expected, patients with lymph node positive disease fared worse than those with lymph node negative disease. Patients with extravesical lymph node negative disease (pT3b, pT4) fared worse than patients with organ-confined lymph node negative disease. Interestingly, patients with lymph node positive disease fared better than those with extravesical lymph node negative disease which is different from historical open cystectomy data supporting a thorough robotic lymph node dissection.

Conclusions: Robot assisted radical cystectomy has a comparable survival rate to open cystectomy in early follow-up. Further study with longer follow-up and more patients are necessary to determine any long-term survival benefits.

Poster # 128

FACTORS THAT INFLUENCE RENAL FUNCTION OUTCOMES FOLLOWING LAPAROSCOPIC PARTIAL NEPHRECTOMY
Lucas Nogueira, MD, Guilherme Godoy, MD, Darren Katz, MD, Rodrigo Pinochet, MD, Karim Touijer, MD, Bertrand Guillonneau, MD and Jonathan Coleman, MD (Presented By: Guilherme Godoy)
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Introduction and Objectives: Preservation of renal function is the goal of nephron sparing surgery in the treatment of renal tumors. Several putative factors are likely to influence functional outcomes. We analyze our experience with laparoscopic partial nephrectomy (LPN) in patients with a minimum of 6 months follow-up and investigate the relationship between clinical/operative factors and renal function recovery.

Methods: By November 2007, 109 bi-nephric patients underwent LPN. Estimated glomerular filtration rate (eGFR) was calculated using the abbreviated formula of the Modification of Diet and Renal Disease including preoperative and postoperative values at 6 and 12 months (109 and 73 patients, respectively). Change in eGFR and decline in the final eGFR were analyzed in multivariate regression models that included age, tumor size, estimated blood loss, intravenous fluid, American Society of Anesthesiologists (ASA) classification, use of renal ischemia and ischemia time.

Results: Median follow-up time was 55 weeks (IQR 34, 107 weeks). Preoperative median eGFR was 64mL/min/1.73m2 (IQR 57, 71mL/min/1.73m2). The prevalence of preoperative GFR < 60mL/min/1.73m2 was 39%. Median ischemia time was 36 minutes (IQR 26, 43 minutes). Postoperative renal impairment was identified in 51% and 41% of patients at 6 and 12 months, respectively and was not significantly changed from baseline. Multivariate analysis of change in eGFR identified the use of ischemia to be significantly associated with decrease in eGFR at 12 months (p=0.02) but not 6 months (p=0.7) postoperatively. In a separate model controlling for patient and tumor characteristics, ischemia time was not related to eGFR recovery at either 6 or 12 months of follow-up. Analysis of a cut-point of 30 minutes of ischemia time was not significant with relation to eGFR change. ASA >2 showed a trend toward decrease in eGFR at 6 (p=0.062) but not at 12 months. None of the variables investigated were found to be predictive of a decline in eGFR postoperatively.
Conclusions: The use of renal ischemia during LPN is associated with a statistically significant decrease in eGFR at 12 months postoperatively. Length of ischemia time did not appear to be meaningful in this analysis. Clinically meaningful renal impairment affected 41% of patients at 12 months after surgery and was not significantly changed from 39% identified preoperatively. Long-term outcomes are needed to determine the clinical implications of these findings.

Poster # 129

**ROBOTIC ASSISTED RADICAL NEPHRECTOMY FOR LARGE (GREATER THAN 7 CM) RENAL MASSES**

Manish Patel, MD, L. Spencer Krane, MD, Rajesh Laungani, MD, Alok Shrivastava, MD, Akshay Bhandari, MD, Mani Menon, MD and Craig Rogers, MD (Presented By: Manish Patel)

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**Introduction and Objectives:** Minimally invasive approaches to radical nephrectomy are commonly used for renal masses not amenable to nephron sparing techniques. Tumors greater than 7 cm present a unique challenge when performing minimally invasive surgery. We describe the feasibility of robotic assisted radical nephrectomy for clinical stage T2 tumors.

**Materials and Methods:** Nine patients underwent robotic radical nephrectomy at our institution between January 2004 and August 2008 for kidney tumors over 7 cm in size on preoperative imaging. A camera port was placed laterally, and robotic trocars were placed as demonstrated in Figure 1. An additional robotic port was placed inferiorly and used for either the robotic fourth arm or as an additional assistant port. Perioperative data was recorded prospectively.

**Results:** Nine patients, five males and four females, underwent robotic radical nephrectomy for large renal masses. Mean patient age was 62.4 years (range 45 –83). Mean radiographic lesion size was 8.8 cm (7.5 –10.5). Mean BMI was 31.5 kg/m2 (23 –37.1). Mean total operative time was 269.3 minutes (164 –430). Mean EBL was 205 cc (25 –850). Mean length of stay was 2.4 days (1-4). Final pathology demonstrated clear cell RCC in six patients and papillary RCC in three patients. At final pathology four of the nine patients were downstaged to pT1b, while two patients were upstaged, one to pT3a and one to pT3b. Mean pathological lesion size was 7.9 cm (5.6 –11). One patient was readmitted for a wound dehiscence requiring operative closure.

**Conclusions:** Robotic radical nephrectomy is a safe and feasible option for treatment of large renal masses.

Poster # 130

**THE UROLOGISTS’ POINT OF VIEW, OPEN VERSUS ROBOTIC RADICAL PROSTATECTOMY**

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**Purpose:** According to the Da Vinci website, the robotic prostatectomy is now the #1 choice for localized prostate cancer. Reasons may include improvement in continence rates, erectile function, blood loss, and visualization of the prostate. At our institution, we continue to perform retropubic, perineal, as well as robotic prostatectomies and have seen the same increase in proportion of robotic prostatectomies. This may be a result of product advertising as well as increased Internet usage by patients. Our study attempts to answer how urologists feel about the different surgical options by asking what approach they would choose if diagnosed with prostate cancer.

**Materials and Methods:** This is a survey of urologists in the South Central Section of the AUA. Demographic information including age, years in practice, sex, size of practicing town/city, and types of prostatectomies performed were obtained. The participant was then asked what operation they would choose based on two patient scenarios, low and high risk.
Results: 1400 surveys were mailed to the members of the South Central Section within the continental USA. 602 (43%) surveys were received with 533 complete responses. For the low risk patient scenario, 266/533 (49.9%) chose a robotic prostatectomy while 161/533 (30.2%) chose a retropubic prostatectomy. In the high-risk patient scenario, 161/533 (30.2%) chose a robotic prostatectomy while 293/533 (55.0%) chose a retropubic prostatectomy. There were a total of 1012 responses in favor of robotic prostatectomy with the top three: decrease blood loss (22%), better pain control (20%), and better visualization of tissue planes (14%). There were a total of 856 responses in favor of an open prostatectomy with the top three reasons: improved lymph node dissection (23%), better tactile sensation (23%), and easier operation for the surgeon (15%). Overall, urologists felt that the two most important factors in their decision were the urologist performing the operation (48%) and cancer control (35%).

Conclusion: Robotic prostatectomy has become the favored operative approach for low-risk prostate cancer. However, many urologists still feel an oncologic difference may exist between open and robotic surgery as evidenced by more urologists favoring an open approach for high-risk prostate cancer.

Poster # 131

ROBOTIC PARTIAL NEPHRECTOMY IN OBESE PATIENTS: FEASIBILITY AND INITIAL RESULTS
L. Spencer Krane, MD, Manish Patel, MD, Rajesh Laungani, MD, Alok Shrivastava, MD, Akshay Bhandari, MD, Mani Menon, MD and Craig Rogers, MD (Presented By: Manish Patel)
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Introduction and Objectives: Robotic partial nephrectomy (RPN) is becoming an accepted minimally invasive treatment for resection of renal masses and may facilitate some of the technical challenges associated with laparoscopic partial nephrectomy. Obese patients present unique technical challenges in minimally invasive surgery. We evaluated our initial experience of RPN in these patients emphasizing feasibility and developed a reproducible technique.

Materials and Methods: We defined obese patients as those having a body mass index (BMI) greater than 30 kg/m2. Twenty-seven obese patients underwent robotic partial nephrectomy between December 2004 and July 2008. Ports were shifted laterally as depicted in figure 1. An extra long 12mm camera port was placed subcostally at the mid clavicular line. Additional trocars for the fourth robotic arm and liver retraction can also be placed. Perioperative and postoperative data were prospectively recorded.

Results: Overall, 18 males and 9 females underwent RPN for 18 left and 9 right renal lesions. Mean BMI was 36.3 (range 30.4 –50). Mean preoperative lesion size was 2.7 cm (range 1 –5). Mean total operative time and robotic console time were 249 and 155 minutes, respectively. 14 patients (52%) had previous abdominal surgery. Median estimated blood loss was 100 cc (IQR 50 – 250). Median length of stay was 2 days (range 1 –4). Final pathology demonstrated clear cell renal cell carcinoma (13 patients), papillary renal cell carcinoma (9 patients) and benign pathology (5 patients) with pathologic staging including T1a (18 patients), T1b (2 patients), and T3a (2 patients). There were no major perioperative complications.

Conclusions: RPN in obese patients is safe and feasible with minimal complications and acceptable oncologic outcomes.
Poster # 132

COMPARISON OF ONCOLOGIC OUTCOMES FOR ROBOTIC-ASSISTED AND OPEN CYSTECTOMY IN PATIENTS WITH INVASIVE BLADDER CANCER

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Introduction: Questions persist regarding the oncologic efficacy of robotic-assisted cystectomy (RC) due to small cohort sizes, limited long-term follow-up, and selection bias for healthy/low-volume disease patients. Here we describe oncologic outcomes data for consecutive bladder cancer patients treated with either RC or open cystectomy (OC) by a single surgeon at our institution.

Methods: Between 2002 and 2008, 197 consecutive patients with invasive bladder cancer underwent RC (N=97) or OC (N=100) by a single surgeon (DSS). Data were collected prospectively, including clinical history, pathologic outcomes and post-operative disease status. Characteristics of RC and OC cohorts were compared by univariate analysis.

Results: RC patients were on average older than OC patients (71 versus 68 years, p<0.05). Cohorts were otherwise well matched in terms of gender, race, body mass index (mean 27.2 kg/m2 for both groups) and American Society of Anesthesiologists (ASA) class (RC mean 2.5, OC mean 2.4; p=0.22). Around half of each cohort (RC- 43%; OC- 56%; p=0.09) had prior abdominal surgery or pelvic irradiation. 19% of RC patients and 23% of OC patients had received neoadjuvant chemotherapy (p=0.49). Radical cystectomy was performed in >90% of both cohorts, and partial cystectomies were done for the remainder. Approximately 50% of both cohorts received an ileal conduit with the remaining half receiving either a continent cutaneous diversion or orthotopic neobladder. On final pathology, rates of positive surgical margins were equivalent (7%), and there was no difference in average lymph-node yield (17.6 nodes for RC versus 16.5 nodes for OC, p=0.49). The incidence of pT3/pT4 disease was also similar, at 36% for RC and 43% for OC (p=0.38). Adjuvant therapy was given to 16% of RC patients and 23% of OC patients (p=0.29). At a mean follow-up of 25 months (median 17.7 months), 32% of OC patients had recurrent/persistent disease and 56% were alive with no evidence of disease (NED). At a mean follow-up of 11.3 months (median 8.4 months), 17.5% of RC patients had recurrent/persistent disease while 77% were alive with NED.

Conclusions: Even among patients with frequent comorbidity and high-volume bladder disease, RC can achieve lymph node yields and negative surgical margin rates similar to OC. Early post-operative outcomes suggest comparable oncologic efficacy for RC and OC, however long-term follow-up and randomized comparisons are needed.

Poster # 133

COMPARISON OF OPEN AND ROBOT ASSISTED RADICAL CYSTECTOMY

Rafael Nunez-Nateras, MD², Paul E. Andrews, MD¹, Aaron D. Martin, MD¹, Robert G. Ferrigni, MD¹, Leah Y. Nakamura, MD¹ and Mitchell Humphreys, MD¹ (Presented By: Rafael Nunez-Nateras)
¹Mayo Clinic, Phoenix, AZ; ²Mayo Clinic, Phoenix, AZ

Introduction and Aim: The present study aims to compare the perioperative outcomes in a series of Open Cystectomy (OC) and Robot Assisted Radical Cystectomies (RARC) at our institution.

Materials and Methods: A retrospective review of 150 patients that underwent OC at our institution between May 2004 and March 2008 and 30 patients that underwent RARC from March 2007 to June 2008. Perioperative outcomes, demographic data, hospital stay, complications, addressed using the internationally validated classification system introduced by Clavien in 2004 and perioperative mortality were examined.

Results: Mean patient age was 69 years (range 40-90) and 73 years (range 59-84) for OC and RARC respectively (p=0.063). Mean BMI for OC was 29 (range 17 - 42) and of 29 (21 –49) for RARC (p=0.797). American Society of Anesthesiology classification was 2.7 for both groups (p=0.443). The mean operative time for OC was 252 minutes (129 to 592) and 275 minutes (192 –390) for RARC (p=0.026). Median blood loss was 642 ml (100 to 730) for OC and 225 ml (50 –700) for RARC. Transfusion rate perioperatively for OC was 57% and 11% for RARC (p=0.001). Median length of hospital stay for OC was 10 days (5 to 43 days) and 5 days (4 –11) for RARC (p=0.001). Complications according to the Clavien classification were statistically significant lower in number and grade in the RARC group compared with the OC group (table 1). The peri-op mortality of OC was 0.9% and 0% for RARC.

Continues on next page
**Conclusions:** Robot cystectomy represents a procedure with less perioperative complications than open cystectomy. The shorter hospital stay and the decreased need of additional resources such as transfusion and treatment of complications make RARC a reliable and safe procedure with acceptable outcomes.

**Poster # 134**

**PATHOLOGIC UPSTAGING AT THE TIME OF RADICAL CYSTECTOMY IS ASSOCIATED WITH WORSE RECURRENCE FREE SURVIVAL IN PATIENTS WITH BCG-REFRACTORY BLADDER CANCER**

Thomas Guzzo, MD¹, Ahmed Magheli, MD², Trinity Bivalacqua, MD, PhD², Matthew Nielsen, MD², Frank Attenello, MS², Mark Schoenberg, MD², and Mark Gonzalgo, MD² (Presented By: Thomas Guzzo)

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**Purpose:** There is a significant rate of pathologic upstaging at the time of radical cystectomy (RC) in patients with high grade, clinically non-muscle invasive disease. The object of this study was to compare the outcomes of patients with pre-operative non-muscle invasive disease who were upstaged at the time of RC compared to those with known muscle invasive disease prior to RC.

**Materials and Methods:** We retrospectively reviewed the clinical and pathologic data on 184 patients with either HGT1 bladder cancer or CIS who were treated with RC from 1994-2008. Patients were stratified based on preoperative intravesical therapy status. Rates of pathologic upstaging at the time of cystectomy were analyzed. Recurrence-free survival (RFS) for patients who were pathologically upstaged to muscle invasive disease at RC was compared to patients who were correctly staged with muscle invasive disease prior to RC.

**Results:** The median patient age was 66 years (range: 35-89) and the median follow up was 23 months. A total of 36% (66/184) patients were upstaged to muscle invasive disease at RC. Patients who were upstaged to pT2 disease had significantly worse 3 and 5 year RFS rates compared to those who were accurately staged preoperatively (64% and 61% vs. 83% and 74%; p=0.04). Patients upstaged to pT2 disease with a prior history of intravesical BCG treatment had significantly worse 3 and 5 year RFS rates compared to patients with known muscle-invasive cancer prior to RC (69% and 57% vs. 100% and 57%; p=0.03).

**Conclusion:** Upstaging to muscle invasive disease at the time of RC among patients with a preoperative diagnosis of HGT1 bladder cancer or CIS is associated with worse RFS compared to patients with known muscle-invasive cancer prior to RC. This finding was most significant among patients with a prior history of intravesical BCG therapy. Factors such as under staging of disease or treatment delay may contribute to worse outcomes among patients with HGT1 bladder cancer or CIS and should be considered when discussing treatment options such as immediate versus delayed radical cystectomy.

**Poster # 135**

**DOES THE PRESENCE OF SIGNIFICANT RISK FACTORS IMPACT PERIOPERATIVE OUTCOMES FOLLOWING ROBOT-ASSISTED RADICAL CYSTECTOMY?**

Anees Fazili¹, Abid Hussain, MD², Matthew Sheldon, MD³, Wei Tan, MA², Gregory Wilding, PhD², Victor Filadora, MD², Hyung Kim, MD², James Mohler, MD², Kathleen O’Leary, MD² and Khurshid Guru, MD² (Presented By: Anees Fazili)

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**Introduction:** Radical cystectomy continues to be associated with a high rate of morbidity and mortality. We evaluated the impact of pre-operative risk factors on perioperative outcomes up to three months after robot-assisted radical cystectomy (RARC).

**Methods:** From 2005 to 2007, 66 consecutive patients underwent RARC at Roswell Park Cancer Institute. Patient demographics, pre-operative risk factors and complications up to three-months postoperatively were reviewed from a prospective quality assurance database. Patients were stratified into high risk and low risk cohorts based on age, previous abdominal surgery, chronic obstructive pulmonary disease (COPD), body mass index (BMI), Revised Cardiac Risk Index (RCRI) and American Society of Anesthesiologists (ASA) score.
**Results:** Age, previous abdominal surgery, COPD, BMI, RCRI score and ASA score did not significantly influence intraoperative or postoperative complications up to three months following surgery (p-value >0.05). Advanced age was associated with a higher RCRI score (p-value=0.0139) as well as an increased likelihood of Intensive Care Unit (ICU) admission (p-value=0.0073). A higher ASA score was associated with an increased overall hospital stay (p-value=0.0390). Previous abdominal surgeries were associated with more frequent unscheduled postoperative clinic visits (p-value=0.0142). Operative time did not significantly influence complication rates (p-value>0.05). 15 out of 62 patients (24%) had a major complication, while 15 out of 62 (24%) had minor complications within three months of surgery. The reoperation rate was 11% and the overall mortality rate was 1.6%.

**Conclusions:** Robot assisted radical cystectomy (RARC) appears to be well tolerated, independent of co-morbid risk factors, age, body mass index (BMI), Revised Cardiac Risk Index (RCRI) and American Society of Anesthesiologists (ASA) score.

**Poster # 136**

**AN ANALYSIS OF THE IMPACT OF RACE ON BLADDER CANCER TREATMENT AND MORTALITY**

Angela Smith, Matthew Coward, Douglas Kelly, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Angela Smith)

**Introduction and Objective:** Previous studies have suggested that racial differences may occur in the incidence and mortality of patients with bladder cancer. This study examined whether differences in treatment and mortality occur and have changed over time Caucasian Americans versus African Americans and Hispanic Americans.

**Methods:** We examined data from the Healthcare Cost and Utilization Project (HCUP) Nationwide Inpatient Sample (NIS) sample from 2000, and 2004. (The NIS represents 20% of all hospital discharges in the United States.) The authors analyzed the Health Care Cost and Utilization Project and identified patients in 2000, 2004, and 2006 with principal diagnosis of malignant neoplasm of bladder. Univariate logistic regression models were built to determine if race is an independent risk factor for cystectomy and mortality during hospitalization for cystectomy. The regressions controlled for age, sex, tobacco use, and comorbidities. Comorbidities were identified using comorbidity software that assigns variables that identify comorbidities in hospital discharge records using the ICD-9-CM coding as described by Elixhauser (1998).

**Results:** African Americans with a principal diagnosis of bladder cancer had a significantly lower odds of undergoing cystectomy than Caucasian Americans (Odds ratio [OR] = 0.683; p < 0.0005). Similarly, Hispanics Americans had a significantly lower odds of undergoing cystectomy than Caucasian Americans (OR = 0.690; p < 0.0005). With regard to in-hospital mortality, Hispanic Americans undergoing cystectomy had significantly higher odds of dying during hospitalization for cystectomy (OR = 2.378; p=.05), even when controlling for multiple demographic variables and co-morbid conditions as noted above. African Americans did not have significantly higher odds of dying during hospitalization for cystectomy but did trend towards higher mortality (OR = 2.818; p=0.02).

**Conclusions:** Previous studies suggest that African Americans have worse mortality outcomes with regards to cystectomy than Caucasian Americans. The results of our analysis indicate that Hispanic Americans also suffer from treatment disparities compared to Caucasian Americans. With Hispanic Americans becoming an ever increase percentage of the U.S. patient population, further studies are needed to elucidate the sources of such disparities –e.g. whether the source is socioeconomic or related to language barriers, genetics or environmental exposures among other factors.

**Poster # 137**

**ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY: MEDIUM-TERM CLINICAL AND ONCOLOGIC FOLLOW-UP**

Matthew Coward, Angela Smith, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Matthew Coward)

**Introduction and Objective:** Radical cystectomy remains one of the most effective treatments for patients with localized, invasive bladder cancer. However, little study has been undertaken to evaluate outcomes of less-invasive surgical approaches to this disease –especially with regard to clinical and oncologic outcomes. We report our growing experience with robotic-assisted laparoscopic radical cystectomy (RARCx) with regard to medium-term (at least 1 year) clinical and oncologic outcomes.
**Methods:** Of the 85 patients who have undergone RALRCx and urinary diversion at our institution clinically-localized bladder cancer (\(\leq cT2\)), 50 patients have had at least 1 year of clinical follow-up after surgery and these patients were included in this analysis. Short-medium term clinical and oncologic outcomes including use of adjuvant therapies, recurrence rates, survival, and longer-term complications (> 30 days) are reported in this group of patients.

**Results:** Robotic cystectomy was performed in 36 men and 14 women at a mean age of 64.5 years. 34/50 (68%) patients had \(\leq pT2\) disease, 7/50 (14%) \(pT3/T4\) disease, and 9/50 (18%) \(N+\) disease. No patient in this series has had a positive surgical margin on operative pathology. The mean number of lymph nodes removed was 19 (range 8 to 37). Mean clinical follow up in this case series was 19.3 months (range 12-33 months). 7 (14%) patients had evidence of recurrent disease. During follow up, 4 patients have died from advanced urothelial carcinoma and 2 from other causes. Longer-term complications include stomal hernia (3), partial right ureteral obstruction (1). 13 patients underwent adjuvant chemotherapy for \(pT3\) disease (n=6) and \(N+\) disease (n=7) at a mean time of 7.3 weeks (vs. 10.2 weeks in age-matched open series from 2004-2005).

**Conclusions:** The clinical and oncologic follow-up of patients undergoing robotic-assisted laparoscopic radical cystectomy appears to be favorable with acceptable outcomes in the short-medium term. Interestingly, time to initiation of adjuvant chemotherapy was shorter in the robotic group as compared to age-adjusted cohort of patients undergoing open cystectomy at our institution from 2004-2005. As our follow-up increases, we should expect to continue to truly define the long-term clinical appropriateness and oncologic success of this procedure.

**Poster # 138**

**ROBOTIC-ASSISTED LAPAROSCOPIC ANTERIOR PELVIC**

Matthew Coward, Angela Smith, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Matthew Coward)

**Purpose:** Recently, robotic approaches to cystectomy have been reported. Application of these minimally-invasive approaches to female patients has been limited. We describe our approach and outcomes with a robotic-assisted laparoscopic anterior pelvic exenteration for bladder cancer in the female.

**Methods:** Twenty-two women underwent robotic anterior pelvic exenteration and extracorporeal urinary diversion for clinically-localized bladder cancer from 2006-2008. Outcome measures evaluated included operative variables, hospital recovery, pathologic outcomes, and complication rate. Comparisons are also made to the 63 men who also underwent a robotic cystectomy during the same period.

**Results:** Mean age was 69.9 years (range 59-81 years). Seventeen patients underwent ileal conduit diversion and 5 patients underwent an orthotopic neobladder. In all cases the urinary diversion was performed extracorporeally. Fourteen patients had concurrent hysterectomy and oopherectomy and 8 patients had previously undergoing prior TAH/BSO. Mean OR time was 4.4 hours, mean surgical blood loss was 214 ml. On surgical pathology, 14 patients were \(\leq pT2\), 3 patients \(pT3\), and 5 patients \(N+\). In no case was a positive surgical margin, and in one case there was inadvertent entry into the bladder. Mean number of lymph nodes removed was 19 (range 12 –34). Mean time to flatus was 1.8 days, and bowel movement 2.4 days, and time to discharge 4.6 days. Twenty patients (91%) were discharged on POD#4 or POD#5. There were 3 post-operative complications (14%) in 3 patients. When compared to their male counterparts, there was no significant differences in demographic, surgical, or post-operative outcomes except for female versus males being older (69.9 vs. 64.3 years; \(p=0.017\), having a lower EBL (214 vs. 393 ml; \(p=0.026\), shorter time to BM (2.4 vs. 2.7 days; \(p=0.023\)) and a lower complication rate (14% vs. 41%).

**Conclusions:** Our experience with robotic anterior pelvic exenteration appears to be favorable with acceptable operative, pathological, and short-term clinical outcomes. In fact, some of the operative variables—including blood loss and complications—may be more favorable in female versus male patients undergoing this procedure.
IMPACT OF OBESITY AND ADIPOSITY ON OUTCOMES OF PATIENTS UNDERGOING RADICAL CYSTECTOMY FOR BLADDER CANCER
Matthew Coward, Angela Smith, Raj Kurpad, Matthew Nielsen, Eric Wallen and Raj Pruthi (Presented By: Matthew Coward)

Purpose: Recent studies have evaluated the impact of obesity on outcomes in patients with bladder cancer undergoing cystectomy, including increased blood loss and increased use of incontinent diversions. We sought to evaluate the impact of obesity (BMI) and adiposity (% body fat composition (%BFC)) on demographic, peri-operative, and pathological outcomes.

Methods: 204 patients underwent radical cystectomy and diversion for transitional ca. Patients included had complete anthropometric information and at least 1 year clinical follow-up. Study measurements included BMI and %BFC. Correlations were made to demographic factors (age, race, gender, tobacco use, alcohol use), peri-operative factors (preop creatinine, hematocrit, EBL, hospital stay, choice of diversion, overall complications, stomal complications), and pathological outcomes (organ-confined status, LN positivity).

Results: The mean BMI was 27.5 kg/m2 with 36% having BMI <25 (normal), 37% having BMI 25-29.9 (overweight), and 27% having BMI>=30 (obese). When evaluated by BMI, obese patients were more commonly younger (64 vs. 68 yrs), males (81% vs 73%), married (79% vs 67%), and African American (19% vs 8%). No differences observed regarding pre-operative labs, EBL, transfusions, type of diversion, or complications except for stomal complications which were more likely in obese patients (27% vs 11%). The mean %BFC of the entire series was 27.5%. Mean %BFC was higher in women and African Americans, but, unlike BMI, differences were not observed based on age or marital status. Similarly, no differences in pre- or peri-operative outcomes based on %BFC were noted. Like BMI, stomal complications were more common with high %BFC (20% vs. 6%). Regarding pathological outcomes, rate of OC disease trended lower in obese men (57% vs 48%; p=0.14), and mean BMI trended lower in patients with OC disease (27.0 vs 28.2; p=0.09), Furthermore, rate of OC disease was lower in men with lower %BFC (57% vs 48%; p=0.04) and the mean %BFC was lower in those with OC disease (25.1 vs. 27.6; p=0.04). No differences in LN positivity were noted based on BMI or %BFC.

Conclusions: In patients undergoing cystectomy, demographic differences were observed in patients with higher BMI or %BFC, but no differences were observed in labs, EBL, choice of diversion, or operative complications (with the exception of stomal complications). Lastly, men with OC disease had a lower %BFC vs non-OC disease, and trended towards lower BMI as well.

DOES NERVE SPARING DURING ROBOT ASSISTED RADICAL PROSTATECTOMY AFFECT POSITIVE MARGIN RATES?
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Introduction and Aim: In order to preserve erectile function and improve quality of life after radical prostatectomy, nerve sparing is often performed during robot assisted radical prostatectomy (RARP). Our goal was to determine if nerve sparing increased the risk of positive margins in our RARP series.

Materials and Methods: A retrospective review was performed on patients that underwent RARP at our institution between August 2004 and August 2008. The total number of patients (824) was divided into 3 groups based on nerve sparing: group I included 618 (75%) cases with bilateral nerve sparing; group II included 83 (10%) cases with unilateral nerve sparing and group III included 123 (15%) cases without nerve sparing. We compared the incidence of positive surgical margins between the groups. Additional variables evaluated included age, body mass index (BMI), prostate specimen weight, clinical stage, postoperative pathological stage and Gleason score. Statistical analysis was performed using the software package SPSS 10®.

Results: Positive margins were found in 154 (18.6%) patients. The apical portion was the location with higher rate of positive margins (59%). The overall (all stages) positive margin rates were 18.6%, 17.6% and 20% for groups I, II and III respectively. There was no statistically significant difference between the 3 groups (p=0.428). Our positive margin rate for organ confined prostate cancer (pT2) was 9%. As expected, positive margin rates did increase with more advanced pathological stage (p=<0.001). Age, BMI, prostate specimen weight, clinical stage, postoperative pathological stage and Gleason sum were evenly distributed among all four groups and demonstrated no increase in the risk of positive margins.

Conclusions: This study illustrates that nerve sparing has no statistically significant effect on the incidence of positive surgical margins. As previously reported in other studies, there is a direct correlation between final pathologic stage and risk of positive margin rates.
Poster # 141

ACRITICAL ANALYSIS OF COMPLICATIONS AFTER ROBOTIC RADICAL CYSTECTOMY
Eric Kauffman, MD, Casey K. Ng, MD, Ming-Ming Lee, BA, Brandon Otto, BA, Gerry J., Wang and Douglas S. Scherr, MD (Presented By: Eric Kauffman)
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Introduction and Objectives: The nature of morbidity after robotic radical cystectomy (RRC) remains unclear due to small study cohorts, selection bias for healthy/low-disease patients, and inadequate reporting of minor or late (>30 days post-operative) complications. Moreover, variables predicting complications after RCC are unknown. Here we describe peri-operative outcomes for RRC patients, including 90-day complications data and the variables predicting their occurrence.

Methods: 78 patients underwent RRC with a single surgeon at our institution (DSS) over a 2.5 year period. Peri-operative data were prospectively collected. Complications occurring during the 30- and 90-day post-operative periods were recorded and graded according to 2 standardized complications reporting systems and stratified additionally into 9 organ-system categories. Risk factors for low- or high-grade complications after RRC were identified by univariate analysis.

Results: Patients were relatively comorbid, with 42% having Charlson Index >/= 3. 40% had pT3/pT4 disease. Mean operative times were 5.4 and 7.5 hours for ileal-conduit and continent-diversion cystectomies, respectively. Median estimated blood loss (EBL) was 400 mL, and 10 (13%) patients received >2 units blood transfusion peri-operatively. Liquid and regular diets were initiated on median post-operative days 3 and 4, respectively, and hospital discharge was on median day 5. The 30- and 90-day post-operative complication rates were 46% and 50%, respectively. Complications were generally low-grade (77%) and mostly infectious (35%) or gastrointestinal (27%), with a 10% incidence of thromboembolism. The high-grade complication rate was 11.5% at 30-days and 19% at 90-days. High-grade complications were most commonly related to the urinary anastomosis, which for non-orthotopic urinary reconstruction was performed extracorporeally, independent of the robotic portion of surgery. Predictors of high-grade complications were age >64 years, Charlson Index >/= 2, pelvic irradiation, EBL >/= 500 mL and pT4 disease. Longer operative times (>5 hours) increased the risk of low- but not high-grade complications.

Conclusions: Even for relatively unhealthy/high-volume disease patients, complications after RRC are generally low-grade, requiring only non-invasive intervention. Older and sicker patients have increased risk for major complications after RRC, but the low EBL typically achieved with RRC may reduce the risk.

Poster # 142

ROBOTIC ASSISTED PARTIAL NEPHRECTOMY FOR MULTIPLE RENAL MASSES: FEASIBILITY AND RESULTS OF INITIAL EXPERIENCE
Ronald Boris, MD¹, Miguel Proano, MD¹, Craig Rogers, MD², Marston Linehan, MD¹, Peter Pinto, MD¹ and Gennady Bratslavsky, MD¹ (Presented By: Ronald Boris)
Bethesda, MD; ²Detroit, MI

Objectives: To evaluate the feasibility of performing robotic assisted partial nephrectomy in patients with multiple renal masses and to examine results of our initial experience

Methods: We retrospectively reviewed the records of patients with multiple renal masses who underwent robotic assisted partial nephrectomy within the past 18 months. We identified 8 patients who underwent resection for a total of 22 tumors. Demographic information as well as intraoperative, perioperative, and renal functional outcome data were collected.

Results: 63% (5 of 8) patients had known hereditary conditions predisposing them to renal tumors: 3 had von Hippel-Lindau, 1 had Birt-Hogg-Dube, 1 Hereditary Papillary Renal Disease, while the rest had multifocal disease with unknown genetic mutations. Patient characteristics and operative data are listed in Table 1. There were no intraoperative complications or conversions. There was no gross capsular violation of any tumor. Frozen section from tumor bed was sent in 5 of 8 cases and was negative in each case. One patient experienced a post-operative urinary leak resolving on post operative day 9 without intervention. Partial nephrectomy in some of our VHL patients was performed without hilar clamping enucleating an average of 3 tumors (range 2-4) with a median size of 3 cm (range 0.6 to 5). Of the twenty two renal masses removed in eight patients 9 were clear cell type, 4 papillary type, 7 chromophobe oncocytic type, 1 AML, and 1 oncocytoma. Renal functional outcomes (creatinine and estimated GFR) were unchanged at most recent follow up.
**Conclusions:** Robotic assisted partial nephrectomy for multiple renal masses is feasible in our early experience. Renal functional outcome is minimally affected with limited follow up in this cohort. Robotic partial nephrectomy without hilar clamping, especially in the young hereditary renal tumor patient in which repeat ipsilateral partial nephrectomy may be anticipated, appears promising but requires further evaluation.

**Poster # 143**

**ONVERSION FROM PURE LAPAROSCOPY TO HAND ASSISTED LAPAROSCOPY FOR CONTROL OF BLEEDING IN KIDNEY SURGERY: AN ATTRACTIVE ALTERNATIVE TO OPEN CONVERSION**

Rabii Madi, MD¹, Rebecca Myrick, MS² and Graham Greene, MD³ (Presented By: Rabii Madi)

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**Introduction and Objectives:** To assess the efficacy and safety of conversion from pure laparoscopy to hand-assisted laparoscopy to control bleeding in kidney surgery.

**Methods:** Between August 2006 and July 2008, we performed 96 laparoscopic nephrectomies (48 partial and 48 radical). We had no conversion to open surgery, but we had a total of 3 radical nephrectomies which were converted from pure laparoscopy to hand-assisted laparoscopy for bleeding control. The first patient was a 44 year-old male with a 14 cm right kidney cystic tumor. The second patient was a 52 year-old male with a 5.2 cm left kidney tumor, and the third patient was an 86 year-old female with a 7 cm right kidney tumor. All patients were relatively healthy and had normal creatinine.

**Results:** In all three procedures, the indication for conversion was bleeding from the renal vessels or the kidney parenchyma. The bleeding was difficult to control laparoscopically, and necessitated insertion of a hand port (GelPort) to control the bleeding and remove the kidney. Time for placement of the hand port averaged 8 minutes. Blood loss for the three patients was 800 cc, 2000 cc and 650 cc respectively. One patient required transfusion with 3 units of packed cells. The post-operative course was uneventful in all patients, except for one patient who had prolonged ileus and stayed in the hospital for 6 days. The others two patients were discharged on post-operative day 2 and 3. Pathology showed malignant renal cell carcinoma in all the three tumors resected.

**Conclusions:** Conversion from pure laparoscopy to hand-assisted laparoscopy for bleeding control is fast and effective. It adds no additional morbidity on the patient’s recovery, and it should be considered as an alternative to open conversion in mild to moderate bleeding.

**Poster # 144**

**LAPAROSCOPIC PARTIAL NEPHRECTOMY: WHEN NOT TO CLAMP, WHEN NOT TO SUTURE**

Rabii Madi, MD¹, Rebecca Myrick, MS² and Graham Greene, MD³ (Presented By: Rabii Madi)

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**Introduction and Objective:** To develop a technical strategy based on kidney tumors’ depth of penetration into the kidney parenchyma.

**Methods:** We have developed a plan to manage kidney tumors by laparoscopic partial nephrectomy (LPN) based on the depth of tumor penetration into the kidney’s parenchyma. The plan is illustrated in figure 1. According to that algorithm, we prospectively evaluated 46 patients who underwent laparoscopic partial nephrectomy from August 2006 till August 2008. Patients were divided into 4 groups according to tumor’s depth. Our cohort comprised 31 men and 15 women. The median age, BMI, and ASA were 52, 32, and 2 respectively. 19 tumors were on the left side, and 27 were on the right side. The mean size of the tumors based on imaging was 2.9 cm.
Results: All patients had successful LPN according to the planned algorithm. The total surgery time was 246 minutes and the estimated blood loss (EBL) was 171 cc. 25 patients had trans-peritoneal LPN, 7 had hand-assisted LPN, 5 had retroperitoneal LPN, and 9 had robotic-assisted LPN. We were able to avoid clamping and suturing in 10 patients (group 1, 22%), clamp but not suture in 5 patients (group 2, 11%), clamp and suture in 18 patients (group 3, 45%), clamp, repair of the base of resection, and suture in 10 patients (group 4, 22%). Patients who were spared clamping of the hilum (Group A) did not differ in tumor size and other parameters from patients who underwent clamping (Group B) (mean tumor size 3.0 cm versus 3.3 cm). Patients who had LPN without clamping the hilum had more benign pathology than those who had clamping of the hilum (50% benign versus 16.7% benign). 4 patients had post-operative complications (delayed bleeding, pneumonia and infected urine) in the clamping group. The total hospital stay was comparable in both groups (2.6 days versus 3.0 days)

Conclusion: Laparoscopic partial nephrectomy can be tailored according to the extent of tumor depth into the kidney’s parenchyma to avoid unnecessary clamping and/or suturing of the kidney with no added morbidities.

Poster # 145

SURVEY BASED ANALYSIS OF RADICAL NEPHRECTOMY PRACTICE PATTERNS DURING RESIDENCY TRAINING
Jamin Brahmbhatt, MD, Reza Mehrazin, MD, Ithaar Derweesh, MD, Michael Aleman, MD, Anthony Patterson, MD, Robert Wake, MD and Christopher DiBlasio, MD (Presented By: Christopher DiBlasio)
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Introduction and Objectives: Radical or partial nephrectomy remain the most common treatments employed for clinically localized renal cortical tumors. The advent of minimally-invasive approaches including pure (PLN), hand-assisted (HALN) and robotic-assisted laparoscopic (RALN) approaches have introduced changes in residency training, such that open nephrectomy (ON) does not appear to be performed as often. These changes potentially limit the ability of residency programs to provide adequate training for this procedure. This study assesses the general practice patterns pertaining to ON in residency training.

Methods: We performed a computer-based survey of resident physicians throughout the United States. A 26-item survey was constructed and distributed to program directors for all accredited urology residency training programs. Program directors were asked to forward the survey to the residents in their program. Survey analysis was then performed to identify resident perspectives of current practice patterns in residency training pertaining to renal surgery.

Results: A total of 75 residents responded to the survey. ON was reported as the most common technique employed (used in >50% of cases) by 35.2%, followed by PLN in 32.4%, HALN in 24.4% and RALN in only 1.4%. 49.3% of residents reported feeling most competent with ON, followed by PLN (15.1%), HALN (11.0%) and RALN (0%), while 24.6% felt equally competent in all techniques. 66.2% of residents reported performing >50% of the case with ON compared to 43.0% with HALN, 41.1% with PLN and only 5.6% with RALN approaches. If asked which technique one would employ most often in practice, 38.9% of residents reported HALN compared to 30.6% for PLN, 20.8% for ON and 4.2% for RALN, while 5.6% reported all would be employed equally. 31.9% of residents reported that they felt HALN offered the best outcomes for the surgeon, followed by PLN (30.6%), ON (13.9%) and RALN (5.6%). However, 41.7% of residents felt that PLN offered the best patient outcomes versus 33.3% for HALN, 5.6% for RALN and only 4.2% for ON, while 15.3% felt that patient outcomes were equal across techniques.

Conclusions: The introduction of minimally invasive renal surgery does not appear to negatively impact resident training in ON techniques. While few residents reported feeling competent with HALN, most reported feeling this approach provides the best outcomes for the surgeon, while PLN was felt to provide the best patient outcomes.
POSTER SESSION II

Poster # 146

ROBOTIC ASSISTED LAPAROSCOPIC SALVAGE PROSTATECTOMY FOR RADIORECURRENT PROSTATE CANCER
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(Presented By: Brian Link)
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Introduction and Objective: To report on pathological and operative outcomes in robotic-assisted laparoscopic radical prostatectomy (RALP) as salvage local therapy for radiorecurrent prostate cancer.

Methods: We reviewed the charts of all patients who underwent RALP for biopsy proven prostate cancer following primary radiation treatment. Intraoperative and perioperative complications along with progression free survival and cancer specific survival measures were tabulated.

Results: Eighteen patients were identified with a median follow-up of 16 months (4.5 –40). The primary treatment was brachytherapy in eight patients, external beam radiation in 8 patients while 2 patients had undergone proton beam therapy. The median age at the time of salvage RALP was 67 years. The median pre-surgical PSA was 6.8 (1 –28.9) and the median time to RALP following primary treatment with radiation was 79 months (7 –146). Median operative parameters for estimated blood loss, surgery length and hospital stay were 150 mL, 2.6 hours and 2 days, respectively. The pathologic outcomes were pT2 in 50% and positive margin rate was 28% (5 of 18). There were two minor small bowel injuries repaired intraoperatively, but neither required diverting ostomy or developed adverse sequelae. Perioperative complications occurred in 7 patients (39%) of which the most common was a urine leak identified by post-operative cystogram. Although some patients have limited follow-up time, 33% of patients were continent and 65% were free of biochemical progression. One patient expired of prostate cancer at 15 months following surgery.

Conclusions: Robotic-assisted laparoscopic radical prostatectomy can be performed safely as salvage local therapy after failed radiation. Outcomes are comparable to large series of open salvage prostatectomy.

Poster # 147

SURGICAL COMPLICATIONS FOLLOWING ROBOTIC PROSTATECTOMY: LESSONS LEARNED DURING THE INITIAL 500 CASES
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Objective: We determined the incidence of surgical complications resulting from robot assisted prostatectomy (RAP) during the initiation phase of a new robotics program by two surgeons without laparoscopic or robotic fellowship training.

Methods: A prospectively kept database was used to examine the first 500 consecutive patients undergoing RAP for evidence of a complication occurring within 30 days of surgery. Transfusion and readmission data was obtained by retrospectively reviewing hospital records. The Clavien classification system, a standardized and validated scale for complication reporting, was applied to all events. The complication rate was determined per 100 patients treated and tested with logistic regression for a relationship with surgeon experience.

Results: A total of 60 patients (12%) experienced a total of 77 complications. Fifty patients experienced a single complication and 10 patients experienced ≥2 complications. There were 3 conversions to an open approach. A total of 9 patients (1.8%) received a blood transfusion. The average hospital stay was 1.3 days and 11% required either a return visit to the emergency department or readmission. The majority of complications (80.5%) were either grade I or II. Three grade IVa complications occurred, and there were no deaths. The complication rate decreased with experience (p=0.038).

Conclusions: Complications following RAP are most commonly minor, requiring expectant or medical management only, even during the initiation of a RAP program. The complication rate improved significantly during the study period.
Poster # 148

REFINEMENT IN SURGICAL TECHNIQUE IN ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY LEADS TO REDUCED POSITIVE SURGICAL MARGINS
Louis Remynse, MD¹, Patrick Sweeney, MD², Kevin Brewton, MD³ and Jay Lonsway, DO³ (Presented By: Louis Remynse)
¹Urology Associates of Battle Creek, Michigan; ²Urology associates; ³same

Introduction: Between Jan 1, 2008 and Aug 30, 2008 54 patients underwent RALRP by a single surgeon. These are case numbers 286 to 340. With experience surgical technique has evolved over the past 3 years. In 2006 nerve sparing procedure was performed with “cold” dissection at the posterior pedicles, and clamping of the posterior pedicles as described by Dr. Ahlering. Beginning in Jan 2007, weck clips were used with the goal of no thermal energy use during nerve sparing procedures. Also, in 2007 we began to use a suspension suture at the Apex, as described by Dr. Patel. However, the positive apical margin rate increased in our experience. In Oct 2007, we began to staple accross the Doral Venous complex, and place a suspension suture after transection of the urethra prior to anastamoses.

Methods: The overal PSM rate for the above cases was 3/54 or 5%. pt2 disease 1/46, or 2%; pt3 disease 2/8 cases, or 25%. The single PSM in pt2 disease was unifocal in the left mid gland. There were no PSMs at the apex in any case.

Results: The following sumarizes the salient points of our current surgical technique as illustrated in the poster: 1. Placement of an 0-monocryl suture at the junction of the apex prostate and dorsal venous complex secured with a slip knot prior to transection of the DVC with stapler. 2. Use of weck clips with no thermal energy during dissection of the neurovascular pedicles. 3. Combination of retrograde, and antegrade dissection of the NVBs for low Gleason score disease. 4. Antegrade dissection of the NVBs for higher Gleason score, and higher volume disease

Conclusion: We believe that these technical modifications, specifically the modification of the apical dissection, have led to similar PSM rates as reported by other surgeons.

Poster # 149

ROBOTIC NEPHRON SPARING SURGERY AND ROBOTIC RADICAL NEPHRECTOMY IN 101 CONSECUTIVE PATIENTS: THE VATTIKUTI UROLOGY INSTITUTE EXPERIENCE
Sameer Siddiqui, L. Spencer Krane, MD, Rajesh Laungani, MD, Mani Menon, MD and Craig Rogers, MD (Presented By: Sameer Siddiqui)
Henry Ford, Detroit, MI

Introduction: Recent reports have demonstrated the utility of robotics in assisting minimally invasive approaches to renal surgery. We present our initial functional and oncologic results for renal masses removed by nephron sparing surgery (NSS) and radical nephrectomy (RN).

Methods: We identified 101 consecutive patients who underwent NSS or RN for renal masses between January 2004 and July 2008. Clinical and pathologic data was collected in a prospective database.

Results: We identified a total of 101 (67 male, 34 female) consecutive patients who underwent robotic partial or radical nephrectomy. 48 patients underwent RN and 53 patients underwent NSS. 22 patients were symptomatic at presentation. Mean age at presentation was 60 (range 31-83). Pre-operative tumor size was 3.9 cm (range 0.7-11). Mean operative time was 270 minutes (range 129-580) and mean console time was 157 minutes (range 45-310). Mean estimated blood loss was 240 cc and mean length of stay was 3.3 days. From an oncologic standpoint, mean pathologic tumor size was 3.8 cm (range 0.9-11 cm). 18 patients had benign pathology (AML 6, Oncocytoma 2, leiomyoma 3, complex cyst 6). The remaining 83 patients were diagnosed with renal cell carcinoma (RCC), with the following breakdown (clear cell 50, papillary 24, chromophobe 5, other 4). Pathologic stage was the following: pT1a: 46, pT1b: 21, pT2: 4, pT3a: 5, pT3b: 5, pT4:1. Mean follow-up was 22 months. To date, no patient has died of RCC.

Conclusion: Robotic RN and NSS appear to be a viable approach to renal tumors, with acceptable functional and oncologic outcomes. Future studies with extended follow up are necessary to determine its viability as an effective form of minimally invasive renal surgery.
Poster # 150

LAPAROSCOPIC HEMINEPHRECTOMY FOR THE TREATMENT OF RENAL TUMORS
Casey A. Seideman, BA, Jane S. Cho, BS, Soroush Rais-Bahrami, MD, Edan Y. Shapiro, BS, Chad Huckabay, MD, Kevin Smith, Lee Richstone, MD and Louis R. Kavoussi, MD (Presented By: Casey A. Seideman)
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Objectives: We present our experience of performing laparoscopic heminephrectomy for renal tumors, demonstrating feasibility and intermediate-term oncological efficacy.

Methods: Between August 2001 and January 2008, 378 patients underwent elective LPN by two surgeons (LR and LRK). Patients who underwent heminephrectomy for excision of a renal tumor were prospectively recorded in our database immediately following surgery. Heminephrectomy was subjectively characterized by the surgeon as removal of approximately 50% of normal renal parenchyma during the procedure. Clinicopathological parameters, peri-operative course, complications, and oncological outcomes were analyzed.

Results: Elective laparoscopic heminephrectomy was performed on 23 patients with an enhancing renal mass. Mean patient age was 58.4 years (range 19-84), and 1 patient presented with a solitary kidney. Mean tumor size was 4.14 cm (1.2-12.5) and mean preoperative creatinine (Cr) was 1.03 mg/dL (0.6-1.5). Mean OR and warm ischemia times were 176.1 minutes and 27.2 minutes, respectively. The pelvicaliceal system was entered and repaired in all patients, and median estimated blood loss (EBL) was 406 mL. Histopathology confirmed renal cell carcinoma in 12 patients, oncocytoma in 6, and benign lesions in 5. Surgical margins and frozen sections of the tumor base were negative in all cases. Mean postoperative Cr was 1.3 mg/dL (0.8-2.5). Postoperative blood transfusion was required in 3 patients. Urine leakage was noted in 3 patients, all of which resolved with conservative drainage and/or ureteral stenting. Two patients reported postoperative ileus. During a mean follow-up of 21.9 months, 1 patient had evidence of recurrent disease.

Conclusions: Experienced laparoscopic surgeons can safely perform laparoscopic heminephrectomy for larger renal tumors. Intermediate-term oncological results are promising, however, longer-term follow-up is necessary.

Poster # 151

EVOLVING TRENDS IN LAPAROSCOPY AND NEPHRON SPARING SURGERY: A SINGLE INSTITUTION’S EXPERIENCE
Casey A. Seideman, BA, Shu Pan, BS, Edan Y. Shapiro, BS, Manish Vira, MD and Lee Richstone, MD (Presented By: Casey A. Seideman)
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Objective: Recent literature has documented a gross underutilization of laparoscopy and nephron sparing (NSS) approaches in renal surgery. Moreover, recent reports have suggested that the introduction of laparoscopy has led to an overutilization of nephrectomy in the treatment for small renal tumors. We sought to determine the impact of dedicated laparoscopic surgeons on the use of NSS and radical nephrectomies at our institution over time.

Materials and Methods: Between 2000-2007, 669 renal surgeries were performed in a single institution. Data was collected as a retrospective review of charts and pathology reports. Procedures were categorized as open nephrectomy (ON) laparoscopic nephrectomy (LN), open partial nephrectomy (OPN) and laparoscopic partial nephrectomy (LPN). Data analysis was performed using student t-test to compare means. Additionally, repeated measures analysis of variance and Spearman correlations to evaluate associations between procedure types, mean tumor sizes and year.
Results: Spearman analysis revealed there was a statistically significant decrease in the percentage of patients undergoing ON (rho= -0.952, p<0.0003) and LN (rho= 0.857, p<0.0065) and an increase in patients undergoing LPN procedures (rho= 0.952, p<0.0003). Figure 1 describes the changing trends in the surgical treatment of patients with tumors = 4cm. There was a statistically significant increase in patients undergoing LPN (rho= 0.970, p<0.0001). This is highlighted by the fact that 42% of patients with a tumor = 4cm underwent NSS in 2000, as compared to 85% in 2007. Furthermore, repeated measures analysis of variance demonstrated that the average tumor size increased over time at a rate of 0.27 cm per year from 2000 to 2007 (p<0.0001).

Conclusion: Despite underutilization of laparoscopy and NSS in national practice patterns, we found a dramatic increase in the percentage of patients undergoing laparoscopic procedures as well as an increase in the percentage of patients undergoing NSS. Additionally, we show that the overwhelming majority of NSS can be performed laparoscopically. This increase in laparoscopy is not attributable to smaller lesion size, as is demonstrated by our data.

Poster # 152

ROBOTIC-ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY: A SINGLE-CENTER EXPERIENCE WITH 27 PATIENTS
Andrew Grollman, MD¹, Eddie Michli, MD² and Raul Parra, MD³ (Presented By: Andrew Grollman)
¹UMDN-New Brunswick (Cooper); ²Cooper University Hospital-RWJ, Camden, NJ; ³Cooper University Hospital-RWJ, Camden, NJ

Introduction and Objectives: Laparoscopic partial nephrectomy requires experience and a lengthy learning curve to successfully accomplish tumor excision and renal reconstruction. The advent of robotic assisted laparoscopic surgery has proven successful in prostate cancer surgery, encouraging a growing number of centers to apply this technology in complex renal surgery. We report on our initial experience with robotic assisted partial nephrectomy. In addition, we compare our early experience with our latter experience in terms of patient selection and perioperative outcomes.

Methods: Twenty-seven consecutive patients underwent robotic assisted partial nephrectomy between September 2007 and July 2008. The surgical technique employed followed is a 4 port approach. The demographic data and perioperative outcomes for all cases were reviewed retrospectively. The first 14 cases were then compared to the latter 13 cases.

Results: The mean patient age and BMI was 64.3 years and 29, respectively. Mean tumor size was 2.9 cm. Mean operative and warm ischemia time was 143.5 minutes and 18.6 minutes, respectively. The mean EBL was 364 ml and 3 patients required blood transfusions. One intraoperative complication required open conversion. Two postoperative complications were observed; one patient developed a pulmonary embolism and the other developed an abscess at the resection site. Average hospital stay was 2.8 days. Pathological exam of the lesions revealed 18 renal cell carcinomas and 9 benign lesions. All resection margins were free of tumor. When comparing the first 14 cases completed to the second 13 cases, mean tumor size was 2.2cm vs. 3.6cm. Mean operative time was 126min vs. 147min. Mean EBL was 203cc vs. 526cc and mean hospital stay was 2.1 days vs. 3.7 days. One post-op complication occurred in the first 14 cases while one occurred in the latter cases.

Conclusions: Robotic partial nephrectomy is safe and practical for patients with small to medium-sized renal tumors considered candidates for open partial nephrectomy. In our experience the procedure can be performed with safe ischemia time and offers all the advantages of a minimally invasive procedure. In addition, our data shows that as a surgeon’s experience increases, larger tumors can be approached robotically without sacrificing patient’s perioperative outcomes and without reducing the success of complete tumor resection.
EFFECT OF PROSTATE GLAND SIZE ON THE LEARNING CURVE FOR ROBOTIC RADICAL PROSTATECTOMY: SHOULD SURGEONS CHOOSE SMALLER GLANDS OR LARGER GLANDS INITIALLY?

Carlos H Martinez, MD, Venu Chalasani, MB BS, Darwin Lim, MD, Reem Al Bareeq, MD, Geoff Wignall, MD, Larry Stitt, MSc and Stephen Pautler, MD (Presented By: Carlos H Martinez)
University of Western Ontario, London, Ontario

Introduction: Widespread introduction of robotic assisted laparoscopic radical prostatectomy (RALRP) has led to multiple surgeons going through the learning curve globally. The number of cases estimated for this learning curve has varied widely, with no clear consensus. Nevertheless, one of the recommendations for surgeons starting on the learning curve for RALRP is to choose patients with smaller glands. Recent studies have shown an inverse relationship between prostate size and positive margin rates in RALRP. We evaluated our learning curve to determine whether or not prostate gland size influenced intraoperative outcomes and margin rates during the learning curve.

Methods: Data was obtained from a prospectively collected database for the first 150 cases of RALRP performed by a single surgeon. Patients were divided into 3 groups based on prostate size: <40 ml (group 1), 40-60ml (group 2), or > 60ml (group 3). Perioperative outcomes evaluated included total operative time, times for individual steps, and estimated blood loss. Immediate post-operative outcomes evaluated included pathologic stage and margin status.

Results: There were 75 patients in group 1, 50 patients in group 2 and 25 patients in group 3. Five patients in each group had median lobes. A statistically significant difference in total operative times between the groups (mean operative times were 206 minutes for glands < 40 ml, 201 minutes for glands 40-60ml, and 233 minutes for glands > 60ml) was noted. With regards to individual intra-operative steps, there were no statistically significant differences noted except for the bladder neck reconstruction and anastomosis time, which was longer in group 3. We noted no statistically significant differences in estimated blood loss, length of stay, pathologic stage, or positive margin rates between the three groups.

Conclusion: Prostate gland size influenced total operative times, and the bladder neck reconstruction and anastomosis time. Our data does support recommendations for surgeons starting on their learning curve to choose glands less than 60ml, in order to avoid prolonged operative times during the learning curve.

PREDICTING POSITIVE SURGICAL MARGINS IN PROSTATE CANCER

Danielle Stackhouse, MD¹, Leon Sun, MD, PhD¹, Daniel Bazewicz², Kiven Zorn, MD¹, Arthur Caire, MD¹, David Albala, MD¹, Florian Schroeck, MD¹ and Judd Moul, MD¹ (Presented By: Danielle Stackhouse)
¹Duke University, Durham, NC; ²Lafayette College, Eaton, PA

Introduction and Objectives: Identify pretreatment factors predictive of positive surgical margins following radical prostatectomy in the modern era.

Methods: Data from 6489 patients who underwent a radical prostatectomy (RP) from 1988-present were retrieved from the Duke Prostate Health center database and the University of Chicago database. Patients were grouped into two categories (year of surgery <2000 and =2000). Clinical and pathological data from both eras were analyzed with univariate analysis. Clinical data were then evaluated with respect to surgical margin status using univariate analysis and binary logistic regression for the two eras.

Results: Race, clinical Gleason, clinical stage, age at surgery, percent cancer of biopsy, prostate weight, PSA, and BMI were found to be different between the <2000 and =2000 groups. Though positive surgical margin rates have fluctuated over time at our institutions, they were not significantly changed over the time periods analyzed (p = 0.225). In patients who underwent surgery before 2000, PSA, clinical Gleason, and prostate weight were significant predictors of positive surgical margins (PSM) following RP. BMI, PSA, percent of cancer in biopsy, prostate weight, and age at surgery are predictive of PSM for patients receiving RP from 2000 through present.

Conclusion: Both the clinical and pathological characteristics of patients have changed from 1988 to present. In contrast to patients who underwent RP before 2000, BMI, age and percent of cancer in biopsy cores are additional factors predictive of PSM in the current era. Clinicians should be aware of these new predictors when counseling patients to help patients make treatment decisions and possibly improve outcomes.

Continues on next page
**Poster # 155**

**ROBOT ASSISTED LAPAROSCOPIC PARTIAL NEPHRECTOMY (RAPN): EARLY OUTCOMES IN 95 PATIENTS**

Erik S. Weise, MD (Presented By: Erik S. Weise)
Northeast Indiana Urology

**Introduction and Objectives:** Laparoscopic partial nephrectomy has been shown to have oncological efficacy equivalent to open partial nephrectomy while improving recovery. The need for complex reconstruction under time pressure makes it a challenging procedure. Use of a computer assisted robotic surgical interface has been found to facilitate complex dissection and reconstruction in other laparoscopic procedures.

**Methods:** Between October 2005 and September 2008, 95 consecutive patients (mean age 63 years old, range 25 –85) underwent RAPN for enhancing renal masses (73 cT1aN0M0, 20 cT1bN0M0 and 2 cT2N0M0). Mean size on preoperative imaging was 2.5 cm (range 1.1 –10.6). Surgical principals included placement of ureteral catheter in select cases, complete defatting of the renal capsule with the exception of the mass, intraoperative ultrasound assessment; hilar clamping; sharp excision on a bloodless field, immediate pathological evaluation; case adapted repair strategy; early unclamping; passive drain.

**Results:** Mean operative time was 181 minutes (range 91-392). Mean console time was 99 minutes. Mean estimated blood loss was 150 cc (50-750). Mean warm ischemia time was 23 minutes (range 6-47). All cases were completed laparoscopically. There was one conversion to radical nephrectomy due to a tumor thrombus extending to the confluence with the vena cava. 5 patients received transfusion of blood products. Complications included two delayed bleeds and one urinoma. 75 of 95 patients (79%) were discharged on postoperative day 1 (range 1-8 days). Intraoperative pathological assessment revealed negative surgical margins in all cases. In two cases the final report was changed: one to microscopic positive margin and one to indeterminate due to a small area of possible enucleation. Renal cell carcinoma was found in 77 cases (81%), with stage pT1a in 59, pT1b in 7, pT2 in 2, pT3a in 8 and pT3b in 1. Other pathologic findings included oncocytoma. (8), angiomyolipoma (6) and complex cyst (4).

**Conclusions:** RAPN is a safe and effective modality for treatment of renal masses. The robotic interface facilitates the technical challenges and may have the potential to expand indications, decrease warm ischemia time and improve precision of reconstruction. Similar to the growing acceptance of robot assisted radical prostatectomy by the urologic oncology community, RAPN has the potential to be accessible to surgeons without prior experience in conventional laparoscopy.

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**Poster # 156**

**IMPACT OF INTRODUCTION OF ROBOT ASSISTED PARTIAL NEPHRECTOMY ON THE UTILIZATION OF LAPAROSCOPIC NEPHRON SPARING SURGERY FOR TREATMENT OF RENAL MASSES**

Erik S. Weise, MD (Presented By: Erik S. Weise)
Northeast Indiana Urology

**Introduction and Objectives:** Laparoscopic partial nephrectomy (LPN) is a proven modality for treatment of renal masses. It combines the benefits of nephron sparing surgery (NSS) with the improved recovery and morbidity of laparoscopy. LPN is considered a challenging procedure and its application is limited by technical considerations. This study was undertaken to determine the impact of robot assisted partial nephrectomy (RAPN) on the utilization of laparoscopic NSS (LNSS).

**Methods:** Prospectively gathered data on all patients undergoing treatment for renal masses between October 2005 and September 2008 in a urologic oncology program lead by a urologist with fellowship training in urologic oncology as well as in endourology were reviewed. Utilization of LNSS was calculated as (number of LNSS procedures/number of all procedures) in a given time period. The initial 12 months (group 1) were used as baseline and compared to four subsequent 6 month periods (groups 2, 3, 4 and 5). Mass size as a surrogate for technical complexity was reviewed. Patients with metastatic renal cell cancer or end stage renal disease were excluded. No patient underwent probe ablation.

**Results:** 201 patients were treated for renal masses. LNSS was used in 95 patients, while laparoscopic radical nephrectomy (LRN) was used in 100, open partial nephrectomy in 4 and open radical nephrectomy in 2. Overall utilization of LNSS was 47%. All open procedures were completed as planned. 2 LRN were aborted (1 lymphoma, 1 unresectable). 1 RAPN was converted to LRN due to a renal vein tumor thrombus. No laparoscopic procedures were converted to open. Utilization of LNSS increased from 17% in group 1 to 39% in group 2, 49% in group 3, 68% in group 4 to 88% in group 5 (p<0.05). LNSS mass size was 1.9 cm (range 1.2 –3.3) in group 1 and increased to 3 cm (1.9 –5) in group 2, 2.9 cm (1.4 –5.4) in group 3, 3.2 cm (1.1 –7) in group 4 and 3.8 cm (1.1 –10.6) in group 5 (p<0.05). Size of all masses not treated with LNSS was 3.5 cm (range 2 –15) in group 1 and increased to 6.5 cm (1.7 –18.7) in group 2, 7.5 cm (3 –20) in group 3, 8.75 cm (2.5 –15.5) in group 4 and 8 cm (4.6 –19) in group 5 (p<0.05).
Conclusions: In the practice of a urologist well trained in all surgical modalities for management of renal masses, the introduction of a computer assisted robotic surgical interface increased the utilization of laparoscopic nephron sparing surgery by inclusion of masses of greater technical complexity.

Poster # 157

LEARNING CURVES OF FELLOWS IN ROBOTIC RADICAL PROSTATECTOMY TRAINING PROGRAM

Stephen English², Maura Mohler² and James Mohler, MD¹ (Presented By: James Mohler)
¹Roswell Park Cancer Institute; ²Roswell Park Cancer Institute, Buffalo, NY

Introduction: The increased popularity of robotic surgery has increased the demand for training residents and fellows in robotic procedures, especially radical prostatectomy. Previous studies have indicated that the learning curve varies from 12 to 150 cases. In this study, we analyzed total operative and anastomosis times of 5 fellows to test the hypotheses that 1) all fellows learn at the same rate and 2) a training experience of 30 cases is sufficient.

Methods: After completing a dry training program, each fellow embarked on a 9-step training process where they perform 5 cases at each step and continue to perform the steps previously completed. The 9 steps are: observation, table-side assist, place of ports/robot set up, drop bladder, expose apex/urethra, mobilize seminal vesicles, drop neurovascular bundles, urethrovessical anastomosis, and transect bladder neck. Data was collected prospectively from when the fellow performed the first anastomosis; each fellow completed 30 cases of training before their learning curves were analyzed.

Results: Fellows A-E performed from 81 to 93 cases. Average operative time among fellows was 231 min and average anastomosis time was 30 min. Tables 3 and 4 show average anastomosis time and operative time, respectively, for each fellow in 4 quartiles. A trend toward shorter anastomosis times and operative times occurred as experience and training increased for 4 of 5 fellows. Fellow D’s anastomosis time and Fellow A’s operative times failed to improve as case numbers increased.

Table 3: Mean anastomosis time for each fellow divided into quartiles.

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<th>Fellow</th>
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<td>B</td>
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Table 4: Mean operative time for each fellow divided into quartiles.

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<th>Fellow</th>
<th>Mean Operative Time (minutes)</th>
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Conclusion: Trainees learn at different rates and therefore no uniform case requirement for training can be determined.
INITIAL EXPERIENCE WITH LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR RENAL MALIGNANCY UTILIZING NON-ISCHEMIC RESECTION AND SUTURELESS RENORRHAPHY

Reza Mehrazin, MD¹, Christopher DiBlasio, MD¹, John Malcolm, MD¹ and Ithaar Derweesh, MD¹ (Presented By: Reza Mehrazin)
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Introduction: Laparoscopic nephron sparing surgery (L-NSS) has gained increasing acceptance and utilization with emerging data demonstrating equivalence of oncologic outcomes with open NSS. Concerns continue regarding prolonged warm ischemic times and longer term effects of renal functional outcomes. We sought to create a reproducible and streamlined ‘clampless, sutureless’ technique for NSS and report our initial experience for renal malignancy.

Methods: 21 cases were performed by transperitoneal laparoscopy. Selection criteria excluded endophytic tumors and tumors with significant (>1.5 cm) abutment to the collecting system. Intraoperatively, after obtaining hilar control but without clamp application, a 1-1.5 cm margin around the tumor was circumvallated with Argon Beam Coagulator (Conmed). Tumor was removed using Hydro-jet dissector (ERBE) while obtaining control of any ongoing skeletalized vessels or bleeding with Argon Beam Coagulator (Conmed) or Treo dissector (SurgRx). Following hemostasis with oxidized cellulose and FloSeal (thrombin-gelatin, Baxter), patients underwent sutureless renorrhaphy/collecting system closure with a ‘sandwich’ of BioGlue (albumin-glutaraldyde sealant, Cryolife), Surgisis Biodesign (porcine small intestinal submucosa, Cook), and BioGlue layers, respectively. We analyzed patient demographics, tumor/perioperative characteristics, and short term outcomes.

Results: 21 tumors (21 patients) underwent L-NSS between 3/2006-9/2007. All successfully underwent non-ischemic resection and sutureless renorrhaphy. Average age was 48.5 years (12 M/8 F). Average BMI was 30.8 Kg/m2. Average tumor size was 2.2 cm (range 1.3-4.6 cm). Tumor location was 10 upper-, 8 mid-, and 3 lower-pole. 14 Tumors were anterior /7 posterior. A. Mean operative time was 172 minutes with a mean estimated blood loss of 183.5 mL. Collecting system entry was made in 14/21. Preoperative and 1 year postoperative creatinine (mg/dL) were 1.28 and 1.29 (p=0.966). Final pathology was Clear Cell Carcinoma 17, Papillary Cell Carcinoma 3, and Chromophobe 2. All had negative margins and none had a urine leak. One patient required transfusion and 4 (20%) had complications (ileus (2), bronchospasm (1), and gout (1). 1 year post operatively, all patients remained cancer-free.

Conclusion: Initial experience in selected patients demonstrates that sutureless clampless L-NSS is safe and efficacious. Long-term data are needed to confirm efficacy of this technique.

RADIOFREQUENCY ABLATION: FRIEND OR FOE

Matthew Collins, MD¹, David Riggans, MD³, James Brown, MD² and Matha Teris, MD³ (Presented By: Matthew Collins)
¹Medical College of Georgia; ²Medical College of Georgia, Augusta GA; ³Medical College of Georgia/Veterans Affairs Hospital, Augusta GA

Introduction: Radiofrequency ablation (RFA) has been increasingly utilized to percutaneously treat small renal tumors in poor surgical candidates. Several studies have reported promising therapeutic value but few have examined the complications. We describe our experience with renal RFA focusing on the associated complications.

Methods: Thirty patients underwent CT-guided RFA of 32 renal tumors under general anesthesia by a single interventional radiologist in partnership with the urology services at 2 institutions. Follow-up imaging and serum creatinine were obtained 1-3 months post-procedure and every 3 - 6 months thereafter with a mean follow-up of 10.1 months (range 3 to 27 months). There were 28 male and 2 female patients (mean age 71 years). Tumors were left-sided in 19 (59.4%) and right-sided in 13 (40.6%) cases. Ten (31.2%) were in the upper, 11 (34.4%) the mid and 11 (34.4%) the lower pole.
Results: Complications occurred in 34.4% of procedures (11 of 32) including 5 urinomas (2 with associated infection, 2 with ureteral injury), 1 hematoma, 1 transient pyeloenteric fistula, 1 skin burn, and 3 patients with urinary infection/bacteremia (1 sepsis). These required hospital admission in 5 patients (ICU in 1) and secondary surgical interventions in 2 patients. Lower pole lesions had a higher incidence of complications than other locations with problems occurring in 6 (54.5%) of the 11 cases. These included 4 urinomas (2 ureteral injury), 1 hematoma, and 1 patient with urinary tract infection. All 5 patients requiring re-hospitalization had lower pole tumors. Patients demonstrated mean creatinine rise of 0.29 mg/dl (20.7%) after the procedure. Two patients had creatinine increases over 50%, one 66.7% (1.8 to 3.0 mg/dl) and another 75% (2.0 to 3.5 mg/dl). One patient developed a new 1 cm lesion in a different location and 1 had minimal enhancement within the bed of the original tumor. All other patients had no evidence of recurrent/residual disease on follow-up imaging.

Conclusions: RFA has demonstrated encouraging results in the treatment of small renal masses. However it is not without significant complications. Our results suggest that the treatment of lower pole lesions results in a greater frequency and severity of complications. Techniques such as hydrodissection and ureteral catheterization cold irrigation during percutaneously-performed RFA procedures may reduce, but not eliminate, the risk of complication.

Poster # 160

RENAL FUNCTIONAL OUTCOMES FOLLOWING PERCUTANEOUS AND LAPAROSCOPIC CRYOABLATION OF SMALL RENAL MASSES
Joshua Logan, MD¹, John Malcolm, MD¹, Tristan Berry, MD¹, Michael Williams, MD¹, Bethany Barone, PhD¹, Harlan Vingan, MD², Robert Given, MD¹, Raymond Lance, MD¹ and Michael Fabrizio, MD¹ (Presented By: Joshua Logan)
¹Department of Urology, Eastern Virginia Medical School, Norfolk, VA; ²Department of Interventional Radiology, Eastern Virginia Medical School, Norfolk, VA

Introduction: Exirpative surgery for renal masses has been shown to significantly affect global renal function. Cryoablation of renal masses has demonstrated safety and oncologic efficacy, however renal functional outcomes after cryoablation of small renal masses have not been widely scrutinized. We report intermediate-term renal functional outcomes from a single-center cohort of patients treated with laparoscopic or percutaneous cryoablation for small renal masses.

Methods: We performed a retrospective review of our laparoscopic renal cryoablation (LRC) and percutaneous renal cryoablation (PRC) experience. 58 patients were treated between 1/2003 and 4/2007. Patients with at least 6 months follow-up were included in the analysis. LRC was performed using a 3 or 4-port transperitoneal approach. PRC was performed with CT guidance under conscious sedation. Follow-up consisted of imaging and laboratory studies at regular intervals. Global renal function was assessed at least 3 months post-treatment using measured serum creatinine and estimated GFR (MDRD equation). Chronic kidney disease (CKD) was defined as eGFR < 60 ml/min/1.73m².

Results: 58 patients (41% female/59% male, 43% black/57% non-black, mean BMI: 29) underwent either LRC (N=38) or PRC (N=20) with a mean follow-up of 27 months (range: 7-60). Average patient age was 68.8. Mean tumor size was 2.32 cm (range: 1-4.6cm). Comorbid conditions were prevalent: 77% HTN, 41% HLD, 26% DM, 40% tobacco use, and 34% heart disease (CAD/CHF). There were no statistically significant differences between the LRC and PRC groups with respect to age, race, sex, HTN, HLD, DM, pre-treatment CKD, tobacco use, heart disease, or tumor size (Student’s T and Fisher’s exact tests). Preoperative CKD was noted in 15 of 58 (26%) patients. Postoperative CKD was noted in 26 of 58 (45%) patients. De novo CKD was noted in 11 of 43 patients (25%) at least 3 months after treatment. Incidence of de novo CKD after LRC was 29%, compared to 17% after PRC (p = 0.70).

Conclusions: In spite of minimally invasive, non-extirpative treatment of small renal masses, de novo CKD was noted in 25% of patients in this series with mean follow-up greater than 2 years. Comorbid conditions were highly prevalent in this cohort and likely contributed to the high incidence of de novo CKD. Greater patient volume is needed to support multivariate analysis for more precise delineation of the impact of renal cryoablation on global renal function.
INTERMEDIATE TERM ONCOLOGIC OUTCOMES FOLLOWING PERCUTANEOUS AND LAPAROSCOPIC CRYOABLATION OF SMALL RENAL MASSES

John Malcolm, MD¹, Joshua Logan, MD¹, Tristan Berry, MD¹, Michael Williams, MD¹, Harlan Vingan, MD², Robert Given, MD¹, Raymond Lance, MD¹ and Michael Fabrizio, MD¹ (Presented By: John Malcolm)

¹Department of Urology, Eastern Virginia Medical School, Norfolk, VA; ²Department of Interventional Radiology, Eastern Virginia Medical School, Norfolk, VA

Introduction: While partial nephrectomy remains the gold standard for the management of most small renal masses, increasing experience with renal cryoablation has presented a viable alternative with a favorable morbidity profile and good efficacy. We report intermediate-term oncologic outcomes from a single-center experience with laparoscopic and percutaneous renal cryoablation.

Methods: We performed a retrospective review of our laparoscopic renal cryoablation (LRC) and percutaneous renal cryoablation (PRC) experience between 1/2003 and 4/2007. Patients with at least 6 months follow-up were included in the analysis. LRC was performed using a 3 or 4-port transperitoneal approach. PRC was performed with CT guidance under conscious sedation. Follow-up consisted of imaging and laboratory studies at regular intervals. Persistent mass enhancement or interval tumor growth was considered a treatment failure, and repeat biopsy and retreatment were recommended.

Results: 58 patients (41% female/59% male, 43% black/57% non-black, mean BMI: 29) underwent either LRC (N=38[42 tumors]) or PRC (N=20) with a mean follow-up of 27 months (range: 7-60). Average patient age was 68.7 (range: 34-82). Mean tumor size was 2.32 cm (range: 1-4.6cm). Comorbid conditions were prevalent: 77% HTN, 41% HLD, 31% CKD, 26% DM, 40% tobacco use, and 34% heart disease. There were no statistically significant differences between the LRC and PRC groups with respect to age, race, sex, comorbid conditions, or tumor size (Student’s T and Fisher’s exact tests). Results of pre-treatment biopsy were 64% RCC, 32% benign, and 4% nondiagnostic. There was 1 treatment failure (2.6%) in the LRC group; retreatment is pending. There were 5 recurrences in the PRC group (25%) (p=0.015), 4 of which were managed with repeat PRC with no evidence of recurrence at 12 to 24 months follow-up. The fifth patient with a subcentimeter focus of enhancement is being managed expectantly. There has been no significant local or metastatic progression. Overall cancer-specific and cancer-free survival were 100% and 97%, respectively. There was one mortality due to complications from non-pathologic bilateral femur fractures.

Conclusions: LRC achieved good oncologic control at a mean follow-up of 27 months in a patient cohort characterized by numerous comorbid conditions. PRC had significantly higher recurrence rates, but repeat treatments offered salvage oncologic control with no significant complications.

DOES RADIOFREQUENCY ABLATION FOR RENAL LESIONS NEGATIVELY IMPACT RENAL FUNCTION?

Werle David, MD, Saunders Weston, Richard Jacob, MD, Kader Karim, MD, Hemal Ashok, MD, Zagoria Ron, MD and Joseph Pettus, MD

(Presented By: Joseph Pettus)

Wake Forest University, Winston-Salem, NC

Introduction and Objectives: The goal of percutaneous ablative therapies such as radiofrequency ablation (RFA) is to treat these small tumors without the associated morbidity of surgery and renal ischemia. The purpose of this study was to evaluate the effect of RFA on global renal function at one year.

Methods: We conducted a chart review of pertinent clinicopathologic data in patients treated in a single session for renal cortical tumor with a minimum follow up of 1 year. We estimated GFR at baseline, 1-, and 12- months using the abbreviated Modified Diet in Renal Disease equation. GFR was stratified into normal (>60cc/min/1.73m2), diminished (45-60cc/min/1.73m2), and severely diminished (<45cc/min/1.73m2) at each interval. We used Fisher’s exact test to compare the ordinal GFR data at 1- and 12-months to baseline.
**Results:** Seventy-seven patients with a median follow up of 24 (Interquartile range [IQR]: 14, 37) met our criteria for this study and had complete data. The median lesion size was 2.0 cm (IQR: 1.4, 3.0). Median baseline, 1- and 12-month GFR was 52 (IQR: 41, 70), 52 (IQR: 38, 71), and 55 cc/min/1.73 m² (IQR: 42, 70), respectively. However, only 32/77 (42%) had normal renal function at baseline. At 1-month and 1-year, 6/32 (19%, P<0.001) and 8/32 (25%, p<0.001), respectively, developed diminished or severely diminished renal function.

**Conclusions:** RFA has a modest, but significant, impact on renal function. These results compare favorably to those historically achieved by partial nephrectomy.

**Poster # 163**

**SINGLE CENTER EXPERIENCE AND INTERMEDIATE-TERM OUTCOMES OF LAPAROSCOPIC AND PERCUTANEOUS RENAL CRYOABLATION FOR BIOPSY CONFIRMED RENAL MALIGNANCY**

Reza Mehranzin, MD, John Malcolm, MD, Christopher DiBlasio, MD, Robert Wake, MD, Anthony Patterson, MD, Robert Gold, MD and Ithaar Derwees, MD (Presented By: Reza Mehranzin)

University of Tennessee Health Science Center, Memphis, TN

**Introduction:** Cryoablation is a feasible therapeutic option for small renal tumors. We compared our perioperative and intermediate-outcomes of laparoscopic (LAP) versus percutaneous (PERC) renal cryoablation.

**Methods:** 34 patients (18 Male/16 Female) underwent LAP and 26 (19 Male/7 Female) underwent PERC between 9/1998 and 2/2007. Of these, 35 Patients (58.3%) had biopsy confirmed RCC, 22 underwent LAP and 13 underwent PERC. LAP was done with ultrasound monitoring. PERC was performed with CT-guidance. Follow-up imaging was obtained at regular intervals.

**Results:** Median Follow up was 32.6 months. No significant differences were noted between LAP and PERC for mean age and BMI. Mean tumor size (cm) was 2.9 for LAP and 3.1 for PERC (p=0.432). Anterior tumors comprised 61.8% of LAP and 19.2% of PERC (p=0.001). Mean procedure time (minutes) was 165.7 for LAP and 106.6 for PERC (p=0.001). Hospital stay (hours) was 63.2 for LAP and 44.2 for PERC (p<0.001). 82.4% LAP and 19.2% PERC patients required narcotics (p=0.001). 70.6% LAP and 43.6% PERC developed atelectasis (p=0.004). 11.5% PERC and 2.9% LAP had residual enhancement (p=0.192). 14.7% LAP and 26.9% PERC had complications (p=0.248). For biopsy confirmed RCC, 1-, 3- and 5-year disease-specific survival was 100% for both LAP and PERC. 5-year overall survival for was 88.9% LAP and 71.4% PERC.

**Conclusions:** PERC and LAP have similar profiles and intermediate-term outcomes. Most anterior tumors were approached LAP. PERC offers advantages regarding hospital stay, narcotic requirement and atelectasis. Long-term data are required to establish efficacy.

**Poster # 164**

**CLINICAL FEATURES OF SMALL RENAL MASSES (SRMS) WITH DOCUMENTED METASTATIC PROGRESSION ON ACTIVE SURVEILLANCE (AS) PROTOCOLS**

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**Introduction:** Despite early detection and aggressive treatment of incidental SRMs, death rates from RCC continue to rise, suggesting potential overtreatment biases. Indeed, data are emerging regarding the safety of active surveillance (AS) of SRMs. Despite the reported low risk of metastases during AS, triggers for intervention are ill defined. Here we report the clinical variables, including presenting size, growth rates, and time to metastases for SRMs that have been reported to progress during AS.

**Materials and Methods:** A PubMed and Web of Science search was performed of the literature on AS for clinically localized renal masses (1966 - August, 2008). Cases of initially localized SRMs that progressed to metastatic disease under AS were collated and analyzed.

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Results: 581 SRMs managed with AS at 16 institutions were included in the analysis (Table 1). Median patient age was 70.2 yrs (range 54-81), and median tumor size was 2.5 cm (range 1.7-7.2). Tumors were followed for a median of 29.2 months (range 24 –47.6). Metastases were radiographically identified in 1.38% (8/581) lesions, but pathologically confirmed in only one case. Lesions that remained localized exhibited a median diameter at diagnosis of 2.3 cm (range 1.7-5.0), versus 2.7 cm (range 2.0-8.8) in patients that progressed. Median diameter of the primary tumor at the time of metastases for these eight cases was 6.0 cm (range 4.5-10.65). Median growth rate for localized lesions was 0.27 cm/yr (range 0.06-0.86) versus 0.8 cm/yr (range 0.2-2.7) for tumors which metastasized. Importantly, no lesion progressed to metastasis in the absence of interval radiographic growth. Median time to progression from onset of AS was 47 months (range 15 - 132).

Conclusions: AS has emerged as a viable option for patients with SRMs. Progression to metastatic disease appears to be a rare (1.38%) and delayed event (median 47 months) with only one case confirmed pathologically. All lesions that progressed exhibited significantly rapid radiographic growth. To date, no lesion with net-zero growth has metastasized. Thus, a period of AS followed by delayed intervention based on growth kinetics may be an acceptable strategy in select patients with incidental SRMs.

Poster # 165

PATTERN OF METASTASIS IN RENAL CELL CARCINOMA WITH SARCOMATOID TRANSFORMATION: INSIGHT INTO THE BIOLOGY AND THE IMPLICATION FOR SYSTEMIC THERAPY
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Purpose: Sarcomatoid features (SF) in renal cell carcinoma (RCC) are thought to represent an aggressive subclone of the primary tumor. The patterns of metastasis were evaluated to determine if SF are retained and if the percentage of sarcomatoid features (PSF) influences distant spread.

Methods: All patients with SF at nephrectomy with synchronous or metachronous resection of positive nodes/metastases were evaluated. The histology, grade, and PSF in the primary tumor were recorded as well as the histology of nodal and distant metastasis were recorded. The association of the PSF, carcinoma grade, histology, and the pattern of metastases were evaluated.

Results: A total of 32 patients were identified with SF and resected sites of metastases. Clear cell, chromophobe, and papillary type II was present in 15 (47%), 7 (22%), and 6 (19%), patients respectively. Fifty-two sites of metastases were evaluated including 31 lymph nodes (60%), 4 (8%) liver metastases, 6 (12%) lung metastasis, and 2 (4%) bone metastases. A uniform appearance (all sarcomatoid or carcinoma) was present in 50 of 52 sites (96%). Thirty-one sites (60%) demonstrated uniform SF while 19 (37%) contained uniform carcinoma elements. Histology and carcinoma grade did not influence metastatic pattern, however greater PSF was associated with sarcomatoid metastases. A cutoff of 25% SF was the ideal cutoff to predict sarcomatoid metastases.

Conclusions: SF are retained on dissemination and metastases generally contain a solitary feature which may support the subclone hypothesis. Both tumor components can metastasize. The PSF is associated with the pattern of distant spread and patients with ≥25% SF generally have carcinoma in distant sites. This cut point may be helpful for selection of systemic therapy and inclusion criteria for clinical trials.
AGE AT SURGERY IS NOT PREDICTIVE OF PROGRESSION OR SURVIVAL IN PATIENTS WITH LOCALIZED RENAL CELL CARCINOMA

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Purpose: The majority of patients who present with renal cell carcinoma will have disease confined to the kidney. After surgical therapy, the risk of progression to metastatic disease is low, especially for small lesions. Peak occurrence for RCC is in the 6 to 7th decade, and young age at diagnosis has been associated with similar or increased disease specific survival when compared to older patients. We sought to investigate the effects of age on distant recurrence and survival in a cohort of patients with organ confined disease.

Materials and Methods: Using an institutional database, we retrospectively reviewed the records of all patients with pathologic T1 or T2 renal cell carcinoma. We recorded clinical variables and survival data for each patient. Patients were divided into four age groups (less than 50, 50-59, 60-69, 70 or older). Logistic regression analysis was then performed to calculate the odds of progression for each age group. For determination of differences in survival, Cox proportional hazards regression analysis was used to calculate a hazard ratio. For each regression analysis, the youngest age group was used as the referent group and we adjusted for sex, race, tumor stage and grade, and performance status.

Results: A total of 1,032 patients with pathologic stage T1 or T2 N0M0 RCC were eligible for analysis. The median age was 59 years old (range 18 to 91). Progression to metastatic disease was seen in 5.1% (53/1032) of patients at a median time to progression of 21.6 months. There was no significant difference in the number of patients that progressed to metastatic disease or in time to progression among the different age groups. In patients who did progress after surgery, no difference in survival was seen based on age.

Conclusions: In patients with localized RCC, age at presentation is not related to clinical progression to metastasis or survival in those patients who progressed.

SURGICAL RESECTION OF RENAL CELL CARCINOMA AFTER TARGETED MOLECULAR THERAPY

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Objectives: The development of novel targeted agents has renewed interest in consolidative surgery due to the robust clinical responses seen with these agents. The integration of molecular targeted therapy and surgery requires careful consideration due to the potential for increased perioperative morbidity. We performed a retrospective review of surgical outcomes of patients with locally advanced or metastatic RCC treated with targeted therapy.

Methods: 19 patients who were treated with targeted molecular therapy underwent resection (21 operations) of locally advanced (8), locally recurrent (6), or metastatic disease (3), and 2 patients with bilateral RCC were treated to downsize the tumor and enable partial nephrectomy. Patients were treated with either sunitinib (12), sorafenib (3), or bevacizumab and IL-2 (4).

Results: Median age was 61 years (range: 43-80). Patients received 2-7 cycles of targeted therapy prior to resection. Surgical resection involved open (18) or laparoscopic (3) approaches to extirpate the primary tumor or recurrent disease through nephrectomy (9), partial nephrectomy (3), or metastasectomy (9). Median EBL was 700cc (range 50-4500cc) for 18 patients. 1 patient had a significant intraoperative hemorrhage and disseminated intravascular coagulopathy from a concomitant liver resection. An anastomotic bowel leak and abscess were noted postoperatively in another patient who underwent en bloc resection of the primary renal tumor and adjacent colon. 2 patients (10%) developed minor wound complications, including a wound seroma and a ventral hernia. Pathological analysis revealed clear cell (80%), chromophobe (5%), and unclassified RCC (10%) in 20 specimens, and one patient (5%) was pT0. At a median follow-up of 8 months, 16 (84%) patients were alive, 8 (42%) demonstrated disease progression, and 9 (47%) were continued on targeted therapy.
**Conclusions:** Surgical extirpation after treatment with targeted molecular therapy appears well tolerated with low overall morbidity in the majority of patients. However, 2 patients (10%) experienced significant complications including 1 perioperative hemorrhage and 1 anastomotic bowel leak, raising potential concerns for possible compromise of tissue and vascular integrity associated with this treatment. Careful patient selection and close follow up is warranted in this challenging patient population in order to determine the optimal integration of surgery and molecular targeted therapy in patients with advanced RCC.

**Poster # 168**

**RESPONSE OF THE PRIMARY TUMOR TO NEOADJUVANT SUNITINIB IN PATIENTS WITH ADVANCED RENAL CELL CARCINOMA**

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**Objectives:** We assessed the activity of neoadjuvant sunitinib on primary renal tumors in patients with advanced RCC and the feasibility and safety of subsequent surgical resection.

**Methods:** 21 patients with advanced RCC unsuitable for initial nephrectomy due to locally advanced disease or extensive metastatic burden were treated with sunitinib. The primary tumor was deemed unresectable as defined by various combinations of large tumor size, bulky regional lymph nodes, vascular invasion, invasion into neighboring organs, and proximity to vital structures, making surgical resection difficult or potentially hazardous in the opinion of the primary urologic oncologist. 2 patients with bilateral RCC were treated to downsize the tumor and facilitate partial nephrectomy. In 6 other patients with extensive burden of metastatic disease, cytoreductive nephrectomy was not indicated and they were also treated with their primary tumor in place.

**Results:** Median age was 64 years and initial median radiographic renal tumor size was 10.4 cm. Clinical stage was N+ (12) and M+ (16). No patients experienced a complete response. Partial responses of the primary tumor were noted in 3 patients (14%), 9 (43%) had stable disease and 9 (43%) had disease progression in their primary tumors. Overall tumor response included 2 patients (10%) with partial responses, 9 patients (43%) with stable disease, and 10 patients (48%) with disease progression. Sunitinib was associated with grade 3-4 toxicity in 7 patients (33%), and one patient discontinued treatment due to toxicity. At a median follow-up of 6 months (range, 1-25 months), 6 patients (29%) had undergone nephrectomy, including one patient managed with bilateral partial nephrectomy and another managed with partial nephrectomy and contralateral radical nephrectomy. Five patients (24%) expired from disease progression. No unexpected surgical morbidity was encountered. Viable tumor was present in all resected specimens. At last follow up, all patients who underwent surgical resection were alive at an average of 10 months postoperatively (range, 1-15 months). Of this patient subset, only one patient developed subsequent disease progression.

**Conclusions:** Administration of sunitinib in patients with advanced RCC with the primary tumor in place is safe and can lead to a reduction in tumor burden that can facilitate resection in up to 29% of patients.

**Poster # 169**

**PREDICTORS OF ONCOLOGIC OUTCOME AFTER RESECTION OF LOCALLY RECURRENT RENAL CELL CARCINOMA**

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University of Texas MD Anderson Cancer Center

**Purpose:** Local recurrence (LR) of renal cell carcinoma (RCC) after radical nephrectomy with curative intent is rare. We thought to describe natural history and characterize important prognostic factors in patients managed with aggressive resection of isolated LR.

**Patients and Methods:** From an institutional database of 4200 RCC patients, 54 underwent radical nephrectomy with curative intent and subsequently were found to have isolated LR (renal fossa, ipsilateral adrenal gland or ipsilateral retroperitoneal lymph nodes) managed with surgical resection. Patients with less than 6 months follow-up, non RCC pathology and metastatic disease at the time of nephrectomy or diagnosis of LR were excluded from analysis. Multiple clinical and pathologic features were correlated with probability of cancer specific survival after resection of isolated LR.
**Results:** With a median follow-up of 41 months (range 6–132), 23 (42.6%) patients died of RCC, 8 (14.8%) died of other causes, 12 (22.2%) are alive with disease, and 11 (20.4%) are alive with no evidence of disease recurrence. Estimated median recurrence-free and cancer-specific survival times were 11 and 61 months, respectively. Positive surgical margin after resection of LR, size of recurrent tumor, presence of sarcomatoid features in the recurrence specimen, abnormal serum alkaline phosphatase and lactate dehydrogenase at the time of LR were associated with increased risk of cancer-specific death after resection of recurrent RCC. Patients with 0, 1 and >1 adverse risk features demonstrated median cancer specific survival of 111, 40 and 8 months, respectively.

**Conclusion:** Aggressive resection of isolated LR offers durable local tumor control and cancer specific survival in a significant proportion of RCC patients. Clinical and pathologic prognostic features at the time of LR can be utilized for thoughtful integration of systemic therapy with surgical extirpation.

**Poster # 170**

**NATIONAL TRENDS IN TREATMENT OF STAGE I RENAL CELL CARCINOMA**

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**Introduction:** Renal cell carcinoma is increasingly likely to be diagnosed at stage I, and even within stage I average tumor size has been declining over time. Previous reports including data through 2001 have suggested that nephron sparing surgery is under-used for small renal masses. We determined updated, annual trends over time in treatment patterns for stage I renal cell carcinoma using a large, population-based data source.

**Methods:** The National Cancer Data Base merges data from over 1,400 cancer registries, capturing approximately 75% of all cancer diagnoses in the United States. The database was queried for adult renal cell carcinomas diagnosed between 1993 and 2005. Trends in treatment types (no surgery, total nephrectomy, partial nephrectomy, non-surgical ablation) were analyzed among all stage I tumors, and small stage I tumors categorized by size. The impact of trends toward laparoscopic and/or percutaneous approaches cannot be measured with these data, nor can trends for benign or non-diagnosed renal tumors.

**Results:** 214,820 renal tumors were identified during the study period; 92,889 were stage I. Of these, 14,814 were 3.0–3.9cm, 17,831 were 2.0–2.9cm, and 12,871 were under 2.0cm. Among all stage I tumors partial nephrectomy increased from 5.9% to 27.1% of cases during the study period, and ablation increased from 0.9% to 4.6% (figure). For tumors under 2cm, 2–2.9cm, and 3.0–3.9cm, partial nephrectomy increased from 11.2% to 49.3%, 10.3% to 41.6%, and 6.5% to 28.6%, respectively (all trends p<0.001).

**Conclusions:** While total nephrectomy is still likely over-used for small renal masses, use of partial nephrectomy and ablation techniques for stage I renal cell carcinoma has increased substantially over the past 15 years, with roughly four-fold increases in utilization across tumor sizes and suggestions that this trend is ongoing.
**Poster # 171**

**CONTEMPORARY USE OF PARTIAL NEPHRECTOMY AT A TERTIARY CARE CENTER IN THE UNITED STATES**

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Memorial Sloan-Kettering Cancer Center

**Introduction:** Use of partial nephrectomy for renal cortical tumors appears unacceptably low in the United States according to population-based data. We examined the use of partial nephrectomy at our tertiary care facility in the contemporary era.

**Methods:** Using our prospectively maintained nephrectomy database, we identified 1,533 patients treated for a sporadic and localized renal cortical tumor between 2000 and 2007. Patients with bilateral disease or solitary kidneys were excluded and an elective operation required an estimated glomerular filtration rate >45 ml/min/1.73m2. Predictors of radical nephrectomy were evaluated using logistic regression models.

**Results:** Overall, 854 (56%) and 679 (44%) patients were treated with partial and radical nephrectomy, respectively. Among the 820 patients treated electively for a tumor <4cm, the frequency of partial nephrectomy use steadily increased from 69% in the year 2000 to 89% in 2007. Among the 365 patients treated electively for a tumor 4-7cm, the frequency of partial nephrectomy use also steadily increased from 20% in the year 2000 to 60% in 2007. In a multivariate analysis, female gender (p=0.021), earlier year of surgery (p<0.001), older age (p=0.004), larger tumor size (p<0.001), and laparoscopic surgery (p<0.001) were significant predictors of receiving a radical nephrectomy. American Society of Anesthesiology (ASA) score and race were not significantly associated with type of treatment.

**Conclusions:** Use of partial nephrectomy is increasing and is now utilized for ~90% of patients with T1a tumors at our institution. For reasons that remain unclear, certain groups of patients are less likely to be treated with partial nephrectomy.

**Poster # 172**

**A CANCER-SPECIFIC SURVIVAL NOMOGRAM FOR RENAL TUMORS WITH CONCOMITANT VENOUS THROMBUS**

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**Introduction and Objective:** Nomograms are powerful illustrations of complex mathematical formulas that determine the individual likelihood of a studied event. Outcomes of patients with renal malignancies with tumor thrombi are not dependent of a single factor. Therefore, we developed a cancer survival nomogram that allows more accurate prediction of probability of cancer survival after surgical removal of the primary tumor and its thrombi.

**Methods:** By Cox proportional hazards regression analysis, we modeled the clinical and pathologic data and disease follow-up for a multi-institutional cohort of 1042 men with renal malignancies and tumor thrombi treated at one of 10 institutions. Patients who expired during the perioperative period (n=40, 4%) were excluded. Prognostic variables included age, gender, embolization prior to surgery, presence of metastasis, primary tumor size, stage, Furham grade and thrombi level. We internally validated the model with a 200 repetition bootstrap analysis.

**Results:** A total of 597 died during the study period, 440 (74%) of these from cancer. The respective mean and median follow up for survivors was 43 and 29 months. The 5-year cancer-specific survival probability for the cohort was 49% (95% confidence interval, 46% to 53%), with 226 patients remaining at risk. The predictions from the nomogram (Figure) appeared to be accurate and discriminating, exhibiting an internal-bootstrapped concordance index (ie, a comparison of the predicted probability with the actual outcome) of 0.73.

**Conclusions:** A renal carcinoma with tumor thrombi cancer survival nomogram has been developed and validated. This tool can be used to predict the 2, 3 & 5-year probability of cancer survival after radical nephrectomy with tumor thrombectomy.
PROGNOSTIC SIGNIFICANCE OF PREOPERATIVE RENAL ARTERY EMBOLIZATION IN RENAL CELL CARCINOMA WITH VENOUS EXTENSION: A MULTIINSTITUTIONAL EXPERIENCE

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Objectives: There is much debate regarding the perioperative, cancer-specific and overall survival associated to preoperative renal artery embolization (PRAE) for prior to a planned radical nephrectomy with tumor thrombectomy. We analyzed these survival outcomes in a multi-institutional cohort of patients with renal carcinomas harbouring tumor thrombi.

Materials and Methods: A total of 1042 patients underwent radical nephrectomy with tumor thrombectomy in one of 10 institutions between 1962 and 2007. Of these, presence (228-77%) or absence (728-23%) of PRAE was noted in 981. For this analysis patients were stratified into those with or without PRAE. Clinico-pathological and follow up information was documented at the respective institutional cancer registry. The risk factors incorporated in the analysis included: thrombus level, histological category, tumor size, pathological stage and Fuhrman grade. Primary endpoints were perioperative mortality (POM) –within 30 days of surgery or during hospitalization –cancer-specific survival (CSS) and overall survival (OS). The Chi-square tests was used to compare discrete factors, t-tests for continuous factors and actuarial methods for the survival endpoints.

Results: The median follow-up for the 375 survivors was 27 (IQR-3-67) months. The POM rate was 4% for each group, p=0.7. PRAE was performed in 15%, 29%, 28% and 60% of patients with thrombi in the renal vein (RV), cava below diaphragm (CBD), cava above diaphragm (CAD) and atrium, respectively. This association was statistically significant (p<0.01). Of the 592 death events, 439 (74%) died from their renal cancers. The 5-yr OS and CCS for those with PRAE vs. not was 39% (33-47) and 49% (42-56) vs. 36% (32-40) and 48% (43-51), respectively (OS, p=0.21 and CSS, p=0.43). The lack of survival benefit (p>0.05) seen was irrespective of thrombi location CBD, CAD and atrium. However, the OS and CSS of those with thrombi in their RV was significantly improved if PRAE was performed (p<0.01 for both).

Conclusions: Overall, patients with RCC with venous involvement with or without PRAE have the similar POM, OS and CSS. However, based on this data, PRAE could be considered as a helpful preoperative strategy in patients with RV thrombi.
PROGNOSTIC SIGNIFICANCE OF VENOUS THROMBUS IN RENAL CELL CARCINOMA: A MULTI-INSTITUTIONAL STUDY
Juan Ignacio Martinez-Salamanca, MD³, John Libertino, MD⁴, Fernando Bianco, MD¹, Chad Wotkowicz, MD⁴, Paul Russo, MD⁵, William C. Huang, MD⁵, Edson Pontes, MD⁴, Mark Soloway, MD⁴, Gaetano Ciancio, MD⁵, Joaquin Carballido, MD³, Claudio Martinez-Ballesteros, MD¹, Felipe Herranz, MD³ and Carlo Terrone, MD⁶ (Presented By: Juan Ignacio Martinez-Salamanca)
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Introduction: The prognostic significance of the level of venous involvement in renal cell carcinoma (RCC) is still controversial. To assess this controversy we analysed the impact of venous tumor thrombus (TT) extension in order to answer two specific scientific questions: Is there any differences in survival between Level I Renal Vein (RV) and Level II Inferior Vena Cava (IVC)? Is there any difference between thrombus below (T3b) or above diaphragm (T3c)?

Material and Methods: Between 1962-2006, 660 consecutive patients underwent radical nephrectomy and tumor thrombectomy at eight different institutions were evaluated in retrospectively manner. We excluded 20 patients due to missing information. A total of 88 were pN+ or have metastasis at time of surgery. We analysed the following variables: Thrombus Level, I (RV), II (IVC), III (Tumor above the diaphragm), time to death or last follow-up, histological category, tumor size, Fuhrman grade, metastasis at time of surgery, pT (T3b or pT3c) and pN stage. Primary endpoints was disease-specific survival (DSS). Survival rates and multivariate analysis were calculated with the Kaplan-Meier and Cox-regression model.

Results: Median follow-up was 26.6 with an interquartile range of 7.8-66.8 months. Level of TT was I (in 261), II (in 215), III (in 164). No demographic differences existed between the different level including gender, age, Fuhrman grade, percentage of metastatic disease and tumor size (Fisher’s exact Test). The DSS at 5 and 10 years were similar (p=0.643) in patients with Renal Vein (DS 47.6% and 25%) vs IVC (DS 45% and 28%). The same observation has been made in patients without node disease (pN0) or absence of metastasis (M0) (p=0.898). However, patients with IVC involvement above diaphragm (T3c) (DS 5-years 25.9%) had a significantly worse prognosis rate than pT3b patients (DS 5-years 47.0%) (p<0.001). A multivariate analysis showed that Fuhrman grade (p<0.001), tumor size (p<0.001), pT (p<0.001) were significant predictors for recurrence but not the venous thrombus.

Conclusions: Patients classified as pT3b even have thrombus in RV or IVC have the same prognosis at 5 and 10 years. However, the prognostic gets worse when the TT extends above the diaphragm.

FIVE YEAR NON-KIDNEY CANCER MORTALITY IN PATIENTS WITH LOCALIZED SMALL RENAL MASSES (<4CM)
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Introduction: Emerging data suggest that the inherent biology of localized small renal masses (SRM) may be more indolent than previously thought. Large surgical series suggest that 5 year CSS is very high (95%+) following resection of small (<4cm) localized Renal Cell Carcinoma(RCC). Recent active surveillance (AS) data also suggest that death from RCC during a period of observation is rare and that 5 year CSS of localized SRMs under AS are equally high. Here, we analyze 5-year mortality rates in patients with localized SRMs (<4cm) who were either observed or treated surgically to determine death rates and % of patients dying of competing morbidities.

Methods: The Survival, Epidemiology, and End Results (SEER) database was queried for 5-year mortality data for patients with localized, node negative kidney cancer, <4 cm in greatest diameter. 5-year mortality data were determined for patients stratified into 5 age categories. Mortality was assigned as either RCC related or non-RCC related for patients who did and did not have surgical intervention. The proportion of patients dying of non-RCC related causes was compared among various age groups, based on surgical intervention or AS.
**Results:** 15,159 patients met inclusion criteria. Of these, 13,964 were treated surgically while 1,195 were not treated. Overall 5-year mortality in patients undergoing surgery was: 45-54 years, 9%; 55-64 years, 14%; 65-74 years, 23%; 75-84 years, 35%; and >85 years, 59% In patients who did not have surgery, overall 5-year mortality was high likely due to selection bias and was: 45-54 years, 69%; 55-64 years, 84%; 65-74 years, 78%; 75-84 years, 78%; and >85 years, 86% In patients treated with surgery, the proportion dying of non-RCC related mortality based on age was: 45-54 years, 77%; 55-64 years, 81%; 65-74 years, 85%; 75-84 years, 84%; and >85 years, 86% In those not undergoing surgery, the proportion dying of non-RCC related mortality based on age was: 45-54 years, 94%; 55-64 years, 95%; 65-74 years, 92%; 75-84 years, 83%; and >85 years, 80%  

**Conclusions:** These data demonstrate that competing co-morbidities are responsible for the majority of deaths at 5 years in patients with localized SRMs, regardless as to whether patients are treated surgically or observed. AS appears to be a valid option in select patients with SRMs, especially in elderly populations.

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**Poster # 176**

**SURGICAL RESECTION OF RENAL TUMORS AND INFERIOR VENA CAVA THROMBI WITH VASCULAR BYPASS: ROLE OF PRE-OPERATIVE RENAL TUMOR ANGIOINFARCTION**

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**Introduction:** Renal tumors with venous extension at or near the level of the right atrium often require the assistance of vascular bypass to aid in their removal. Pre-operative angioinfarction (PAI) of these tumors has been hypothesized to facilitate tumor resection by decreasing intra-operative bleeding and reducing the cephalad extent of the tumor thrombus. We sought to evaluate the influence of PAI in patients undergoing radical nephrectomy and IVC thrombectomy (RN/IVCT) with vascular bypass techniques.

**Methods:** We retrospectively reviewed our institutional experience in patients undergoing RN/IVCT between 1990 and 2008. In an effort to eliminate confounding bias due to surgical approach, we limited this review to only patients who required vascular bypass techniques. The selection of PAI was based upon surgeon preference and was done on the day prior to surgery by direct injection of ethanol into the renal artery. Patient records were reviewed to analyze clinical characteristics and operative outcomes including operative time, transfusion requirement and post-operative complications.

**Results:** Overall, 96 patients underwent RN/IVCT with vascular bypass assistance. Of these patients, 70 had PAI (Group 1) and 26 underwent RN/IVCT without angioinfarction (Group 2). There were no differences between groups for age, gender, renal tumor size, tumor laterality, thrombus level, pre-operative hemoglobin and American Society of Anesthesiology (ASA) score. More patients in Group 2 had metastatic disease prior to surgery (35% vs. 7%, p<0.001).

With respect to perioperative outcomes, the incidence of death within 30 days following surgery was significantly greater in Group 1 patients (20% vs. 0%, p=0.014). Median operative time (mins) was significantly greater in group 1 patients (450 vs. 396, p=0.03). Additionally, postoperative complications occurred with greater frequency in Group 1 (60% vs. 38%, p=0.06). PAI did not decrease the cephalad extent of the tumor thrombus, transfusion requirements, ICU and total length of stay.

**Conclusion:** In patients undergoing RN/IVCT with vascular bypass assistance PAI does not appear to decrease blood loss and in fact, may be associated with a greater incidence of major postoperative complications. Devascularization of the tumor thrombus may result in increased friability, thus promoting distal embolization.
**Poster # 177**

**PROGRESSION OF RENAL CELL CARCINOMA BASED ON GENDER AND ETHNICITY AFTER RESECTION OF LOCALIZED DISEASE**

Stephen Culp, MD, PhD, MS, E. Jason Abel, MD, Lambros Stamatakis, MD, Kate Lynn Bill, Matthew Meisner, Vitaly Margulis, MD and Christopher Wood, MD (Presented By: Stephen Culp)

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**Background:** Progression of renal cell carcinoma (RCC) is associated with significant mortality. Although studies have examined factors associated with disease progression after resection of localized RCC, few have analyzed gender- or ethnic-based differences in disease progression. Our study sought to determine if differences in disease progression exist after resection of localized disease based on gender and/or ethnicity.

**Methods:** Using an institutional database, we identified patients who underwent resection for pathologically confirmed stage T1 or T2 RCC. Patients with bilateral tumors or other known primary tumors were excluded. Using logistic regression, an odds ratio (OR) corresponding to the odds of progression was calculated based on gender or ethnicity (white non-Hispanic, African-American, or Hispanic). Analyses were adjusted for age at surgery, performance status, symptoms at presentation, histology, tumor stage and grade, partial versus radical nephrectomy, smoking status, and the presence of necrosis and/or sarcomatoid differentiation of tumor on final pathology. Margin status was not controlled for in our analyses since no patient with disease progression had a positive margin on pathologic analysis.

**Results:** A total of 1,009 patients were identified using our inclusion criteria (788 white non-Hispanic, 75 African-American, and 146 Hispanic). There were 627 (62.1%) males and 382 (37.9%) females. A total of 54 (5.4%) patients showed progression of disease at a median follow-up of 45.8 months. In terms of gender, the odds of disease progression was less in females (OR 0.58) compared to males but these results were not statistically significant (95% CI 0.26, 1.28). However, in terms of ethnicity, white non-Hispanic patients showed a significant increased odds of progression (OR 3.25, 95% CI 1.15, 9.15) and Hispanic patients demonstrated a significant decreased odds of progression (OR 0.21, 95% CI 0.05, 0.98) compared to other ethnic groups. There was no significant difference in the odds of disease progression in African-American patients. In addition, there was no significant difference in time to progression based on ethnicity or gender.

**Conclusions:** Odds of disease progression was higher in white non-Hispanic and lower in Hispanic individuals after resection of localized RCC. There was no difference in disease progression based on gender or in time to progression between ethnic or gender groups.

**Poster # 178**

**CARDIOPULMONARY BYPASS AND RCC WITH LEVEL IV TUMOR THROMBUS: DEEP HYPOTHERMIC CIRCULATORY ARREST MAY LIMIT PERIOPERATIVE MORTALITY**

Brian Shuch, MD¹, Paul Crispen, MD¹, Brad Leibovich, MD¹, Jeff LaRochelle, MD¹, Allan Pantuck, MD, MSN¹, Weiqing Liu, MS², Maxime Crepel, MD³, Anne Schuckman, MD⁴, Jerome Rigaud, MD², Oliver Bouchot, MD², Jean-Jacques Patard, MD², Donald Skinner, MD⁴, Arie Beldegrun, MD⁵ and Michael Blute, MD⁵ (Presented By: Brian Shuch)

¹Mayo Clinic Department of Urology, Rochester, MN; ²Nantes Department of Urology, France; ³Rennes Department of Urology, France; ⁴UCLA Department of Biostatistics, Los Angeles, CA; ⁵UCLA Department of Urology, Los Angeles, CA; ⁶USC Department of Urology, Los Angeles, CA

**Purpose:** Management of renal cell carcinoma (RCC) and level IV tumor thrombus frequently requires vascular bypass techniques and is associated with a high surgical morbidity and mortality. To our knowledge no study has assessed the utilization and/or benefit of deep hypothermic circulatory arrest (DHCA) with cardiopulmonary bypass (CPBP) in this complex population.

**Methods:** A multi-institutional retrospective series was created to assess the surgical characteristics and outcomes of patients undergoing surgical resection for RCC and associated level IV tumor thrombus from 1983-2007. Patients were identified based on radiographic records and/or operative findings. Only cases utilizing CPBP were analyzed. Patient characteristics including age, performance status, tumor stage, size, and metastatic status were recorded. The use of DHCA, surgical time, blood loss, transfusions, hospital stay, and perioperative/in-hospital mortality were recorded. Comparisons of clinical and operative characteristics were performed between the bypass techniques. Overall survival was assessed according to bypass technique. A Cox regression model was applied to determine predictors of perioperative mortality.
Results: 60 patients underwent resection with CPBP, of which 36 (60%) utilized DHCA. Overall perioperative mortality was 20% (12 deaths), with 2 occurring intraoperatively. For the type of bypass, no significant differences were observed in age, sex, performance status, stage, or tumor size. Operative time, estimated blood loss, transfusions, and hospital stay were similar. Perioperative mortality, however, was significantly decreased in patients undergoing DHCA (8.3% vs. 37.5%, p=0.0057). Median overall survival was longer for the patients undergoing DHCA (15.8 vs 7.7 months), however this failed to reach statistical significance (p=0.357). Age>60 (HR 6.7, CI 1.5-31.1, p=0.015) and the use of DHCA (HR 0.13, CI 0.036-0.51, p=0.003) were independent predictors of perioperative mortality.

Conclusions: Resection in patients with RCC and level IV tumor thrombus is associated with significant perioperative mortality. Research is necessary to improve the safety of resection in this population. CPBP has been the classic approach for these cases and the concomitant use of DHCA does not appear to adversely impact operative characteristics and may in fact limit perioperative mortality. Further studies are needed to define a mechanism how DHCA would protect against perioperative mortality.

Poster # 179

IS A POSITIVE SURGICAL MARGIN IMPORTANT FOLLOWING EXTIRPATIVE NEPHRON SPARING SURGERY?
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Case Western Reserve University, Cleveland, OH

Introduction: The clinical impact of a positive surgical margin (PSM) on long term outcomes following partial nephrectomy (PN) remains controversial due to its limited occurrence and short-term followup. The goals of this study were to assess the impact of a PSM following PN for localized renal cell carcinoma (RCC) on later local recurrence and distant metastasis and to decide whether it is clinically necessary to achieve a negative margin.

Methods: A retrospective review was conducted on patients treated with PN at our institution for localized RCC (T1-3aN0M0) between 1/1/1995 and 7/1/2007. Patients with multifocal or bilateral disease were excluded. Chi square, logistic regression analysis and Kaplan-Meier (KM) survival analysis of patient demographics, pathologic stage, Fuhrman nuclear grade, PSM status, and presence of renal capsular invasion was performed. A p-value of 0.05 or less was considered significant.

Results: A total of 59 patients were identified. Of these, 35 had complete follow-up records and were included in analysis. Mean followup was 4.7 yrs (range 0.4 to 13.0 yrs). 30 patients were without evidence of disease, 5 developed recurrence (2 locally, 2 in the contralateral kidney, and 1 with distant metastasis). Mean time to development of recurrence was 4.3 yrs (range 1.2 - 9.6 yrs). A total of 4 patients had PSM. High tumor stage (T2 or above), PSM, capsular involvement of tumor, and tumor grade were all significant predictors of recurrence on multivariate analysis. Both PSM and tumor grade were significant predictors of local recurrence. KM analysis demonstrated that PSM was associated with significantly shorter time to recurrence (log rank p-value=0.0018, see figure).

Conclusion: In our limited series of nephron sparing PN for RCC, PSM was significantly associated with both tumor local recurrence and distant metastasis. It may therefore be clinically beneficial to achieve a negative margin through further treatment such as re-operation or imaging guided therapies. Further prospective trials are needed to confirm this finding.
TREATMENT TRENDS FOR RENAL CELL CARCINOMA IN A POPULATION-BASED TUMOR REGISTRY

Robert Abouassaly, MD, FRCSC, Antonio Finelli, MD, MSc, FRCSC and Shabbir M.H. Alibhai, MD, MSc, FRCPC (Presented By: Robert Abouassaly)
Princess Margaret Hospital, Toronto, Ontario

Introduction and Objectives: Recent evidence suggests that renal function correlates with overall survival and cardiac morbidity. However nephron-sparing approaches, such as partial nephrectomy (PN), in the treatment of renal masses are infrequently utilized, particularly in the elderly. Our aim is to examine population-based trends for renal cell carcinoma (RCC) management over a 10-year period.

Methods: We identified 12,336 patients diagnosed with RCC in the province of Ontario between January 1995 and December 2004 using the Ontario Cancer Registry, a population-based tumor registry. Demographic and treatment information was obtained for all patients.

Results: The median age of patients was 65 years and 7,315 (59.3%) were male. 8,521 patients (69.1%) were treated surgically. Of these, 7,701 (90.4%) were treated with radical nephrectomy (RN), 820 (9.6%) with PN, and of the former, 417 (4.9%) were treated with a laparoscopic approach. The mean age of those treated with RN, PN and laparoscopically was 60.2, 56.0 and 60.1 years, respectively. PN was used in 12.7% of patients younger than 50, and in only 6.8% of patients older than 70 years of age. An increase in PN usage was observed over the 10-year period, 5.0% were treated with this approach in 1995 compared to 13.0% in 2004. 30-day mortality rates were low for all treatment approaches, 1.42%, 0.98% and 0.72% for RN, PN and the laparoscopic approach, respectively.

Conclusion: Although there has been a significant increase in PN utilization over our observation period, PN is still being used in only a small proportion of patients treated for RCC. The infrequent use of nephron-sparing surgery is especially evident in the elderly, who may benefit the most from this approach.

PARTIAL NEPHRECTOMY FOR SELECTED RENAL CORTICAL TUMORS GREATER THAN 7 CENTIMETERS

Michael Karellas, MD¹ and Paul Russo, MD² (Presented By: Michael Karellas)
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Introduction: Partial nephrectomy (PN) is the accepted surgical approach for appropriate renal cortical tumors (RCTs) less than 7cm. Recent data revealing the link between chronic kidney disease and increased mortality rates have renewed the emphasis on nephron sparing surgery to minimize the impact of nephrectomy on long-term health.

Objective: To examine our institutional experience in patients treated with partial nephrectomy for RCTs 7cm or larger.

Methods: After institutional review board approval, we examined our prospectively collected surgical database for patients treated with PN for RCT 7cm or greater between July 1990 and Jun 2008. Pertinent demographic, clinical, surgical pathologic data were reviewed.

Results: A total of 37 patients were identified for analysis with median age of 63 years (IQR=52, 71), median tumor size was 7.5cm (7.2, 7.9) with the largest tumor being 19cm. Thirty-two surgeries were open PN with 5 laparoscopic partial nephrectomies. Indication for PN was elective in 32 patients while 5 patients required PN for a solitary kidney from a prior radical nephrectomy. Three patients had known metastatic disease at the time of PN. Median estimated blood loss was 500mL (200, 750), median operative time 170 minutes (150, 240), median hospitalization was 4 days (3, 5). Thirty-one patients (84%) had carcinoma evident on final pathology, with 16 patients (43%) having conventional clear cell carcinoma, followed by 8 patients (22%) with papillary neoplasms. Non-cancerous pathology included multilocular cystic nephroma (3), angiomyolipoma (2), and oncocytoma (1). Median follow-up was 17 months (6, 40). Twenty-nine patients (78%) are currently alive without evidence of disease, 3 patients are currently alive with metastatic disease (2 had known pre-op metastatic disease), and 3 patients died of disease. Median creatinine change from pre-op level was 0.1 mg/dl (0, 0.3) with only 1 patient (with pre-existing chronic renal insufficiency) requiring hemodialysis post-operatively.

Conclusions: Our findings suggest that partial nephrectomy can effectively be performed for selected renal tumors of greater than 7cm in order to provide excellent local tumor control and maximally preserve overall renal function.
**Poster # 182**

**SURGICAL, FUNCTIONAL, AND ONCOLOGIC OUTCOMES OF REPEAT PARTIAL NEPHRECTOMY ON A SOLITARY KIDNEY**

Nick Liu, MEng, BS, Kiranpreet Khurana, BS, Sunil Sundarshan, MD, W. Marston Linehan, MD, Peter Pinto, MD and Gennady Bratslavsky, MD (Presented By: Nick Liu)

*Urologic Oncology Branch, National Cancer Institute, Bethesda, MD*

**Objectives:** Patients with hereditary syndromes often require repeat partial nephrectomies to avoid the need for renal replacement therapy. To our knowledge there are no published series on the outcomes of patients requiring repeat nephron-sparing surgery on a solitary renal unit. Here we examine the complications and outcomes of patients with recurrent or de novo renal lesions in a solitary kidney treated with repeat partial nephrectomy.

**Methods:** We reviewed the charts of patients who underwent nephron-sparing surgeries at the National Cancer Institute from 1989 to 2008. Patients were included in the analysis if they underwent repeat partial nephrectomy for recurrent or de novo renal masses on a solitary kidney. Surgery was recommended when the largest solid tumor was 3cm. Outcomes were assessed by renal preservation and perioperative complications. Functional outcomes were evaluated using the MDRD equation for GFR before the surgery and 1 month postoperatively. Oncologic efficacy was examined by the need for repeated renal surgery for renal masses and development of metastatic disease.

**Results:** 24 patients satisfied our inclusion criteria. Median age at the time surgery was 51 years. 54% of patients were male. Median follow up to the most recent imaging was 69 months. The median number of tumors resected was 4. Median operative time was 8.5 hours with median EBL of 3L. 50% of surgeries were performed without clamping of the renal hilum. 54% of patients experienced major perioperative complications. Intraoperative complications were significant for 5 renal vascular injuries with 3 resulting in a loss of a kidney necessitating hemodialysis, 1 IVC injury, and 1 intraoperative MI, resulting in postoperative expiration of the patient. Other complications included 3 cardiac arrhythmias, 1 prolonged intubation, 1 pleural effusion requiring thoracentesis, and 5 urine leaks with 3 requiring stenting. There was a statistically significant decline in creatinine ($p<0.01$) and GFR ($p<0.01$). Subsequent surgeries for new renal lesions were offered to 6 patients with a median time to surgery of 33 months. One patient developed metastatic disease during the follow up period.

**Conclusion:** Repeat partial nephrectomy for patients with a solitary kidney is a high-risk alternative. Although the complication rates are high and there is a decline in renal function, most patients remain free from dialysis with reasonable oncologic outcomes at intermediate follow up.

**Poster # 183**

**MANAGEMENT OF THE ADRENAL GLAND DURING PARTIAL NEPHRECTOMY**

Brian Lane, MD, PhD, Ho-Yee Tiong, MD, Amr Fergany, MD, Christopher Weight, MD, Benjamin Larson, MD, Andrew Novick, MD and Stuart Flechner, MD (Presented By: Brian Lane)

*Cleveland Clinic, Cleveland, OH*

**Purpose:** Robson’s radical nephrectomy has been replaced over the years with minimally-invasive and nephron-sparing surgery. The indications for concomitant adrenalectomy for patients undergoing partial nephrectomy are not clearly defined. We analyzed initial management and oncologic outcomes of the adrenal glands after partial nephrectomy.

**Methods:** IRB approval was obtained for a study evaluating data regarding all 2283 patients that underwent open partial nephrectomy at a single institution between 1972 and 2008. The ipsilateral adrenal gland was routinely resected if a suspicious adrenal nodule was noted on radiographic imaging or intraoperative findings indicated direct extension or metastasis.

**Results:** Of 2283 partial nephrectomies, concomitant adrenalectomy was performed in 48 patients (2.1%). Pathologic analysis revealed direct invasion of the adrenal gland by RCC (1), RCC metastasis (2), other adrenal neoplasms (3), or benign tissue (42, 87%). During a median follow-up of 5.5 years, only 15 underwent subsequent adrenalectomy (0.67%). Metachronous adrenalectomy was ipsilateral (10), contralateral (2), or bilateral (3), revealing metastatic RCC in 11 patients. Overall survival at 5 years in patients undergoing partial nephrectomy with or without adrenalectomy was 82% and 84% ($p=0.75$).
Conclusion: Adrenalectomy should not be routinely performed during partial nephrectomy, even for upper pole tumors. We propose concomitant adrenalectomy only if a suspicious adrenal lesion is identified radiographically or direct invasion of the adrenal gland is suspected intraoperatively. Using these criteria, adrenalectomy was avoided in >97% of patients undergoing partial nephrectomy. Even using such strict criteria, only 13% of these suspicious adrenal nodules contained cancer. The rarity of metachronous adrenal metastasis and the lack of a survival benefit to concomitant adrenalectomy argue in favor of adrenal preservation during partial nephrectomy, except as outlined above.

Poster # 184

ASSESSMENT OF RISK FACTORS FOR AND COMPARISON OF RATES OF DEVELOPMENT OF CHRONIC RENAL INSUFFICIENCY, PROTEINURIA, AND METABOLIC ACIDOSIS FOLLOWING RADICAL OR NEPHRON SPARING SURGERY

Reza Mehrazin, MD¹, Aditya Bagrodia, BS¹, John Malcolm, MD¹, Christopher DiBlasio, MD¹, Jim Wan, PhD¹, Anthony Patterson, MD¹, Wake Robert, MD¹ and Ithaar Derweesh, MD (Presented By: Reza Mehrazin)

¹University of Tennessee Health Science Center, Memphis, TN; ²University of Tennessee Health Science Center, Memphis TN; University of California San Diego, San Diego, CA

Introduction: Radical nephrectomy (RN) is a significant risk factor for the development of chronic kidney disease (CKD). We hypothesized that RN and nephron-sparing surgery (NSS) for renal tumors may also significantly affect acid-base homeostasis and associated consequences of renal insufficiency such as development of proteinuria. We examined the incidence of and risk factors for the development of CKD (serum creatinine =2.0 mg/dL, eGFR <60 ml/min/1.73m2), proteinuria (=1+ dipstick), and metabolic acidosis (MA, serum bicarbonate < 22 mmol/L) in our patients who underwent RN and those who underwent NSS.

Methods: Retrospective review of 828 consecutive patients (average age 57.9 years, mean follow-up 6.3 years) who underwent RN or NSS for renal tumors between 7/1987-6/2006 at our center. Demographics and outcomes for RN and NSS cohorts were recorded. Primary outcome measures were development of eGFR <60 ml/min/1.73m2, with secondary outcomes being the development of its complications including MA (serum bicarbonate < 22 mmol/L), proteinuria (=1+ dipstick), and serum creatinine =2.0 mg/dL. Multivariate logistic regression (MV) analysis was conducted for risk factors for developing creatinine =2.0 and MA.

Results: 574 underwent RN and 254 underwent NSS. No significant differences were noted with respect to demographics. Postoperatively, significantly greater RN vs. NSS patients had eGFR <60 (44.1% vs. 17.3%, p<0.001), MA (13.1% vs. 7.5%, p=0.019), proteinuria (22.1% vs. 14.6%, p=0.012), and creatinine =2.0 (14.6% vs. 9.4%, p=0.041). MV for Creatinine =2.0 demonstrated Age =60 (OR 2.00, p=0.0185), DM (OR 10, p<0.0001), hypertension (OR 7.41, p=0.0016), smoking (OR 5.29, p<0.0001), and RN (OR 3.08, p=0.0005) as risk factors. MV for MA demonstrated Male (OR 2.50, p=0.0186), Age =60 (OR 3.13, p=0.0016), BMI >30 (OR 3.52, p=0.0001), RN (OR 9.82, p<0.0001), pre-operative eGFR <60 (OR 9.71, p<0.0001), creatinine =2.0 (OR 5.9, p=0.0077), and MA (OR 146.35, p<0.0001) as risk factors.

Conclusions: Patients receiving RN had significantly higher CKD, MA, and proteinuria rates than a well-matched cohort that underwent NSS. In addition to RN, age=60 years, diabetes mellitus, hypertension, and smoking are associated with postoperative progression to moderate-severe CKD.

Poster # 185

VARIATION IN INCIDENCE OF AND RISK FACTORS FOR DEVELOPMENT OF OSTEOPOROSIS AFTER RADICAL OR PARTIAL NEPHRECTOMY

Reza Mehrazin, MD¹, Christopher DiBlasio, MD¹, Aditya Bagrodia, MD¹, John Malcolm, MD¹, Jim Wan, MD¹, Robert Wake, MD¹, Anthony Patterson, MD¹ and Ithaar Derweesh, MD (Presented By: Reza Mehrazin)

¹University of Tennessee Health Science Center, Memphis, TN; ²University of Tennessee Health Science Center, Memphis TN; University of California San Diego, San Diego, CA

Introduction: Osteoporosis is an important cause of morbidity and mortality in the spectrum of chronic renal disease. We examined the incidence of and risk factors for the development of osteoporosis in patients who underwent radical nephrectomy (RN) and partial nephrectomy (NSS).
**Methods:** Single-center retrospective review of 828 patients who underwent RN or NSS from 7/1987 to 6/2006. Demographics, past medical history, various renal functional and metabolic parameters (eGFR-estimated glomerular filtration rate calculated by the modification of diet in renal disease-MDRD-equation, serum bicarbonate) and history of preoperative and postoperative osteoporosis were recorded. Data were analyzed within subgroups based on treatment (RN vs. NSS). Multivariate analysis was conducted to elucidate risk factors associated with development of osteoporosis following surgery.

**Results:** There were no significant differences with respect to mean follow-up, age, or BMI. Mean age 57.9 years; mean follow-up 6.3 years; 574 patients underwent RN and 254 underwent NSS. Tumor size (cm) was significantly larger in the RN group (RN 6.6 vs. NSS 3.8, p<0.0001). No significant difference with respect to percentage with a preoperative osteoporosis (RN 6.7% vs. NSS 6.7%, p=0.969). Postoperatively, significantly less patients formed osteoporosis in the NSS cohort (NSS 9.1% vs. RN 19.2%, p=0.0002) Multivariate analysis demonstrated age >60 years (OR 2.07, p=0.0009), Caucasian (OR 2.23, p=0.0004), RN (OR 3.35, p<0.0001), preoperative eGFR <60 mL/min/1.73 m2, (OR=5.01, p<0.0001) preoperative metabolic acidosis (OR=3.375, p=0.0097), and preoperative history of stone disease (OR 2.190, p=0.078) as significantly associated with development of post-operative osteoporosis.

**Conclusions:** Patients undergoing RN have a significantly higher incidence of postoperative osteoporosis than a well-matched cohort undergoing NSS. Age>60, Caucasian background, preoperative eGFR <60, preoperative metabolic acidosis and preoperative history of nephrolithiasis were also significantly associate with development of osteoporosis.

**Poster # 186**

**ROLE OF BIOPSY IN THE MANAGEMENT OF SMALL RENAL MASSES**

Bilal Chughtai, MD¹, Ronald Kaufman, Jr., MD², Hugh Fisher, MD² and Badar Mian, MD² (Presented By: Bilal Chughtai)

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**Introduction:** With the increasing use of imaging modalities, there have been greater numbers of incidental renal masses detected. Since the 1970’s, 10% of tumors identified incidentally, compared to 1988 where 61% of tumors were detected incidentally. These masses represent a challenge in that approximately 20% are benign and do not require invasive intervention. As a result, minimally invasive treatments, such as cryoablation, radiofrequency ablation (RFA), and surveillance are gaining popularity. Historically, the accuracy of renal biopsy was lower than 50%, but recent publications indicate that the accuracy is higher approaching 90%. We attempt to ascertain the utility of image-guided biopsy in this patient group to determine definitive management strategy.

**Methods:** Under computed tomography (CT)-fluoroscopic guidance, 37 patients with solid renal tumors underwent 18-gauge core biopsy. These renal masses were subsequently followed if the pathology was benign or underwent intervention if the pathology was malignant. The group who underwent intervention, gross pathology was compared to biopsy specimen.

**Results:** Mean patient age was 63.9 yrs (range: 32 –85yrs), mean tumor size was 3.4cm (range: 2.8 - 4.4cm). The sensitivity of core biopsy for the detection of renal cell carcinoma (RCC) was 93.8% (15/16). One patient had an initial indeterminate biopsy, had interval growth, and had RCC on subsequent biopsy. Fuhrman grade was correctly predicted in 93.8% (15/16) and the correct histologic subtype was identified in all specimens. Oncocytomas were detected in 35.1% (13/37) of patients and were followed on imaging to ensure there was no progression. Eight percent (3/37) of patients underwent nephrectomy, 24.3% (9/37) had partial nephrectomies, 16.2% (6/37) had cryoablation, 10.8% (4/37) had RFA and 35.1% (13/37) were observed for at least 18 months with no progression. Two patients did not follow up after the biopsy. This allowed 35.1% of patients to be spared of surgical intervention. Complications of CT-guided biopsy included 3 small perirenal hematomas which resolved with bed rest, no transfusions, and no intervention.

**Conclusions:** CT-guided percutaneous renal tumor biopsy was found to have a high diagnostic accuracy in predicting malignancy and spared approximately one-third of patients from unnecessary invasive intervention.

Continues on next page
**Poster Session II**

**Poster # 187**

**MULTI-INSTITUTIONAL VALIDATION OF THE PREDICTIVE VALUE OF KI-67 LABELING INDEX IN PATIENTS WITH URINARY BLADDER CANCER**

Vitaly Margulis, MD, Yair Lotan, MD, Pierre Karakiewicz, MD, Yves Fradet, MD, Raheela Ashfaq, MD, Umberto Capitanio, MD, Francesco Montorsi, MD, Patrick Bastian, MD, Matthew Nielsen, MD, Stefan Muller, MD, Jerome Rigaud, MD, Seth Lerner, MD, George Netto, MD, Arthur Sagalowsky, MD and Shahrokh Shariat, MD (Presented By: Vitaly Margulis)

**University of Texas MD Anderson Cancer Center**

**Purpose:** We tested whether KI-67 labeling index could improve the accuracy of predictive models that include standard histo-pathologic features for prediction of disease recurrence and bladder cancer-specific survival in patients with bladder UC.

**Patients and Methods:** The study cohort was composed of 713 patients treated with radical cystectomy and bilateral pelvic lymphadenectomy from 10/25/1983 to 7/7/2005 at six participating institutions. Histology, tumor grade, tumor stage, and presence of carcinoma in-situ were confirmed by blinded centralized re-review of the original pathology slides. Ki-67 labeling index was considered to be high when samples demonstrated > 20% reactivity.

**Results:** Bladder cancer recurred in 318 (44.6%) of 713 patients. 395 (55.4%) individuals were dead at the time of analysis, and 274 (38.4%) died of metastatic bladder cancer. Median follow-up was 57.6 months (range: 1 to 236) for patients alive at the time of analysis. In multivariable analyses Ki-67 was independently associated with both disease recurrence (HR 2.37, p<0.001) and cancer-specific survival (HR 1.75, p<0.001). In a subgroup of patients with pT1-3 N0 UC addition of Ki-67 to the standard model improved prediction of disease recurrence by 4.1% and that of cancer-specific mortality by 4.6% (p-values<0.001).

**Conclusion:** Routine assessment of Ki-67 expression status provides a rational strategy for identification of patients who are at increased risk for disease progression after radical cystectomy and thereby may benefit from perioperative systemic chemotherapy.

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**Poster # 188**

**PET/CT TO IDENTIFY BLADDER TRANSITIONAL CELL CARCINOMA (TCC) POSTCHEMOTHERAPY METASTATIC LYMPH NODES: FRIEND OR FOE**

Matthew Collins, MD³, Hadyn Williams, MD², Teresa Coleman, MD¹ and James Brown, MD³ (Presented By: Matthew Collins)

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**Introduction:** Identifying pelvic lymphadenopathy in patients with bladder transitional cell carcinoma (TCC) is difficult. Initial 18F-FDG PET/CT studies have reported excellent sensitivity and specificity in the detection of metastatic iliac and obturator lymph nodes. However, the accuracy of PET/CT scanning in detecting residual cancer, particularly in pelvic lymph nodes, after neoadjuvant chemotherapy (NC) is less understood. We review our experience with PET/CT imaging prior to and after NC to treat bladder cancer in order to assess for inaccuracy and potential negative impact on clinical management.

**Methods:** Five patients diagnosed with muscle invasive bladder cancer underwent 18F-FDG PET/CT prior to planned NC at a single institution since the initiation of the fused modality. Of these, 4 subsequently received NC. Of the 4 treated patients, 3 underwent post-chemotherapy PET/CT prior to radical cystectomy and urinary diversion. PET/CT findings were compared to the histological findings of these procedures. All fused PET/CT imaging was assessed by a single experienced radiologist.

**Results:** In 1 patient, initial plans for NC was aborted due to renal failure and inability to give cisplatin. This patient’s PET/CT 1 month prior to surgery demonstrated concern for seminal vesicle invasion but negative pelvic lymph nodes. Pathology demonstrated pT4aN1 disease but no seminal vesicle involvement. In 2 cases pre-NC PET/CT demonstrated negative lymph nodes, confirmed in 1 case with post-chemotherapy PET/CT. In both, subsequent pelvic lymphadenectomy was negative for metastases. In 2 cases, pre-NC PET/CT demonstrated significant positive pelvic lymph nodes. Repeat PET/CTs after chemotherapy revealed no activity in the lymph nodes. In 1 patient, there was also no evidence for residual bladder cancer, and radical cystectomy demonstrated no cancer (p0) but severe post-chemotherapy per-iliac vessel fibrosis made post-chemotherapy left pelvic lymphadenectomy impossible. In the other patient, post-chemotherapy PET/CT was negative for metastatic disease but 9 bulky (>2cm) pelvic lymph nodes were identified on pathology.

**Conclusions:** PET/CT has shown initial promise in the staging of bladder TCC pelvic metastases. However, our review shows that false negatives studies can occur. This appears to be even more worrisome post-chemotherapy as a patient may continue to have bulky positive pelvic lymph nodes despite lymph nodes becoming negative on PET/CT.
CYSTECTOMY OUTCOMES IN CLINICAL STAGE T1 BLADDER CANCER
Rafael Nunez-Nateras, MD, Paul E. Andrews, MD, Robert G. Ferrigni, MD, Mitchell R. Humphreys, MD, Scott K. Swanson, MD and Erik P. Castle, MD (Presented By: Rafael Nunez-Nateras)
Mayo Clinic, Phoenix, AZ

Aim: The management of cT1 bladder cancer is often difficult with respect to timing of cystectomy versus bladder sparing therapies. The aim of the present study was to assess the pathological features and clinical outcomes of patients with clinical T1 urothelial cell bladder carcinoma treated with radical cystectomy.

Material and Methods: We review the records of 500 patients who underwent radical cystectomy and pelvic lymphadenectomy for bladder cancer at our institution. Of these patients, 77 underwent radical cystectomy for clinical stage T1 transitional cell carcinoma of the bladder. Patients were divided into two groups. Group 1 included patients were final pathological staging was T1 or lower and Group 2 patients were final pathological staging was T2 or greater.

Results: The median age was 68 years (49 – 90 years old). Twenty-five patients (32%) were females and 52 (68%) were males. The median follow-up after cystectomy was 19 months (0.5 – 49 months). Thirty-six patients (46%) demonstrated no evidence of pathologic upstaging (Group 1). Forty-one patients (54%) presented pathologic upstaging to T2-T4 disease (Group 2) at the time of cystectomy. Two patients (5.6%) and 10 patients (24.4%) of Groups 1 and 2 respectively had positive lymph nodes at the time of cystectomy (p= 0.23). The mean time from diagnosis of T1 disease to cystectomy was 8 and 27 months for each group respectively (p=0.001). Treatments before cystectomy included TUR and intravesical therapy and partial cystectomy. Group 2 presented an average rate of 4 treatments per patient compared to 2 in Group 1 (Table 1). In Group 1, 4 patients developed (11%) recurrence with development of metastasis. There has been no mortality due to disease in this group to date. In Group 2, 9 patients (22%) developed metastasis and the disease specific mortality rate has been 37% (15 patients). The development of metastasis between the two groups was 11% and 22% for Groups 1 and 2 respectively (p=0.235).

Conclusions: Over half of the patients with cT1 disease will develop significantly advanced disease. This analysis further emphasizes the need for the identification of prognostic markers in the management of cT1 bladder cancer.

ORTHOTOPIC NEOBLADDER VS. INDIANA POUCH: A COMPARISON OF QUALITY OF LIFE OUTCOMES FOR FEMALES
Michael Large, MD, Mark Katz, MD, Sergey Shikanov, MD, Tom Jayram, MD, Scott Eggener, MD and Gary Steinberg, MD (Presented By: Michael Large)
The University of Chicago, Chicago, IL

Introduction and Objectives: Little is known about the quality of life (QOL) for females who have undergone radical cystectomy (RC) and urinary diversion. We sought to compare the QOL outcomes for females who have undergone RC and orthotopic neobladder (RC-ONB) versus RC and Indiana pouch (RC-IP).

Methods: From 1995 to 2008, a single surgeon (GDS) performed RC-ONB in 47 females and RC-IP in 45 females. A comprehensive database was utilized to obtain clinical, pathologic, and outcomes data. The FACT-Vanderbilt Cystectomy Index (FACT-VCI), a validated QOL tool consisting of the 27-item FACT-G plus 16 additional RC-specific questions, was mailed to 92 eligible patients who were i,3 months status post RC.

Continues on next page
Results: Complete data were available for 82 of the 92 patients (42 RC-ONB; 40 RC-IP). Mean follow-up for the RC-ONB and RC-IP groups was 42 (4.3-112) and 41 months (3.5-145), respectively. The average RC-ONB age, 63 years, was significantly older than the RC-IP age, 58.3 years (p = 0.04). No significant differences were found for pathologic stage (p = 0.12), nodal status (p = 0.53), blood loss (p = 0.64), or hospital stay (p = 0.27) between the 2 groups. Significant complications (Clavien grade i, II, II) were similar between the two groups when stratified by grade and type. Overall survival was also similar between the two cohorts (median: RC-ONB 34.8 months, RC-IP 22.1 months; HR 1.2, p-value = 0.50). Chemotherapy or radiation was administered to 42% of the RC-ONB and 47.5% of the RC-IP patients. Fifteen (46%) of the living RC-ONB patients and 12 (42%) of the living RC-IP patients have responded to the FACT-VCI. Age (p = 0.21), stage (p = 0.55), and blood loss (p = 0.71) were not statistically different between the two response cohorts. Mean hospital stay was significantly longer for responding RC-IP patients (RC-ONB 8.9 days, RC-IP 13.3 days; p = 0.01). 40% and 33% of responders in the RC-ONB and RC-IP groups received adjuvant therapy, respectively. For both groups there were no significant differences in age, stage, blood loss, and hospital stay between responders and non-responders. Physical (p = 0.87), social (p = 0.89), emotional (p = 0.77), functional (p = 0.94), and RC-specific (p = 0.86) QOL domains were not significantly different between the 2 groups.

Conclusions: In this preliminary analysis, females undergoing RC-ONB and RC-IP have similar QOL outcomes. Longer follow-up and more responses to the FACT-VCI are necessary to confirm these findings.

Expression of Multiple Biomarkers Is Associated With Locally Advanced Urothelial Carcinoma of the Bladder in a Prospective Evaluation

Christian Bolenz, MD², Shahrok F. Shariat, MD³, Travis Edwards², Ganesh V. Raj, MD², Raheela Ashfaq, MD¹, Arthur I. Sagalowsky, MD² and Yair Lotan, MD² (Presented By: Christian Bolenz)

Introduction and Objectives: Retrospective studies have shown that molecular markers can improve risk stratification of patients with urothelial carcinoma of the bladder (UCB). In a phased, systematic evaluation of markers, we have identified a panel of biomarkers (cyclin E1, p53, p21, p27 and pRB/Ki-67) associated with clinical outcomes in patients treated with radical cystectomy (RC) for UCB. In the next phase, we initiated a prospective protocol to evaluate the utility of these biomarkers to test whether the use of assay results generates better clinical decision-making than current standards.

Methods: 83 patients [median age 70 (range 53-87)] treated with transurethral resection (TUR; n=35) or RC (n=48) for high-grade UCB were prospectively evaluated starting in January 2007. Standardized immunohistochemical staining and scoring was performed. A prognostic score (PS; 0 altered biomarkers=Favorable; >2 altered biomarkers=Unfavorable) was defined and correlated with available data.

Results: Expression of at least one biomarker was altered in 97.6% of patients. Cyclin E1, p53, p21, p27 and pRB/Ki-67 expressions were altered in 20.6%, 49.5%, 27.8%, 40.2% and 85.1% of specimens, respectively. 25 patients (30.1%) had an unfavorable PS. When analyzed individually, only altered p21 and p27 were significantly associated with locally advanced tumor stages (=pT2 vs. pT3/pT4; p=0.034 and p=0.01). An unfavorable PS was associated with advancing tumor stage (p=0.008) and locally advanced UCB (=pT2 vs. pT3/pT4; p=0.003). In the subgroup of patients who had both TUR and then underwent RC (n=16), an unfavorable PS at TUR was associated with the presence of LVI (p=0.008) and pathologic upstaging (p=0.001) in the RC specimen. Conversely, patients with a favorable PS at TUR had the same stage at RC.

Conclusions: The preliminary analysis of our ongoing prospective trial suggests that a panel of five biomarkers improves our prediction of patients likely to be upstaged at RC. An unfavorable PS at TUR may therefore be useful to identify patients who are most likely to benefit from neo-adjuvant chemotherapy before RC. More robust endpoints such as recurrence and survival will be assessed after further accrual and longer follow-up.
P53 EXPRESSION IN PATIENTS WITH ADVANCED UROTHELIAL CANCER OF THE URINARY BLADDER

Christian Bolenz, MD, Shahrokh F. Shariat, MD, Pierre I. Karakiewicz, MD, Yves Fradet, MD, Raheela Ashfaq, MD, Patrick J. Bastian, MD, Matthew E. Nielsen, MD, Nazareno Suardi, MD, Susan Groshen, MD, Jérôme Rigaud, MD, Seth P. Lerner, MD, Francesco Montorsi, MD, Arthur I. Sagalowsky, MD, Richard J. Cote, MD and Yair Lotan, MD (Presented By: Christian Bolenz)

Introduction and Objectives: We tested whether the assessment of p53 expression could improve our ability to predict disease recurrence and disease-specific survival in a multi-institutional cohort of patients with advanced urothelial carcinoma of the urinary bladder (UCB).

Methods: This study comprised 692 patients with pT3-4N0 or pTany Npositive UCB treated with radical cystectomy and lymphadenectomy. Predictive accuracy (PA) was quantified using 200-bootstrap-corrected concordance index. The base model comprised age, gender, stage, grade, lymphovascular invasion, number of lymph nodes removed, number of lymph nodes positive, concomitant carcinoma in situ, and adjuvant chemotherapy.

Results: p53 expression was altered in 341 (49.3%) patients. In multivariable analyses, p53 expression was independently associated with disease recurrence (HR: 1.66; p<0.001) and cancer-specific mortality (HR: 1.65, p<0.001). However, the addition of p53 did not improve the PA of the base model (recurrence: +0.7%, p=0.085 and mortality+1.2%, p=0.050 for cancer-specific mortality). Conversely, in the subgroups of pT3N0 (n=280) and pT4N0 (n=83) patients, p53 improved the PA of the base model for by small but statistically significant degree (recurrence: +1.7% and +3.6%, respectively; cancer-specific mortality: +1.9% and +3.5%, respectively; all p-values<0.001). On the other hand, in the subgroup of patients with pTany Npositive disease (n=329), p53 status did not improve the PA of the base model.

Conclusions: While assessment of p53 expression has limited utility in patients with lymph node positive UCB, it marginally improves prognostication in patients with advanced non-metastatic UCB. Integration of p53 into a panel of biomarkers may be necessary to capture a more accurate portrait of the biologic potential of advanced UCB.
**Poster Session II**

**Poster # 193**

**COMPARISON OF OUTCOMES IN CYSTECTOMY POPULATIONS BETWEEN A VETERANS AFFAIRS MEDICAL CENTER AND UNIVERSITY HOSPITAL SETTING**

Janet Baack¹, Eugene Lee, MD², Paul Womble, MD² and Jeffrey Holzbeierlein, MD² (Presented By: Janet Baack)

¹KUMC; ²Kansas University Medical Center

**Introduction and Objectives:** To determine if significant differences in characteristics and outcomes of patients treated with radical cystectomy for bladder cancer differed significantly between a large Veterans Affairs Hospital population and a University setting. Specifically, time to cystectomy, number of intravesical therapies, stage, and cancer specific survival, overall survival rates were compared between the two populations.

**Methods:** A retrospective case cohort study was performed for patients who underwent radical cystectomy for bladder cancer at the Kansas City Veterans Affairs (VA) hospital and at the University of Kansas Hospital (KU). Characteristics examined included demographics, the date and symptoms at original presentation, number and type of previous interventions, clinical stage, pathologic stage, cancer specific mortality, and all cause mortality. Clincopathologic findings were compared using the 2-sample t test and Chi-square analysis. Pathologic staging evaluated using the Wilcoxon Mann Whitney calculation, cancer specific and all survival rates were analyzed by Kaplan-Meier calculations.

**Results:** The cohort consisted of 116 patients (VA 28 patients, KU 88 patients). Interestingly, patients at the VA who underwent cystectomy were younger VA median age 65.5 and KU median age of 70.5), but more likely to have a significant smoking history (p= <0.0001). In addition the VA was more likely to have had previous treatment and intervention before cystectomy (p= 0.0144, p=0.0030), and more likely to have advanced pathologic staging (p= 0.0541). VA patients had a lower overall survival rate and a lower cancer specific survival rate than KU patients (p=0.0451, p=0.0031).

**Conclusions:** There were more interventions and previous treatment in patients treated at the VA. This may account for the significant difference in pathological staging between patients treated in a VA health care system compared to a university setting. In addition, overall and cancer specific survival appears to be lower in this patient population.

**Poster # 194**

**BLADDER CRYOABLATION IN A PORCINE MODEL: EVALUATION OF THREE SURGICAL APPROACHES AND CRYOLESION PREDICTABILITY**

Douglas Sutherland, MD¹, Compton Benjamin, MD, PhD², Kevin Blumenthal, MD², Kristopher Wagner, MD³, Arnold Schwartz, MD, PhD⁴, M. Katayoon Rezaei, MD⁴ and Thomas Jarrett, MD² (Presented By: Douglas Sutherland)

¹MultiCare Urology of Tacoma; ²George Washington University, Department of Urology, Washington, DC; ³Scott and White Health System, Department of Urology, Temple TX; ⁴George Washington University, Department of Pathology, Washington, DC

**Objective:** To determine the feasibility of bladder cryoablation (BC) applied laparoscopically (LBC), percutaneously (PBC), and transurethrally (TUBC) in a porcine survival study. The expected and observed area of cell death following BC was also examined.

**Methods:** Nine pigs were divided equally into the three treatment groups. Cryoablation was performed with two freeze-thaw cycles after the bladder had been insufflated with carbon dioxide gas (CO2). Each animal was observed for 7 days after the procedure for treatment-related complications. Following cystectomy, each specimen was examined pathologically to determine the degree and dimension of cell death achieved.

**Results:** LBC and PBC were feasible and safe. No BC-related complications occurred in these 2 groups. All 3 animals treated cystoscopically developed a complication resulting from BC, including two intraperitoneal bladder perforations at the time of BC necessitating immediate sacrifice and one vesicoenteric fistula discovered at cystectomy. Transmural necrosis was confirmed pathologically in all 7 of 9 specimens. Cryolesion size correlated directly to freeze time, and was consistent with the stated isotherms.

**Conclusions:** All locations within the bladder can be treated predictably with cryoablation. No bladder perforation was identified in the LBC or PBC groups. LBC appears to be the safest surgical approach. TUBC cannot be safely performed without laparoscopic assistance to prevent bowel complications.
**Poster Session II**

**Poster # 195**

**MICROPAPILLARY BLADDER CANCER: COMPARISON OF OUTCOMES WITH UPFRONT CYSTECTOMY AND NEOADJUVANT CHEMOTHERAPY**

Edmund Chiong, MD¹, Jennifer Taylor, MD¹, Arlene Siefker-Radtke, MD², Randall Millikan, MD, PhD², Diana Urbauer, MS³, David McConkey, PhD¹, H. Barton Grossman, MD¹, Colin Dinney, MD¹ and Ashish Kamat, MD¹ (Presented By: Edmund Chiong)

¹Department of Urology, University of Texas MD Anderson Cancer Center, Houston, TX; ²Department of Genitourinary Medical Oncology, University of Texas MD Anderson Cancer Center, Houston, TX; ³Division of Quantitative Sciences, University of Texas MD Anderson Cancer Center, Houston, TX

**Introduction and Objective:** Micropapillary bladder carcinoma (MPBC) is an aggressive variant of urothelial carcinoma. Here we report outcomes of patients with MPBC, who underwent radical cystectomy (RC), with or without neoadjuvant chemotherapy (NC).

**Methods:** We performed a review of the clinical presentation and outcomes of 146 consecutive patients who underwent RC for surgically resectable (<= cT4a) MPBC. For this analysis we excluded patients who had dominant non-TCC histology as well as those patients who received less than 3 courses of neoadjuvant cisplatin-based chemotherapy or neoadjuvant non-cisplatin-based/protocol chemotherapy, leaving 75 patients to be analyzed. Data was analyzed using Fisher exact test or t-test analysis, proportional hazards models and Kaplan survival analyses.

**Results:** The mean patient age was 65.5 years and mean follow-up was 44.4 months. Stages at initial presentation were Ta: 1, T1: 22, T2: 43, T3: 6, and T4a: 3 patients. Neoadjuvant chemotherapy (comprising various platinum based regimens, many on clinical trials), was administered to 32% patients including 75% patients with clinical stage </=T2, and 25% patients with clinical stage >/=T3. Overall, there was no difference in survival outcomes. When NC+RC group was compared to the RC alone group: median recurrence-free survival was 81.2 vs 66.5 months (p=0.71), median cancer-specific survival was 89.5 vs 185.5 months (p=0.52) and median overall survival was 61.9 vs 102.5 months (p=0.66). Even when patients were stratified into risk groups based on factors such as clinical stage, lymphovascular invasion and hydronephrosis, survival with RC alone was equal to NC+RC. Surprisingly, the finding of “pT0” in cystectomy specimens did not confer survival advantage.

**Conclusions:** Radical cystectomy remains the treatment of choice for patients presenting with surgically resectable MPBC. Existing regimes of neoadjuvant chemotherapy do not provide demonstrable benefit for these patients, emphasizing the need for prospective trials of novel agents and regimens.

**Poster # 196**

**EASTERN COOPERATIVE ONCOLOGY GROUP PERFORMANCE STATUS PREDICTS DISEASE RECURRENCE AND CANCER-SPECIFIC SURVIVAL IN PATIENTS WITH ORGAN CONFINED UPPER TRACT UROTHELIAL CARCINOMA**

Jeffery Wheat, MD¹, Alon Weizer, MD¹, Sharokh Shariat, MD² and J. Stuart Wolf, Jr., MD¹ (Presented By: Jeffery Wheat)

¹University of Michigan, Ann Arbor, MI; ²Memorial Sloan-Kettering Cancer Center, New York, NY

**Introduction and Objective:** Performance status is a global measure of patient function that has been demonstrated to predict outcome in a variety of disease processes but has been used sparsely in surgical patients. We evaluated the contribution of Eastern Cooperative Oncology Group (ECOG) performance status in predicting recurrence and cancer specific mortality in a multi-institutional retrospective cohort of patients undergoing radical nephroureterectomy (RNU) for upper tract urothelial carcinoma (UTUC).

**Methods:** A retrospective, multi-institutional cohort of 824 patients undergoing laparoscopic or open surgical RNU for organ confined (<pT2N0M0) was identified. The exposure variable used was ECOG performance status (0 vs. 1 vs. 2 and 3) with recurrence and cancer specific mortality serving as the outcome measures. Univariable and multivariable Cox regression analyses were performed including pathologic stage and grade in the model. The predictive accuracy related to the addition of ECOG performance status was evaluated using Harrell’s concordance index. Recurrence and cancer specific survival was estimated by exposure using the Kaplan-Meier method with differences assessed using the log rank test.

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**Results:** Median age was 69-years-old (range 30-96) and median follow-up was 52.8 months (range 0-250). ECOG performance status was 0, 1, 2, and 3 in 576 (69.9%), 197 (23.9%), 49 (5.9%) and 2 (0.2%) patients, respectively. Worsening ECOG performance status did predict recurrence in univariable (Hazard ratio (HR) 2.4, p<0.001) and multivariable (HR 2.2, p<0.001). Worsening ECOG performance status similarly predicted cancer specific survival in univariable analysis (HR 2.2, p<0.001) and multivariable analysis (HR 2.0, p=0.003). The gain in predictive accuracy related to the inclusion of ECOG performance status was 1.1% for both recurrence free and cancer-specific survival.

**Conclusions:** Worsening ECOG performance status increases the risk of disease recurrence and cancer specific mortality in patients undergoing RNU for organ confined UTUC. This is important in selecting patients for surgical therapy that will likely benefit from RNU. Patients with unfavorable performance status may benefit from endoscopic approaches to treatment for low grade and stage disease due to their compromised health status.

**Poster # 197**

**CONCOMITANT CARCINOMA IN SITU IS A FEATURE OF AGGRESSIVE DISEASE IN PATIENTS WITH ORGAN CONFINED UROTHELIAL CARCINOMA**

Jeffery Wheat, MD¹, Alon Weizer, MD¹, Sharokh Shariat, MD² and J. Stuart Wolf, Jr., MD¹ (Presented By: Jeffery Wheat)
¹University of Michigan, Ann Arbor, MI; ²Memorial Sloan-Kettering Cancer Center, New York, NY

**Introduction and Objective:** Carcinoma in situ (CIS) is associated with increased risk of progression when found with high-grade non-invasive bladder cancer, yet its impact is less clear in the upper urinary tract. We evaluated the impact of concomitant CIS in patients undergoing radical nephroureterectomy (RNU) for upper tract urothelial carcinoma (UTUC) on disease recurrence and cancer specific survival.

**Methods:** A retrospective, multi-institutional cohort of 824 patients undergoing laparoscopic or open surgical RNU for organ confined (<pT2N0M0) was identified. The presence of CIS served as the exposure variable with recurrence and cancer-specific mortality as the outcome. Univariable and multivariable Cox regression analyses were performed including pathologic stage and grade in the model. The predictive accuracy related to the addition of concomitant CIS was evaluated using Harrell’s concordance index. Recurrence and cancer specific survival was estimated by exposure using the Kaplan-Meier method with differences assessed using the log rank test.

**Results:** Median age and follow-up was 69 years (range 30-96) and 52.8 months (range 0-250), respectively. Concomitant CIS was identified in 202 (24.5%) patients. Multivariable analysis showed concomitant CIS to be a significant predictor of disease recurrence (HR=1.60; p=0.04). The gain in predictive accuracy related to the inclusion of concomitant CIS for recurrence was 1.9% (p=0.006). With respect to cancer specific mortality, concomitant CIS was a significant factor in a multivariable analysis (HR=1.96; p=0.03). The gain in predictive accuracy related to the inclusion of concomitant CIS for cancer-specific survival was 1.6% (p=0.008).

**Conclusions:** Patients with organ confined disease associated with CIS at the time of RNU have higher rate of recurrent disease and cancer-specific mortality compared to those without concomitant CIS. This information may be useful in more appropriate selection of patients for adjuvant chemotherapy.
PROGNOSTIC CORRELATION OF CIRCULATING TUMOR CELLS IN THE SETTING OF UROTHELIAL AND RENAL CELL CARCINOMA
Amin Herati, BLA, Casey Seideman, BS, Shu Pan, BS Biomedical Engineering, Jane Cho, BA and Manish Vira, MD (Presented By: Amin Herati) North-Shore Long Island Jewish Health System (NS-LIJHS)

Introduction and Objective: Circulating tumor cells (CTC’s) have been shown to be of prognostic value in the metastatic breast cancer model. With emerging new technology, the study of CTC’s in different models will provide crucial information as a therapeutic and prognostic biomarker. In order to evaluate the feasibility of using the CellSearch System (Veridex, Inc. Raritan, NJ) to detect CTC’s in patients with urothelial or renal cell carcinoma, we prospectively analyzed 15 patients with muscle invasive or metastatic transitional cell carcinoma (TCC) and advanced renal cell carcinoma (RCC). We hypothesized that CTC’s can not only be detected in patients with RCC and TCC, but the number of CTC’s will also correlate with the clinical and pathologic stage and grade in patients undergoing surgical intervention.

Methods: Fifteen patients with newly diagnosed muscle invasive or metastatic TCC and advanced RCC were prospectively tested for levels of circulating tumor cells both before initiating therapy (baseline) and 6-12 weeks after treatment. Circulating tumor cells were isolated and enumerated from the peripheral blood of subjects using the CellTracks® Analyzer II (Veridex, Inc. Raritan, NJ), a semi-automated fluorescence microscope.

Results: Of the 15 patients tested, 8 were diagnosed with muscle invasive or metastatic TCC and 7 diagnosed with advanced RCC with median ages of 72 years (range, 46-82 years) and 67 years (range, 44-83) respectively. CTC’s were detected in 75% (6/8) of patients with TCC and 100% of patients with RCC. Additionally, 50% (4/8) of patients with TCC and 28.5% (2/7) of patients with RCC had > or = 2 CTC’s/7.5mL. In the Pearson’s correlation model, significant correlation was found between the clinical TNM staging of RCC and the number of CTC’s (p = 0.019). No significant correlation was detected between the clinical or pathologic stage and grade of TCC and the number of CTC’s.

Conclusion: CTC’s are detectable in the peripheral blood of patients with newly diagnosed muscle invasive or metastatic TCC and advanced RCC prior to surgical intervention. Based on our promising preliminary data, CTC’s may provide important prognostic information in patients with metastatic urothelial tumors, such as RCC and TCC.

ANONYMOUS SURVEY TO DETERMINE THE MANAGEMENT OF HEMATURIA BY VA PRIMARY CARE PROVIDERS
Carmin Kalorin, MD¹, Nazir Memon, MD³ and Badar Mian, MD² (Presented By: Carmin Kalorin)
¹Albany Medical College, Albany NY and Stratton VA Medical Ctr., Albany NY; ²Albany Medical College and Stratton VA Medical Ctr., Albany NY; ³Stratton VA Medical Ctr., Albany NY

Introduction: The prompt workup of hematuria can lead to early diagnosis of significant serious conditions of the GU tract. The benefits of early detection of hematuria include not only the early discovery of significant benign and malignant conditions, but also reduced mortality from bladder cancer in screened populations. However, there is often a delay in the evaluation of patients with hematuria.

Materials and Methods: An anonymous 9 question online survey was sent to primary care providers within the VA system. We evaluated hematuria practice patterns amongst primary care physicians, nurse practitioners, and physician assistants. We attempted to determine the thresholds for “significant hematuria”, further diagnostic testing and specialist referral.

Results: There were 648 responses from physicians (64%), nurse practitioners (30%), and physician assistants (7%). Routine yearly urinalysis in all asymptomatic patients was performed by 343 (53%) providers. 12% never checked a routine yearly urinalysis and 34% checked only in patients with specific conditions such as diabetics and smokers. The most commonly accepted definition of hematuria was >5 RBC/HPF (61%); 18% (117) considered any RBC/HPF as hematuria, 9% (55) considered it a positive dipstick, and 4% (27) considered only gross hematuria to be significant. As the “initial step” for microscopic hematuria, most providers would either repeat the urinalysis or send the urine for culture (67% and 17%, respectively). The most commonly utilized “next steps” for microscopic hematuria were imaging studies (36%), urine culture (19%), urine cytology (17%), and referral to urology (14%). For gross hematuria the most common “initial steps” were imaging studies (45%), urine culture (20%), and urology referral (12%). The most frequent “next steps” for gross hematuria were referral to a urologist (59%) and imaging studies (23%). The initial imaging studies of choice were renal ultrasound (35%), CT scan with and without I.V. contrast (20%), and intravenous pyelogram (18%).

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Conclusions: There is a wide range in the definition and evaluation of both microscopic and gross hematuria in the primary care setting. The lack of standardized definitions and protocols for screening and workup may in some cases delay the diagnosis of significant GU pathology resulting in adverse outcomes. The data provides a platform on which to develop educational materials for primary care providers.

Poster # 200

EVALUATING CLINICOPATHOLOGICAL VARIABLES TO PREDICT ADVERSE PATHOLOGY AT TIME OF NEPHROURETERECTOMY
Mark Wille, MD, Mark Katz, MD, Sergey Shikanov, MD, Michael Large, MD and Gary Steinberg, MD (Presented By: Mark Wille)
Chicago, IL

Introduction: We present our clinicopathological outcomes following nephroureterectomy (NU) for urothelial carcinoma at our institution. We hypothesize there exist clinicopathological variables that predict upper tract pathology.

Methods: Between July 1995 and July 2007, 41 patients underwent 42 NUs for upper tract urothelial carcinoma at our institution. Data were obtained from a retrospective database, patient charts, and telephone followup. We collected variables such as age, sex, presentation with hematuria, presence of bladder tumor, pre- and post-operative serum creatinine (SCr), EBL during NU, whether the NU was performed laparoscopically, and whether the patient underwent previous cystectomy as potential risk factors for worse upper tract pathology.

Results: Average age for NU was 68.9 years. There were 25 male patients and 16 female patients. 54.8% presented with hematuria, 58.5% had a bladder tumor, Pre-op SCr was 1.41, Post-op SCr 1.55, EBL 417.9 cc, 38.1% were performed laparoscopically, 31.0% underwent previous cystectomy, T-test and chi-square analysis revealed no significant differences between groups when stratified into >,= T3 or >,= T2 comparing all previously mentioned variables.

Conclusion: We present our clinicopathological outcomes following NU for urothelial carcinoma. In this small series we do not identify clinicopathological variables that portend a worse pathology in the upper tract specimens.
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Smith, Angela M.  
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Stackhouse, Danielle A.  
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Steiner, Mitchell S.  
12/05/08 11:20 a.m. Podium# 12

Subramanian, Jr., Vairavan S.  
12/05/08 4:00 p.m. Poster# 176

Sutherland, Douglas Edward  
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Svatek, Robert Scott  
12/04/08 4:00 p.m. Poster# 14  
12/04/08 4:00 p.m. Poster# 93
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</table>
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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.

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.

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SUO-SBUR 2009 Joint Meeting
April 25, 2009
Hilton Chicago
Chicago, Illinois

SUO 2009 Annual Meeting
April 25, 2009
Hilton Chicago
Chicago, Illinois

SUO 2009 Winter Meeting
December 2009
Hyatt Regency Bethesda and NIH Natcher Conference Center
Bethesda, Maryland