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from the Mid-Atlantic section
of the AUA 2016 Annual Meeting
Complications Associated With Post-nephrectomy Tyrosine Kinase Inhibitor Use: Results from SEER-Medicare
Filipe L. Carvalho1, Chaoyi Zheng1, Kenneth Witmer1, Sekwon Jang2, John O’Neill1, Siobhan M. Hartigan1, Robert C. Kovell1, Amy M. Pearlman1, Alexander Skokan1, Brian Steixner2

Introduction: Tyrosine kinase inhibitors (TKIs) transformed the management of advanced renal cell carcinoma (RCC). However, the perioperative safety and potential complications of TKI use remains unknown. Our objective is to describe postoperative outcomes of patients treated with TKIs vs. no TKIs for RCC using a large population based database.

Materials & Methods: We identified 567 patients diagnosed with Stage IV RCC who underwent nephrectomy between 2000 and 2009 from the SEER-Medicare database. 82 patients received TKI within 90 days of surgery while 485 patients who underwent nephrectomy between 2000 and 2009 from the SEER-Medicare database. 82 patients received TKI within 90 days of surgery while 485 patients who underwent nephrectomy between 2000 and 2009 from the SEER-Medicare database.

Results: The mean age of all subjects was 60.69 years. Overall, 16.16% (80 patients, mean 50.65 yrs) used electronic methods while 83.84% (415 patients, mean 62.66 yrs) used traditional methods of finding a specialty urologist. While the majority of patients used more traditional methods, younger patients were more likely to use electronic means compared to older patients (50% of age ≤ 21-30 (n = 61) vs. 8% of age ≥ 71-81 (n = 17)). There was a direct correlation between younger age and increased percentage of patients using electronic self-referral methods.

Conclusions: As a greater percentage of younger patients use the internet and social media to find a specialty physician, urologists will need to market themselves to prospective patients and create an internet presence for their practices.

Impact of Non-Index Hospital Readmissions following Radical Cystectomy on Readmission Rates in a Nationally Representative Sample
Meera R. Chappidi, Max Kates, Phillip M. Fiorazzo, Trinity J. Bivalacqua
Johns Hopkins University School of Medicine, Baltimore, MD

Introduction: Studies often report readmission rates using only readmissions to index hospitals, and therefore likely underestimate readmission rates. Our aim was to quantify the rate of non-index hospital readmissions in radical cystectomy patients using a nationally representative sample.

Materials & Methods: We queried the 2013 Nationwide Readmissions Database (NRD), Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality for discharge data on cystectomy patients with a diagnosis of bladder cancer. Exclusion criteria included patients with metastatic disease and death during index admission. All analyses were conducted using the population-based weights taking into account the complex survey design to provide nationally representative estimates.

Results: Nationally weighted, there were 7710 and 6226 cystectomies with appropriate follow-up for 30-day and 90-day readmission rate calculations, respectively. Table 1 shows the locations of readmissions. If only index hospital readmissions were used, the 30-day and 90-day readmission rates would be 22.6% (1742/7710) and 30.1% (1875/6226), respectively. However, including non-index hospital readmissions, the 30-day and 90-day readmission rates were 27.3% (2107/7710) and 38.5% (2395/6226), respectively.

Conclusions: Reporting index hospital readmission rates results in a 4.7% absolute and 17.2% relative underestimation of the 30-day readmission rate and an 8.4% absolute and 21.8% relative underestimation of the 90-day readmission rate. Future single-institution studies should exercise caution when using only index hospital readmission rates as outcome measures.

Table 1. Readmission locations stratified by follow-up duration.

<table>
<thead>
<tr>
<th>Number of Individuals (%)</th>
<th>95% Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-day follow-up (n=7710)</td>
<td>90-day follow-up (n=6226)</td>
</tr>
<tr>
<td>Index Hospital Readmission Only</td>
<td>1650 (25.5%)</td>
</tr>
<tr>
<td>Non-Index Hospital Readmission Only</td>
<td>365 (5.9%)</td>
</tr>
<tr>
<td>No Readmission</td>
<td>5603 (90.6%)</td>
</tr>
</tbody>
</table>

In Vivo Effects of Subcutaneous Inositol Hexaphosphate (IP6) on Tumor Growth in a Murine Bladder Cancer Model
Ali J. Hajjari, Dale Rigs, Barbara Jackson, Stanley Zaslau, Stanley Kandzari
West Virginia University, Morgantown, WV

Introduction: Inositol Hexaphosphate (IP6) is a naturally occurring carbohydrate found in food sources high in fiber content. We have previously demonstrated the in vitro anti-cancer effects of IP6 against bladder cancer. Based on those results we evaluated the potential of IP6 in an in vivo murine bladder cancer model.

Materials & Methods: Sixty female athymic nude mice were randomized to four groups (15/group). Mice received 1 x 107 UM-UC-6 bladder cancer cells in a 0.1 cc volume in the right thigh (Day 0). Mice then received the following subcutaneous treatments: Saline, IP6 0.5 mM, IP6 1.0 mM and IP6 2.0 mM on days 1, 3, 5, 7, 9, and 11. All animals were examined three times weekly for incidence and growth of tumor. Tumor volume is expressed as Mean ± Standard Deviation. Statistical significance was determined by ANOVA.

Results: All IP6 treatment groups significantly reduced tumor growth compared to the saline control (ANOVA, p < 0.001) on experimental days 9 through 14. All IP6 groups reduced tumor volume equally compared to control and there was no dose response effect noted.

Conclusions: This represents the first report of the effects of IP6 in a mouse bladder cancer model. We are currently investigating orally administered IP6 in mice in preparation for proposing a Phase II clinical trial to evaluate the safety and clinical utility of this agent.
PD5

Non-neoplastic Pathologic Findings In Specimens from Renal Oncology Procedures Are Associated With Postoperative Renal Insufficiency
Frank C. Hiep, Eric Springer, Lauren Bakos, Jayashree Krishnam, Krishnan Venkatesan, Mohan Verghese1
1MEDSTAR Georgetown University Hospital, Washington, DC; 2Rhode Island Hospital, Providence, RI; 3MEDSTAR Washington Hospital Center, Washington, DC

Introduction: Recent research has looked at non-neoplastic pathologic findings in renal neoplasms to detect pathologic changes that can predict patients at risk of renal insufficiency. Our goal was to determine the frequency of underlying medical renal disease in patients undergoing surgery for renal neoplasms and establish whether these pathologic changes predict development of renal insufficiency.

Materials & Methods: IRB retrospective review of all patients that underwent radical nephrectomy, partial nephrectomy and nephroureterectomy from December 2009 to November 2013. 226 patients had complete pathologic and perioperative data for analysis. We compared preoperative and postoperative creatinine levels, neoplastic findings, tumor characteristics (positive margins, extracapsular extension), and pathology information regarding non-neoplastic findings (tubular atrophy, chronic inflammation, fibrosis).

Results: The presence of any pathologic abnormalities in the non-neoplastic renal parenchyma was significantly associated with increased serum creatinine levels postoperatively (p = 0.01) and at last follow up visit (p = 0.04). Univariate analysis showed that glomerular and vascular abnormalities were each significantly associated with worsening renal function. A medical history of diabetes mellitus was found to have no influence on the risk for worse postoperative renal function.

Conclusions: Our research suggests that abnormalities in non-neoplastic renal parenchyma found in renal specimens after renal oncologic surgery should not be ignored as they may predict possible worse outcomes in renal function. Identifying such risk factors may help determine which patients should be followed closer postoperatively.

<table>
<thead>
<tr>
<th>Presence of Pathologic Abnormalities</th>
<th>Renal Function Parameters for All Patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pathologic Abnormalities Present (n = 111)</td>
<td>Pathologic Abnormalities Absent (n = 115)</td>
</tr>
<tr>
<td>Preoperative Cr</td>
<td>1.3 ± 1.1</td>
</tr>
<tr>
<td>Postoperative Cr at Discharge</td>
<td>1.7 ± 1.2</td>
</tr>
<tr>
<td>Cr at Last Follow Up</td>
<td>1.6 ± 1.0</td>
</tr>
</tbody>
</table>

PD6

Urinary Diversion for Benign Indications - Outcomes and Risk Factors

Riel Smith-Harrison, Valentina Grajales, Matthew Braswell, Raymond Costabile
University of Virginia, Charlottesville, VA

Introduction: Urinary diversion is often seen as a final therapeutic intervention for benign conditions. We sought to better understand both surgical outcomes and risk factors for complications.

Materials & Methods: A retrospective review was performed of patients who underwent urinary diversion for benign disease at a high-volume, single institution. The primary outcome was the type and severity of complications, along with trends in intra-operative and post-operative metrics.

Results: Sixty-four patients fit within our inclusion criteria. The three most common reasons for diversion were spinal cord injury, radiation cystitis and neurogenic bladder. Diversions were performed between February 2000 and September 2015. Median case length was 5.45 hours. Pelvic pain as indication was the only significant variable associated with shorter case length (p = .004). Average length of stay was 8.9 days. Liver disease was the only significant predictor of increased length of stay (p = 0.003). In the first three months, complications occurred in 16/54 (25%) patients. Incontinence (p = 0.002) was the only significant negative predictor of early complications with age approaching significance length (p = 0.054). Thirty-one of 64 (48%) patients had some form of complication three months or more after the surgery. There were no predictors for long-term complications. Twenty of 64 (32%) required further procedures requiring general anesthesia. Average follow-up was 74 months. There were no peri-operative mortalities.

Conclusions: Urinary diversion for benign causes is a reasonable and safe intervention. While complications were not rare, patients did well long-term. Up to one third of patients can expect further need for procedures following diversion.

PD7

Micro-RNA Expression Profiles In Upper Tract Urothelial Carcinoma Can Differentiate Stage and Predict Tumor Progression
Jay D. Raman, Joshua I. Warrick, Brendan M. Browne, Chintan Patel, Travis Sullivan, Eric J. Burd, David Canes, Kimberly M. Reiger-Chen
1Penn State Milton S. Hershey Medical Center, Hershey, PA; 2Lebhey Clinic, Burlington, MA

Introduction: Staging and prediction of tumor biology for upper tract urothelial carcinoma (UTUC) is challenging. MicroRNAs (miRNAs) are promising cancer biomarkers measurable in tissue, serum and urine. We aimed to identify miRNA expression profiles with potential to differentiate invasive and non-invasive UTUC as well as those tumors that will progress following radical nephroureterectomy (RNU).

Materials & Methods: Total RNA was extracted from FFPE RNU samples. Thirty-six unique tumors with diverse pathologies were profiled in the screening cohort using miRNA RT-qPCR array for 752 unique miRNA. Subsequently, evaluation of differentially expressed miRNA was performed on a validation cohort of 123 additional RNU tissue specimens.

Results: The miRNA profile of the screening cohort identified 31 miRNA differentially expressed between invasive and non-invasive tumors (p < 0.05). Twelve were up-regulated and 19 were down-regulated in the invasive specimens. Predicted probabilities from logistic regression analysis of the screening cohort revealed four miRNA with AUC ≥ 0.8 and an additional six with an AUC ≥ 0.7 for invasive UTUC (Table). Testing of selected miRNA on the validation cohort confirmed differential expression of 14 miRNA in invasive tumors. Clinical follow-up data for progression following surgery also identified miRNA that correlated with progression of disease.

Conclusions: UTUC miRNA profiles of RNU specimens can discriminate invasive versus non-invasive disease and potentially predict tumor progression following surgery. miRNA expression profiles may aid decision making following RNU.

Table: Results from logistic regression for detecting invasive UTUC

<table>
<thead>
<tr>
<th>Target miRNA</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>AUC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1408-sp</td>
<td>78.9</td>
<td>88.2</td>
<td>0.88</td>
</tr>
<tr>
<td>211-5p</td>
<td>78.9</td>
<td>76.5</td>
<td>0.88</td>
</tr>
<tr>
<td>1006-ac</td>
<td>78.9</td>
<td>70.6</td>
<td>0.86</td>
</tr>
<tr>
<td>1424-sp</td>
<td>71.7</td>
<td>64.7</td>
<td>0.76</td>
</tr>
<tr>
<td>2005-sp</td>
<td>78.9</td>
<td>64.7</td>
<td>0.75</td>
</tr>
<tr>
<td>1073-sp</td>
<td>68.4</td>
<td>58.7</td>
<td>0.75</td>
</tr>
<tr>
<td>1432-sp</td>
<td>71.7</td>
<td>64.7</td>
<td>0.73</td>
</tr>
<tr>
<td>2423-sp</td>
<td>71.7</td>
<td>41.2</td>
<td>0.76</td>
</tr>
<tr>
<td>248-sp</td>
<td>71.7</td>
<td>64.7</td>
<td>0.76</td>
</tr>
</tbody>
</table>

P1

Comparison of Hospitalization Costs for Minimally Invasive vs. Open Radical Cystectomy in a Nationally Representative Sample
Meera R. Chappidi, Max Kates, Trimit J. Bivalacqua, Philip Pierorazio
Johns Hopkins University School of Medicine, Baltimore, MD

Introduction: Previous studies providing national cost estimates have not compared follow-up hospitalization costs comparing minimally invasive vs. open radical cystectomy (ORC). Therefore, our aim was to compare follow-up hospitalization costs for minimally invasive vs. ORC with nationally representative estimates.

Materials & Methods: We queried the 2013 Nationwide Readmissions Database for discharge data on cystectomy patients with a diagnosis of bladder cancer: ICD-9 codes were used to determine surgical approach. Exclusion criteria included patients with metastatic disease or death during initial hospitalization. We calculated initial hospitalization, 30-day, and 90-day follow-up hospitalization costs by surgical approach. Multivariable linear regression was performed to determine if surgical approach was a significant predictor of 30-day and 90-day follow-up hospitalization costs after controlling for patient and hospital characteristics. All analyses were conducted using population-based weights taking into account the complex survey design to provide national estimates.

Results: When nationally weighted, for the initial hospitalization, 30-day, and 90-day follow-up there were 6177, 5996, and 4615 ORCs respectively and 1946, 1805, and 1445 minimally invasive cystectomies respectively with cost data available. Initial hospitalization was significantly more expensive (p < 0.001) for minimally invasive vs. ORC ($37,268 vs. $32,147), but there were no significant differences in follow-up hospitalization costs between surgical approaches. After adjustment, there was still no significant difference in 30-day (fopen = $360[95%CI: $795-$795]; $95%CI: $795-$795) and 90-day (fopen = $2798[95%CI: $1100-$2798]) follow-up hospital costs between surgical approaches.

Conclusions: With nationally representative estimates, initial hospitalization is more expensive for minimally invasive vs. open radical cystectomy, but there are no differences in follow-up hospital costs.
The Impact of Downgrading from Biopsy Gleason 7 to Prostatectomy Gleason 6 on Biochemical Recurrence and Prostate-Cancer-specific Mortality. Won Sik Ham*, Heathen Chaffin1, Zhaoyang Feng*, Bruce J. Trock1, Jonathan I. Epstein1, Carling Cheung3, Elizabeth Humphrey4, Alan W. Partin1, Misop Han3

1Virginia Urology, Richmond, VA; 2Virginia Commonwealth University, Richmond, VA

Introduction: Accurate assessment of Gleason score (GS) is crucial for proper evaluation and treatment of men with prostate cancer (PC). Several predictors of downgrading from biopsy (Bx) GS 7 to radical prostatectomy (RP) GS 6 have been identified. We investigated whether downgraded men have different survival outcomes.

Materials & Methods: 23,918 men who underwent RP at our institution between 1984 and 2014, 10,236 with Bx and RP GS 6 or 7 were included. The cohort was divided into three groups based on Bx and RP GS: group I (Bx and RP GS 6), N = 6,923 (67.6%); group II (Bx GS 7 downgraded to RP GS 6), N = 648 (6.3%); and group III (Bx and RP GS 7), N = 2,663 (26.0%). Biochemical recurrence (BCR) and prostate cancer-specific mortality (PCSM) risk were compared using Cox regression and competing-risk analyses.

Results: At median follow-up of 5 years, 992 men experienced BCR, and 95 died due to PC. The BCR-free survival rate for the downgraded men (group II) was better than for those with GS 7 on Bx and RP (group III, p < 0.001), but worse than those with GS 6 on Bx and RP (group I, p < 0.001). Downgrading was independently associated with BCR (adjusted hazard ratio [AHR] 1.87, p < 0.001), but not with PCSM (AHR 1.65, p = 0.636).

Conclusions: Downgrading from Bx GS 7 to RP GS 6 was an independent predictor of BCR, but not PCSM. This downgrading is probably due to the presence of minor amounts of Gleason pattern 4.

Impact of Obesity on Urethral Reconstruction Outcomes. Frank C. Hill1, Eric Springer1, Mohan Verghes1, Krishnan Venkatesan2

1MEDSTAR Georgetown University Hospital, Washington, DC; 2MEDSTAR Washington Hospital Center, Washington, DC

Introduction: Obesity is an epidemic, becoming an increasingly more common comorbidity in patients we treat, including those with urethral stricture disease. There is a relatively paucity of literature examining the effect of obesity on urethroplasty. We have updated and reviewed our urethroplasty outcomes with regards to BMI.

Materials & Methods: Retrospective review of all patients undergoing urethroplasty was conducted, stratifying patients into BMI < 25, 25-30, and > 30. Demographic data were identified. Outcomes analyzed included operative time, estimated blood loss (EBL), length of stay (LOS), and complications as classified by the Clavien-Dindo system.

Results: From September 2012 to March 2016, 102 patients underwent urethroplasty. 24 had BMI < 25, 44 with BMI 25-30, and 35 with a BMI > 30. Overweight patients had significantly higher mean estimated blood loss (313 ml vs. 194 ml, p < 0.01). Despite this, there was no increased need for blood transfusions. In addition, increased BMI was not found to be associated with increased risk of complications or risk of more severe complications. There was no increase in the rate of recurrence among overweight and obese patients (16% vs. 15.6%).

Conclusions: Urethroplasty in the obese patient presents a more technically challenging procedure, associated with increased blood loss. However, contrary to existing literature, we have found that there is not an increased risk of complications or recurrence in obese patients. Therefore, while more risky and difficult in overweight patients, it can still have successful outcomes. This is important for patient selection, patient counseling and setting expectations.
Visceral Fat is Associated with Adverse Perioperative Outcomes but Not Oncologic Outcomes in Patients Undergoing Radical Nephroureterectomy  
Neil J. Kocher, Samyuktha Balabhadra, Syed Jafri, Erik Lehman, Kanupriya Vijay, Nabeel Sarwani, Jay D. Raman 
Penn State Hershey Medical Center, Hershey, PA

Introduction: Radical nephroureterectomy (RNU) remains the gold standard for upper tract urothelial carcinoma (UTUC) in patients with preserved contralateral renal function. Visceral fat is recognized as a patient-specific factor implicated in increased perioperative complications. This study investigates the association of visceral fat with adverse perioperative or oncologic events in patients with UTUC after undergoing RNU.

Materials & Methods: A retrospective review of our institutional upper tract urothelial carcinoma database was performed to identify all patients who underwent radical nephroureterectomy from 2000-2014. Visceral fat was measured at the L3 vertebral level and standardized to patient height (cm^2/m^2). Two-sample t-test and Spearman correlation examined the relationship between visceral fat and other independent variables.

Results: 94 patients (62 men and 32 women) with a median age of 69 years, BMI 30, Charlson and standardized to patient height (cm^2/m^2). Two-sample t-test and Spearman correlation showed a correlation of visceral fat with increased perioperative complications. Visceral fat was associated with increased EBL (p = 0.002), length of stay (p = 0.033), CCI (p = 0.003), and 30-day complication rate (p = 0.027) (Table).

Conclusions: Visceral fat is associated with several adverse perioperative events in patients undergoing RNU for UTUC. Larger cohorts are required to better delineate the role of visceral fat in RNU outcomes and patient prognosis.

Table
<table>
<thead>
<tr>
<th>Variable</th>
<th>Spearman Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charlson Comorbidity Index</td>
<td>0.23 (0.06, 0.32)</td>
</tr>
<tr>
<td>Perioperative outcomes</td>
<td>0.002</td>
</tr>
<tr>
<td>EBL</td>
<td>0.32 (0.14, 0.51)</td>
</tr>
<tr>
<td>OR duration</td>
<td>0.11 (0.00, 0.24)</td>
</tr>
<tr>
<td>Length of stay</td>
<td>0.22 (0.02, 0.43)</td>
</tr>
<tr>
<td>30-day complications</td>
<td>Two-sample t-test</td>
</tr>
<tr>
<td>90-day complications</td>
<td>Two-sample t-test</td>
</tr>
<tr>
<td>Intraoperative complications</td>
<td>Two-sample t-test</td>
</tr>
<tr>
<td>Oncologic outcomes</td>
<td>0.07</td>
</tr>
<tr>
<td>Tumor stage</td>
<td>2.48 (1.07, 7.44)</td>
</tr>
<tr>
<td>Grade</td>
<td>0.05 (0.80, 0.50)</td>
</tr>
<tr>
<td>Bladder cancer relapse</td>
<td>Two-sample t-test</td>
</tr>
<tr>
<td>Non-bladder cancer relapse</td>
<td>Two-sample t-test</td>
</tr>
<tr>
<td>Mortality of useful structures</td>
<td>Two-sample t-test</td>
</tr>
</tbody>
</table>

Vasovasostomy: Outcomes in a Single Veterans Affairs Medical Center Over a 10-year Period  
Sarah C. Caulkins, Randy A. Vince, Samay Sappal, Adam P. Klauser 
Virginia Commonwealth University, Richmond, VA

Introduction: Up to 6% of men treated with vasectomy ultimately desire vasectomy reversal. However, there is limited research both on causes of infertility and success rates of vasectomy reversal in Veterans. The purpose of this study was to evaluate vasovasostomy experience for quality assurance and to optimize fertility counseling in Veterans.

Materials & Methods: Veterans who had undergone vasovasostomy from 2005-2015 were identified. Retrospective chart review was performed to evaluate post-operative semen analyses, Veteran and partner age, obstructive interval, and intraoperative quality of vasal fluid. Veterans were also interviewed for subjective surgical outcomes, pregnancy rates, and overall satisfaction.

Results: 38 Veterans underwent vasovasostomy over 10 years. Mean obstructive interval was 8.1 years. Post-operative semen analysis was available for 22 Veterans. Sperm was present in 15/22 cases (68%). 32 Veterans participated in our survey. Over 25 attempted pregnancy, which was achieved in 5/26 cases (19%). 19 of 32 Veterans were characterized as having had successful vasovasostomy by either sperm present on post-operative semen analysis, or by achieved pregnancy (95%). There was no difference in semen analysis or pregnancy rate by obstructive interval or intraoperative quality of vasal fluid. Mean Veteran satisfaction was 9.21 out of 10.

Conclusions: Success of vasovasostomy at our institution was 59% overall. We demonstrated that vasovasostomy can be effectively performed in Veterans with varying obstructive intervals. More research is needed to improve follow up and outcomes in infertility for this unique population.

Assessing Cancer Progression and Stable Disease After Neoadjuvant Chemotherapy for Organ-Confined Muscle-Invasive Bladder Cancer  
Meera R. Chappuli, Max Kates, Aaron Brant, Alexander S. Baras, George J. Netto, Phillip M. Pierorazio, Noah M. Hahn, Trinity J. Bivalacqua 
Johns Hopkins University School of Medicine, Baltimore, MD

Introduction: The therapeutic benefit of neoadjuvant chemotherapy (NAC) for muscle-invasive bladder cancer (MIBC) is assessed by categorizing patients as complete, partial, and non-responders. In this study, we propose and validate a new approach to further stratify clinically classified, organ-confined MIBC (cT2N0M0) non-responders to better characterize the non-response to NAC.

Materials & Methods: We retrospectively identified bladder cancer patients with cT2N0M0 disease who underwent RC from 2005-2014 at our institution and from 2004-2012 in the National Cancer Database for external validation. Patients were stratified as stable disease (pT2N0M0) or progressors (> pT2 and/or pN+). The primary endpoint was cancer-specific survival (CSS) with secondary endpoints of overall survival (OS) and recurrence free survival (RFS).

Results: In the institutional cohort, NAC stable disease (n = 17) had better OS (p = 0.0496) and RFS (p = 0.04) than NAC progressors (n=50) and comparable OS (p = 0.7) and CSS (p = 0.09) compared to non-NAC stable disease (n = 27). Multivariable cox proportional hazards models showed larger tumor size predicted worse OS (HR = 1.20 95%CI[1.07-1.35]), CSS (HR = 1.27 95%CI[1.11-1.45]), and RFS (HR = 1.24 95%CI[1.09-1.42]). In the NCDB, NAC stable disease (n = 223) had improved OS (p = 0.0001) than NAC progressors (n = 232) and comparable (p = 0.4) OS to non-NAC stable disease (n = 950). Multivariable cox proportional hazards model showed larger tumor size (HR = 1.003 95%CI[1.002, 1.003]) and progression (HR = 2.69 95%CI[2.40-3.01]) predicted worst OS.

Conclusions: Distinct survival outcomes suggest NAC non-responders should be further stratified into two distinct subtypes: stable disease and progressors. Clinical predictors of progression of disease on NAC were not identified, highlighting the utility and need to explore molecular and genomic subtyping determinants of progression..

The Physician Payment Sunshine Act: Industry Payment to Urologists  
Johns Hopkins Hospital, Baltimore, MD

Introduction: The Physician Payment Sunshine Act (PPSA) was implemented to provide transparency regarding the financial transactions between industry and physicians. Under this law, the Open Payments Program (OPP) was created to publicly disclose all transactions and inform patients of potential conflicts-of-interest (COI). Awareness of the OPP is crucial for urologists, as its interpretation or misinterpretation can potentially affect trust between patients and urologists. The goals of this study are to comprehensively evaluate non-research payments made to urologists by industry and explore whether awareness of the OPP’s risk for misinterpretation and controversy.

Materials & Methods: We used the first wave of PPSA data (August 2013-December 2013) to assess industry payments made to urologists.

Results: Urologists (N = 6,323) received a total of $8,463,872 during a 5 month period. The majority of payments were for educational speaker fees ($4,659,834) and consulting ($1,358,868). Figure 1 shows the average payment to urologists by state.

Conclusion: The PPSA brings transparency to the physician-industry landscape and also highlights the OPP’s risk for misinterpretation and controversy.

Vasovasostomy: Outcomes in a Single Veterans Affairs Medical Center Over a 10-year Period  
Sarah C. Caulkins, Randy A. Vince, Samay Sappal, Adam P. Klauser 
Virginia Commonwealth University, Richmond, VA

Introduction: The therapeutic benefit of neoadjuvant chemotherapy (NAC) for muscle-invasive bladder cancer (MIBC) is assessed by categorizing patients as complete, partial, and non-responders. In this study, we propose and validate a new approach to further stratify clinically classified, organ-confined MIBC (cT2N0M0) non-responders to better characterize the non-response to NAC.

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Conclusions: Distinct survival outcomes suggest NAC non-responders should be further stratified into two distinct subtypes: stable disease and progressors. Clinical predictors of progression of disease on NAC were not identified, highlighting the utility and need to explore molecular and genomic subtyping determinants of progression.
Association of BMI with Outcomes of Urethroplasty
James Milis, Luel Smith-Harrison, Nathan Shav, Ryan Smith, Raymond Costable
University of Virginia, Charlottesville, VA

Introduction: Previous reports suggest a non-linear relationship between body mass index (BMI) and urethroplasty failure. We assessed the rates of complication, stricture recurrence, and reoperation in patients undergoing urethroplasty stratified by body mass index.

Materials & Methods: A retrospective review was performed on patients who underwent urethroplasty between 2005-2014 at a single institution. Data was collected on BMI, flow rate, PVR, etiology of stricture, stricture location, type of repair, number of repair stages, complications, and need for repeat procedures.

Results: Of 143 patients, 31 (22%) had complications, including stricture recurrence, urethral stricture fistula, incontinence, hemorrhage, and transient penile numbness. Recurrence occurred in 21 patients (15%). A repeat procedure for recurrence was performed on 18 patients (13%). Twenty-three (16%) patients required a repeat operation for any cause. Overweight (BMI 25-29.9) or obese (BMI > 30) patients had a 30% complication rate vs. 19% complication rate for normal weight patients (p = 0.30). The recurrence rate was highest in obese patients at 20%. The reoperation rate was 22% for overweight and obese patients vs. 16% for normal weight patients (p = 0.521). Normal weight patients had the highest reoperation rate for recurrence of stricture (p = 0.601). Average BMI for patients with complications vs. without complication was 30 vs. 32 (p = 0.283).

Conclusions: The overall stricture recurrence rate in our series is similar to the previously reported rate of 15.7%. There was no statistically significant difference in the rates of overall complications, stricture recurrence, or reoperation between the normal weight and overweight or obese groups.

Clinical Influences in the Multidisciplinary Management of Small Renal Masses in a Tertiary Referral Center
Kymora Scotland, Michael Zhang, Daisey Schaeffer, Anne Calvarese, Leonard Gorolla, Daniel Brown, Colette Shaw, Edouard Trabulsi, Costas Lallas
Thomas Jefferson University Hospital, Philadelphia, PA

Introduction: We designed a multidisciplinary Small Renal Mass Center (SRMC) to help patients decide between treatment options and to individualize therapy for the management of small renal masses. In this model, physicians and support staff from multiple specialties work as a team to evaluate and devise a treatment plan for patients within the same organized visit.

Materials & Methods: A retrospective review was performed on a total of 263 patients seen from 2009-2014. Patient characteristics monitored included age, Charlson comorbidity index, body mass index, nephrometry score and estimated glomerular filtration rate. Univariate and multivariate analyses were performed to identify patient characteristics associated with each treatment choice.

Results: Among the patient cohort, 88 elected active surveillance (AS), 64 underwent ablation and 111 had surgery (74 partial and 37 radical nephrectomy). There were significant associations between treatment modality and age, CCI, and eGFR. The mean patient age on presentation was 61.1 years. Patients with high CCI scores (> 5) or decreased eGFRs (< 60) were more likely to undergo AS (41.6%, 35%) and ablative therapy (29.6%, 34%) versus partial nephrectomy (10.6%, p < 0.001; 9%, p < 0.001). In multivariable analysis, age (p < 0.001) and eGFR (p < 0.001) remained significantly associated with modality after adjustment for all other factors.

Conclusions: The SRMC enables patients to assess the various treatment modalities for their small renal mass in a single setting. By providing simultaneous access to the various specialists, it provides an invaluable opportunity for informed patient decision making.

Urgency Reduction following OnabotulinumtoxinA Treatment Predicts Clinically Meaningful Improvements in Patient Reported Outcomes in Overactive Bladder Patients: A Pooled Analysis of Two Randomized Controlled Trials
Peter Sand1, David Sussman1, Blair Egerdie1, Tamer Aboushaware1, Andrew Magyar1, Roger Dmochowski1
1NorthShore University Health System, Skokie, IL; 2Rose University School of Osteo Med, Stratford, NJ; 3Urology Associates/Urologic Med Research, Kitchener, ON, Canada; 4Allergan, plc, Irvine, CA; 5Allergan, plc, Bridgewater, NJ; 6Vanderbilt University, Nashville, TN

Introduction: We evaluated the effect of various degrees of urinary incontinence (UI) and urgency reduction on Incontinence-quality of life (p-I-QOL) total score and perception of treatment benefit in overactive bladder (OAB) patients treated with onabotulinumtoxinA.

Materials & Methods: Pooled data from onabotulinumtoxinA-treated patients in the phase 3 trials were analyzed (post-hoc) by two independent factors: 1) percent reduction from baseline in UI, and 2) percent reduction from baseline in urgency. For each factor, patients were grouped into 4 quartiles: < 25% (Q1); ≥ 25%<49% (Q2); ≥ 50%–74% (Q3); and ≥ 75%–100% (Q4). Assessments at week 12 were change from baseline in p-I-QOL total score and proportions of patients reporting a positive response (urinary symptoms improved/greatly improved) on the treatment benefit scale.

Results: p-I-QOL scores were 2-3.8 times the minimally important difference (MID=10 points) in the Q3 and Q4 UI reduction quartiles; proportions of patients reporting treatment benefit were 64.1% and 89.1%, respectively. Clinically meaningful improvements in p-I-QOL were observed in Q2, Q3 and Q4 urgency reduction quartiles with a substantial increase in p-I-QOL score in Q2 versus Q1 (18.0 vs. 8.8), which corresponded with a large increase in the proportion of patients reporting treatment benefit (66.7% vs. 30.7%). OnabotulinumtoxinA was well-tolerated with no unexpected safety signals.

Conclusions: OnabotulinumtoxinA was well-tolerated and effective in OAB patients who were inadequately managed by an anticholinergic; QOL improvements and treatment benefit were closely associated with reductions in UI and urgency. Patients with at least a 25% reduction in urgency reported treatment benefit and clinically meaningful improvements in QOL.

To Cup or Not to Cup? Decisional Factors Influencing the Use or Non-use of Genital Protective Equipment among Young Male Athletes
Jacob A. Baber1, Jared M. Bieniek2, Joel M. Sumfest1
1NorthShore University Health System, Skokie, IL; 2Rowan University School of Osteopathic Medicine, Glassboro, NJ

Introduction: Despite the high prevalence of sports related genital injuries that have been reported, young males have a low rate of genital protective equipment usage for a multitude of reasons. Education, athletic cup accessibility, and a better perception of treatment benefit in overactive bladder (OAB) patients treated with onabotulinumtoxinA.

Materials & Methods: A self-administered questionnaire was distributed to male student-athletes at local high schools and colleges. Respondents were questioned regarding reasons they choose to wear or not wear athletic cups. Descriptive statistics were performed on the data obtained.

Results: Approximately 1700 surveys were distributed and 731 returned (43.0%). For the 554 respondents citing reasons for not wearing an athletic cup, the most common reasons reported were lack of knowledge about importance (34.7%), not owning (28.2%), not being trendy (15.0%), teammates not wearing (11.2%), and being uncomfortable (10.2%). Eighty-five student-athletes reported their reasons for not wearing an athletic cup, the most common reasons reported were lack of knowledge about importance (34.7%), not owning (28.2%), not being trendy (15.0%), teammates not wearing (11.2%), and being uncomfortable (10.2%). Eighty-five student-athletes reported their reasons for not wearing an athletic cup, the most common reasons reported were lack of knowledge about importance (34.7%), not owning (28.2%), not being trendy (15.0%), teammates not wearing (11.2%), and being uncomfortable (10.2%).

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Inguinal Hernia Repair During Extraperitoneal Robot-assisted and Laparoscopic Radical Prostatectomy: Surgical Outcomes and Quality of Life Assessment

Wesley L. Ludvig, Saad C. Azoany, Arun Mudwarakanath, Xuam Hui, Nikolai A. Sopko, Kimberley E. Steele, Hient T. Nguyen, Christian P. Pavlovich
Johns Hopkins Hospital, Baltimore, MD

Introduction: One third of men undergoing radical prostatectomy (RP) have a comorbid inguinal hernia (IH). Outcomes of extraperitoneal robot-assisted laparoscopic radical prostatectomy (eRARP) and total extraperitoneal (TEP) IH repair are unknown. We compared outcomes and quality of life following eRARP, TEP, and TEP-IHR alone.

Materials & Methods: Patients undergoing eRARP or TEP-IHR were compared to age-matched controls with eLRP or eRARP only. Demographics, peri-operative, and follow-up outcomes data were compared between groups. A validated 0-5 pain/quality of life Carina Comfort Scale TM (CCS) was assessed following TEP-IHR.

Results: Thirty-seven men underwent RP and TEP-IHR with mesh (11 eRARP, 26 eLRP). The majority of hernias were detected pre-operatively (88%), asymptomatic (99%), and unilateral (eRARP 81.8%, eLRP 80.9%). Unilateral TEP-IHR added 32 min to eRARP and 31 min to eLRP, while bilateral TEP-IHR added 80 min to eRARP and 63 min to eLRP. There were no statistically significant differences for TEP-IHR + eLRP/eRARP and controls with regards to EBL, time to diet advancement, length of stay, post-operative complications. There were no hernia recurrences in either group. Average CCS TM scores were < 1 (asymptomatic) in patients undergoing TEP-IHR + eLRP or eRARP + eLRP, with no differences between these groups (p = 0.38).

Conclusions: Concurrent TEP-IHR and eRARP or eLRP does not prolong hospitalization, and may improve quality of life.

Table 1a eLRP (n=26) | TEP-IHR (n=11) | p-value
Age 56.7±7.9 years | 56.7±7.9 years | 0.96
BMI (kg/m²) | 27.1±3.5 | 26.0±2.5 | 0.58
EMO 35.9% (19/54) | 40.9% (4/10) | 0.52
Estimated Blood Loss 268.4±192.3 cc | 221.7±164.0 cc | 0.02
Length of Stay 1.6±0.8 days | 1.5±0.2 days | 0.35
Below 80% 30.1±12.3% | 33.8±10.5% | 0.20

Table 1b eRARP (n=11) | TEP-IHR (n=11) | p-value
Age 56.5±8.5 years | 56.5±8.5 years | 0.23
BMI (kg/m²) | 26.5±5.5 | 27.6±7.6 | 0.37
EMO 16% (5/32) | 18% (2/11) | 0.65
Estimated Blood Loss 305.0±79.4 cc | 299.0±17.3 cc | 0.10
Length of Stay 1.0±0.7 days | 1.0±0.9 days | 1.0
Below 80% 46±7.9% | 45.5±10.5% | 0.60

Transplant Through the Window: Initial Experience with Minimally Invasive Anterior Rectus Sheath Open Renal Transplant

Stephen Phillips, II, Sharon Hill, Lorie Lipscomb, Joseph Africa
CAMC, Charleston, WV

Introduction: As the surgical intervention for end-stage renal disease, renal transplant is a major operation on a diverse population of patients with chronic disease. Wound complications are a major concern and new minimally invasive techniques attempt to improve on these issues. This retrospective review quantified wound infection, complication, dehiscence, and fluid collection/hematoma rates for Conventional (CON) and Anterior Rectus Sheath approach (ARS) for recipient renal transplantation.

Materials & Methods: Data from the initial 22 ARS kidney transplants at the Charleston Area Medical Center (CAMC) was collected along with the 20 most recent CON and analysis was completed including univariate and multivariate regression.

Results: Demographics were not significantly different. The study’s primary endpoints of wound complications were significantly lower in the ARS group. Secondary endpoints of surgical and transplant outcomes were also found to be similar in the groups. Surgical time and wound length were found to be more favorable in the ARS.

Conclusions: Anterior Rectus Sheath approach for open renal transplant recipients allows for a small, minimal incision with comparable overall graft outcomes and significant improvement on wound complication rates. This easily adopted modification of conventional technique is a safe, effective, and swift approach to renal transplantation with favorable graft results and improved surgical outcomes with lower post-operative wound complications.

Ex-Vivo Model of Human Penile Transplantation and Rejection: Implications for Erectile Function

Nikolai Sopko
Johns Hopkins Medical Institutions, Baltimore, MD

Introduction: Penile tissue loss is seen in wartime injuries and congenital anomalies. Penile transplantation may be a treatment option. How the rejection process and immunosuppression affects erectile function (EF) is unknown. Using a novel ex-vivo mixed lymphocyte reaction (MLR) model of human corporal tissue (hCT) we evaluated the EF effects of rejection and immunosuppression.

Materials & Methods: hCT from penile prosthesis operations (donor) and peripheral blood mononuclear cells (PBMCs) isolated from the donor and a healthy volunteer were cultured for 48 hours. hCT+Media (Ctrl), hCT+allogeneic-PBMCs (Allo), hCT+allogeneic-BM-MSCs (Allo), hCT+allogeneic-PBMCs+ cyclosporineA (CsA). Additional hCT were cultured without PBMCs for 24 hours in the presence of media alone, cyclosporineA, or FK506. Tissues were evaluated by IHC and live confocal fluorescent imaging. Myography was used to examine nerve-mediated contraction and relaxation in response to electrical field stimulation. PBMC activation was assessed by flow cytometry and qPCR-array. This study was approved by the IRB.

Results: Microscopy demonstrated increased caspase-3/7 activation and TUNEL staining in tissues exposed to allogeneic PBMCs, which was prevented by CsA. Flow cytometry and qPCR-array demonstrated PBMC activation when exposed to allogeneic hCT, which was prevented by CsA treatment. Myography demonstrated impaired contraction and relaxation in Allo compared to Auto. CsA treated Allo had similar contraction and surprisingly impaired relaxation compared to non-treated Allo tissues. Compared to media and FK506, CsA impaired nerve-mediated relaxation.

Conclusions: This model may be used to investigate the pathogenesis of rejection and to optimize immunosuppression for penile transplantation.
Racial Disparities in Continence Rates for Men Following Robotic-assisted Radical Prostatectomy

Benjamin L. Taylor, Matthew E. Sterling, Divyansh Agarwal, Alan J. Wein, Thomas J. Guzzo

Introduction: We characterized the social (0-1 pads per day) and complete (0 pads per day) continence rates among Caucasian and African American (AA) men across different time intervals to determine if racial disparities exist.

Materials & Methods: By retrospective review, we identified patients who underwent robotic-assisted radical prostatectomy at a single institution and by a single surgeon between October 2011 and September 2014. Patients were excluded if they had additional pelvic surgery. Risk groups were defined using D’Amico risk classification tables.

Results: A total of 219 patients were available for analysis after exclusion with a median follow up of 17 months. AA men had more intermediate and high-risk cancer preoperatively (72% vs. 54%, p = 0.02) and a pathologic Gleason score ≥ 7 (90% vs. 77%, p = 0.04). More Caucasian men achieved social continence at 3, 6, and 12 months. Complete continence was higher at each time interval, but only significant at 3 and 6 months.

Conclusions: In our series, Caucasian men achieved social and complete continence quicker than AA men and at a higher overall rate. Although AA men tended to have higher postoperative risk classification and pathologic Gleason score, we feel these pathologic differences do not completely explain why racial disparities exist for post-prostatectomy incontinence, and further investigation is required.

Table 1: Degree of improvement based on number of cycles

<table>
<thead>
<tr>
<th>Cycles</th>
<th>Patients</th>
<th>Curvature pre-Collagenase</th>
<th>Curvature post-Collagenase</th>
<th>Mean Improvement (degrees)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>7</td>
<td>37.14 +/- 0.96 (30-48)</td>
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<td>33.87 +/- 4.50 (30-40)</td>
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<td>35.4%</td>
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<tr>
<td>4</td>
<td>16</td>
<td>37.18 +/- 6.57 (30-55)</td>
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Low Amplitude Rhythmic Contractions in the Human Detrusor

Andrew CoIhoun, John Speich, MaryEllen Dolat, Eugene Bell, Paul Ratz, Robert Barbee, Adam Klausner Virginia Commonwealth University, Richmond, VA

Introduction: Low amplitude rhythmic contractions (LARC) occur in mammalian detrusor smooth muscle (DSM) and may play a role in overactive or underactive bladder. We hypothesize that the influences of non-neuronal Ach and tissue strain in the regulation of spontaneous detrusor rhythm. Tissue strain may increase LARC signal:noise ratio (0.04 to 0.13, p = 0.001). There was no association between CCh induced LARC in the remaining 75% with a significant improvement in LARC signal noise ratio (0.04 to 0.13, p = 0.001). There was no association between concentration of CCh and LARC. Part II When exposed to strain, 60% of U+ tissue strips exhibited a linear increase in both LARC frequency over 5 min post-exposure (B2 = 0.68-0.97). Atropine had no effect on U+ LARC (p = 1.0) but abolished LARC in U- (p < 0.05) and significantly decreased actual to expected tension at 5 min post-exposure (p < 0.05). Conclusion: CCh induces LARC in quiescent hDSM that is similar to spontaneous LARC, suggesting that non-neuronal Ach may play a partial (but not exclusive) role in the regulation of spontaneous detrusor rhythm. Tissue strain may increase LARC in a subset of U+ tissue, suggesting a tension-mediated LARC generator. LARC generators may provide targets for treatment of overactive or underactive bladder.

Table 1: Continued rates among Caucasian and African-American men

<table>
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<tr>
<th>Combined (%)</th>
<th>Caucasian (%)</th>
<th>AA (%)</th>
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<tr>
<td>N = 219</td>
<td>84 (385/219)</td>
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Recurrence of Renal Cancer following Partial Nephrectomy: Comparison of Surveillance Guidelines, Cost and Survival

Nathan M. Shaw1, James Mills2, Andrew Dick3, Rachana Seelam2, Claude Seboldy2, Janet Hanley2, Jennifer M. Lobo2, Christopher Saigal1, Tracey L. Krupski3, Urologic Diseases in America Project4

1University of Virginia School of Medicine, Charlottesville, VA; 2RAND, Santa Monica, CA; 3UCLA Medical Center, Los Angeles, CA; 4Urologic Diseases in America, Los Angeles, CA

Introduction: The CUA, EAU, AUA and NCCN have produced guidelines for surveillance following resection of a small (less than 4 cm) Renal Cell Carcinoma (RCC). The goal of this study is to quantify the differences in surveillance costs these guidelines.

Materials & Methods: This study examined the SEER Medicare database for patients with diagnoses of RCC, historic stage 0-2 between 1991 and 2007. Partial nephrectomy, recurrence events, and surveillance imaging were identified by ICD-9 and CPT codes. The surveillance guidelines were then plotted against these real patients, to describe when the guidelines would identify a recurrence. Finally, cost ranges for imaging modalities were captured.

Results: We identified 2848 patients, 90% of whom had stage 0 or 1 tumors and 126 (4.4%) had a tumor recurrence. The majority had a local recurrence (111 vs 15) and 74% of recurrences occurred during the first 3 years. Thus, surveillance guidelines that end after 3 years (e.g. AUA for stage 1) may be missing up to 20% of recurrences. Despite surveillance for 6 years across all tumor stages, the CUA guideline represented the least expensive option.

Conclusion: Despite favorable survival and recurrence rates, patients undergo numerous radiating surveillance procedures. There may be a benefit to spacing out imaging over a longer follow up period as a cost effective method of post-operative surveillance that limits secondary risk of radiation exposure.

Table 1: Degree of improvement based on number of cycles

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PD13

Use of Intravesical Collagenase Clostridium Histolyticum Injection Therapy for Peyronie’s Disease: Results from the Private Practice Setting

Robert Schecklof, Ramon Virasoro, Oscar Storme, Jeremy Tonkin, Kurt McCammon

Materials & Methods: After obtaining IRB approval we conducted a retrospective chart review of patients who had CCh injections and completed treatment between 3/31/14 and 10/2/2014. Thirty patients were identified. Patients were offered 4 cycles of injections with modeling. Patients could elect to stop at any point based on satisfaction with improvement or complication.

Results: Mean age was 57.2 yrs +/- 8.13. Eight patients had history of trauma. Twelve patients received Verapamil injections prior to CCh. Results are shown in Table 1. There was 1 severe penile hematoma in the 1st cycle though the patient completed 4 cycles. Mean follow up after completion is 5.4 months +/- 3.39.

Conclusions: CCh is safe and efficacious to treat immature PD and can be administered in the private practice setting with results similar to previously published data. Larger studies with longer follow up are needed for further validation.

Table 1: Continence rates among Caucasian and African-American men

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| N = 219     | 84 (385/219)  | 80 (345/164) |
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| N = 50      | 83 (82/50)    | 54 (20/50) |

PD14

Low Amplitude Rhythmic Contractions in the Human Detrusor

Andrew Colhoun, John Speich, MaryEllen Dolat, Eugene Bell, Paul Ratz, Robert Barbee, Adam Klausner Virginia Commonwealth University, Richmond, VA

Introduction: Low amplitude rhythmic contractions (LARC) occur in mammalian detrusor smooth muscle (DSM) and may play a role in overactive or underactive bladder. We hypothesize that the influences of non-neuronal Ach and tissue strain in the regulation of spontaneous detrusor rhythm. Tissue strain may increase LARC signal:noise ratio (0.04 to 0.13, p = 0.001). There was no association between CCh induced LARC in the remaining 75% with a significant improvement in LARC signal noise ratio (0.04 to 0.13, p = 0.001). There was no association between concentration of CCh and LARC. Part II When exposed to strain, 60% of U+ tissue strips exhibited a linear increase in both LARC frequency and amplitude (B2 = 0.68-0.97). Atropine had no effect on U+ LARC (p = 1.0) but abolished LARC in U- (p < 0.05) and significantly decreased actual to expected tension at 5 min post-exposure (p < 0.05). Conclusion: CCh induces LARC in quiescent hDSM that is similar to spontaneous LARC, suggesting that non-neuronal Ach may play a partial (but not exclusive) role in the regulation of spontaneous detrusor rhythm. Tissue strain may increase LARC in a subset of U+ tissue, suggesting a tension-mediated LARC generator. LARC generators may provide targets for treatment of overactive or underactive bladder.
Accuray of the NSQIP Surgical Risk Calculator for Minimally-Invasive Partial Nephrectomy - A Comparison of Robotic versus Laparoscopic Approaches

Brian M. Blair, Erik B. Lehman, Syed M Jafri, Jay D. Raman
Penn State Hershey Medical Center, Hershey, PA

Introduction: The American College of Surgeons created the NSQIP Surgical Risk Calculator to estimate risk-adjusted 30-day outcomes following index procedures. We evaluated the accuracy of the NSQIP calculator for patients undergoing minimally-invasive partial nephrectomy (PN) for renal cell carcinoma (RCC) with a focus on robotic (RPN) versus pure laparoscopic (LPN) approaches.

Materials & Methods: A single institution, multi-surgeon, prospectively maintained database was queried for all patients undergoing LPN and RPN from 2003-2015. 21 designated patient predictors were analyzed with nine surgical outcomes reported. The difference between mean predicted risk and observed outcome rate was calculated using a two-sided one-sample t-test with significance set at \( p < 0.05 \).

Results: 111 LPN and 150 RPN were analyzed. The NSQIP calculator underestimated overall complications, cardiac events, UTI, return to OR, length of stay (LOS), and pneumonia for LPN (\( p < 0.01 \)). Contrarily, severe complications, venous thromboembolism (VTE), acute renal failure (ARF), death, and discharge to rehab were overestimated (\( p < 0.001 \)). Similar underestimations of overall complications, pneumonia, SSI, UTI, VTE, return to OR, and LOS were seen for RPN (\( p < 0.001 \)). Conversely, severe complications, cardiac events, ARF, and death were overestimated (\( p < 0.001 \)). (Table 1)

Conclusions: The NSQIP Surgical Risk Calculator, irrespective of surgical approach, had significant differences among observed and predicted surgical outcomes in our study. This emphasizes the need to develop urologic oncology-specific modules to better calculate key outcomes in this patient population.

Comparison of Bladder Volumes between 2D and 3D Ultrasound Calculations and Urodynamic Measurements in Women with Overactive Bladder

Anna S. Nagle, Rachel J. Bernardo, Adam P. Klausner, John E. Speich
Virginia Commonwealth University, Richmond, VA

Introduction: The ultimate goal of this research is to improve the diagnosis and treatment of overactive bladder (OAB) by developing non-invasive assessment methods. The aim of this project was to measure volume changes in the bladder using 2D and 3D ultrasound techniques and compare those results to infused bladder volume during urodynamics.

Materials & Methods: Female volunteers with OAB clinically indicated for urodynamics were recruited. The bladder was filled with saline at 10% bladder capacity per minute while ultrasound images were captured using a 3D abdominal probe (GE Voluson-E8) every 60 seconds. Bladder volume was estimated from 2D cross-sectional images in the sagittal and transverse planes assuming an ellipsoid geometry and from the volumetric ultrasound data by tracing the bladder outline in six planes with GE 4DView software.

Results: Preliminary data from five women showed that average volumes measured by the 2D method were consistently lower than the overall volume infused (fig.1). Average volumes from the 3D method were nearly identical to infused volumes at low bladder capacities. In middle-to-high bladder capacities, the 3D volumes underestimated the volumes from the 3D method were consistently lower than the overall volume infused (fig.1). Average volumes from the 3D method were nearly identical to infused volumes at low bladder capacities. In middle-to-high bladder capacities, the 3D volumes underestimated the

Conclusions: The ellipsoidal assumption used for the 2D method can underestimate bladder volume. 3D imaging better accounts for bladder geometry and may provide a more accurate volume estimate.
Effects of Venous Thromboembolism Prophylaxis on Urethral Reconstruction Outcomes
Frank C. Hill1, Eric Springer1, Mohan Verghese2, Krishnan Venkatesan2
1MEDSTAR Georgetown University Hospital, Washington, DC; 2MEDSTAR Washington Hospital Center, Washington, DC

Introduction: There is no standard for venous thromboembolism prophylaxis in urethral reconstruction. Recently our institution implemented Surgical Care Improvement Projects protocols to improve patient safety. Accordingly, we changed our practice to include administration of pre- and peri-operative heparin in urethroplasty. Here we evaluate the impact on urethroplasty outcomes.

Materials & Methods: We performed retrospective review of our urethroplasty database, comparing patients receiving or not receiving heparin. Outcomes analyzed included operative time, estimated blood loss (EBL), length of stay, and complications classified by the Clavien-Dindo system.

Results: From September 2012 to March 2016, 102 patients underwent urethroplasty. Forty-five patients received heparin. Patients receiving heparin had longer mean stricture length (7.9 vs 4.3 cm), with statistically significant longer operative times (260 vs. 200 min) and higher mean EBL (347 vs. 258 mL). There was a significant increase in the number of higher risk complications in patients receiving heparin. The odds of a Clavien grade 3 complication was 2.8 times greater for patients who received heparin. Multivariate analysis found that only longer operative times had a significant correlation with increased complications. One patient developed a deep venous thrombosis despite receiving heparin.

Conclusions: Heparin prophylaxis may be associated with higher EBL, longer operating room times, and more severe complications. However, it is difficult to differentiate whether these findings were due to heparin or whether patients with more complex structures and comorbidities were prone to complication and therefore more likely to receive heparin as a preventative measure. Further, prospective investigation may yield this information.

Early Results from a Randomized Trial of Concentrated Proanthoctxycanidins (PACs) for Reduction of Bacteriuria in Catheter-Dependent Veterans with Spinal Cord Injury
Samay Sappal, Randy Vince, Lance Goetz, Adam Klausner
Virginia Commonwealth University, Richmond, VA

Introduction: Neurogenic bladder in patients with Spinal Cord Injury & Disorders (SCI&D) is associated with high rates of recurrent symptomatic UTIs. The purpose of this study was to evaluate the acute effects of proanthocyanidins (PACs) in the cranberry supplement, ellura®, on bacteriuria, pyuria, and subjective urine quality in catheter-dependent veterans with SCI&D.

Materials & Methods: This study was a double-blinded, placebo-controlled trial of the PACs compound, ellura®, (36 mg/capsule), in veterans with SCI&D and neurogenic bladder requiring intermittent catheterization over a 15 day period. Participants with positive urine bacterial colonization (> 50-75K CFU/ml) were randomized to once daily ellura® or identical placebo and followed with daily (in-patients) or every-other-day (out-patients) urine cultures with colony counts (bacteriuria), microscopic urine WBC quantification (pyuria), and survey assessing urine clarity, odor, color, sediment, and overall satisfaction. A repeated measure analysis of variance was used to compare treatment vs. control and evaluate the serial trend.

Results: There were 13 participants, 7 randomized to ellura® and 6 to placebo. There was no significant decrease over the study period in CFU/ml (94.26 x 10^3 ± 2.75 x 10^3 vs. 96.20 x 10^3 ± 3.17 x 10^3, p = 0.652) and log(WBC)/hp (4.35 ± 0.40 vs. 3.36 ± 0.46, p = 0.139) in the treatment vs. the control group. Patients receiving ellura® rated the clarity (3.20 ± 0.06 vs. 3.10 ± 0.09, p = 0.184), odor (3.11 ± 0.04 vs. 3.00 ± 0.04, p = 0.086), color (3.20 ± 0.06 vs. 3.10 ± 0.07, p = 0.334), sediment (3.30 ± 0.10 vs. 3.13 ± 0.11, p = 0.276), and overall satisfaction (3.27 ± 0.08 vs. 3.13 ± 0.09, p = 0.269) of their urine as insignificantly improved compared to placebo.

Conclusions: Acutely, there was no reduction of bacteriuria and pyuria or improvement in subjective urine quality for SCI&D patients treated with ellura®.

Increased Transitional Zone Size Correlates with Increased Laser Energy Used in Holmium Laser Enucleation of the Prostate and Decreased Preoperative Urine Flow
Lawrence Lee, Ajay Puri, Patrick Shenot, Akhil Das
Thomas Jefferson University, Philadelphia, PA

Introduction: Enlargement of the transitional zone (TZ) of the prostate accounts for lower urinary tract symptoms associated with benign prostatic hyperplasia (BPH). Holmium Laser Enucleation of the Prostate (HoLEP) is an effective surgical option in Holmium Laser Enucleation of the Prostate and Decreased Preoperative Urine Flow. Laser energy used in HoLEP procedures increases with TZ size ρ = -0.31, P = 0.031). No correlation was found between TZ size and preQmax (ρ = +0.60, P < 0.05). A significant negative correlation was demonstrated between TZ size and HoLEP energy. 

Results: From September 2012 to March 2016, 102 patients underwent urethroplasty. Forty-five patients received heparin. Patients receiving heparin had longer mean stricture length (7.9 vs 4.3 cm), with statistically significant longer operative times (260 vs. 200 min) and higher mean EBL (347 vs. 258 mL). There was a significant increase in the number of higher risk complications in patients receiving heparin. The odds of a Clavien grade 3 complication was 2.8 times greater for patients who received heparin. Multivariate analysis found that only longer operative times had a significant correlation with increased complications. One patient developed a deep venous thrombosis despite receiving heparin.

Conclusions: Heparin prophylaxis may be associated with higher EBL, longer operating room times, and more severe complications. However, it is difficult to differentiate whether these findings were due to heparin or whether patients with more complex structures and comorbidities were prone to complication and therefore more likely to receive heparin as a preventative measure. Further, prospective investigation may yield this information.

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Low Amplitude Rhythmic Contractions Influence Sensations of Urgency in Patients with Overactive Bladder Syndrome

Andrew Colhou, Adam Klausner, MaryEllen Dolat, Eugene Bell, Anna Nagle, Paul Ratz, Robert Babcock, John Speich

Virginia Commonwealth University, Richmond, VA

Introduction: Low amplitude rhythmic contractions (LARC), visualized as phasic intra-vesical pressure (pves) changes, are commonly seen during urodynamics (UD). A significant rise in pves will increase bladder wall tension and can elicit an increase in sensations. This study sought to determine thresholds for pves amplitude elevations that trigger patient-reported changes in sensations during filling.

Materials & Methods: As part of an IRB-approved urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB) underwent standard UD testing and simultaneously used a real-time sensation meter to record continuous changes in sensation from 0–100% during filling. Sensation values were time-linked to pves. Normalized pves was differentiated to identify inflection points, and baseline pves was calculated via polynomial regression. Significant elevation in pves from baseline was defined as 3% normalized value, while any elevation in patient-reported sensation was considered significant. Significant phasic rises in pves were juxtaposed to sensation changes to determine event coincidence.

Results: Twelve patients underwent UD with use of the sensation meter – 3 were excluded (transducer error, fill to 30 mL, only 10% sensation reached). Average phasic pves and sensation change event frequencies during filling were similar: 2.0 ± 0.2 & 2.1 ± 0.3 cycles/min, respectively (p = 0.9). Of sensation changes, 53 ± 8% were within 10 sec of significant pves elevations (average Δpves = 20 ± 3% normalized minimum).

Conclusions: The frequency of changes in patient-reported sensation during filling correspond with phasic pves elevations, generated by LARC. Further refinement of the type, location and initial management. We evaluated how often ureteral stents were utilized in initial management of both iatrogenic and traumatic injuries and their success rate.

Materials & Methods: We reviewed patient charts for ureteral injuries, identified by ICD-9 code, from 1997 to 2016.

Results: A total of 45 patients were identified. Blunt and penetrating trauma accounted for 9 (20%) and 3 (7%) respectively, while 33 (73%) were iatrogenic. Most blunt injuries were left sided (6/9, 67%) and 8 out of the 9 (89%) were initially managed with a ureteral stent with 100% success rate. Of the 3 penetrating injuries, 2 were immediately repaired and 1 was managed with stent placement. On review of iatrogenic injuries, pyelonephritis accounted for 23 (70%), general surgical 7 (21%), urologic 2 (6%) and orthopedic 1 (3%). Most iatrogenic injuries occurred in the distal left ureter (16, 48%). Iatrogenic injuries were initially managed with stent placement in 14 cases (42%), nephrostomy in 9 (27%), and immediate surgical correction in 9 (27%). Stent placement was successful in 9 of 14 (64%) iatrogenic injuries. Diagnosis was delayed in 15 (45%) iatrogenic cases.

Conclusions: Gynecologic procedures accounted for the majority of ureteral injuries. Ureteral stents or nephrostomy were successful in managing iatrogenic injuries in the majority of the time, although many required additional surgical intervention. Stent placement was successful in managing blunt ureteral trauma.

Building a Physician Led Prostate Cancer Quality Improvement Regional Collaborative

Christopher C. Foote, Claudette Fonshell, Thomas J. Guzzo, Thomas F. Ratz, Robert Barbee, John Speich

Pennsylvania Urologic Regional Collaborative (PURC), a physician led quality improvement collaborative focused on the evaluation/improvement of CaP care in the southeastern Pennsylvania.

Materials & Methods: Institutions in southeastern Pennsylvania were voluntarily enrolled in a regional collaborative, coordinated by Healthcare Improvement Foundation and supported by Independence Blue Cross. Each institution identified a physician champion and provided an abstractor for anonymous de-identified data collection and entry into a web-based portal. Previously validated and tested data collection platform was utilized. The collaborative was modeled after Michigan Urologic Surgical Improvement Collaborative (MUSIC).

Results: Five academic institutions and one private practice voluntarily enrolled in the physician led collaborative with 77 participating urologists. After comprehensive abtractor training and in strict compliance with IRBs data collection commenced on 5/28/2015. Quarterly collaborative-wide meetings were held and anonymous practice-level data reports discussed. Prostate biopsy and imaging work group committees were created to identify performance metrics and QI targets. 2,667 eligible patients were enrolled after one year of data collection. Variation in antibiotic prophylaxis for prostate biopsies, utilization of staging imaging for low risk CaP, and utilization of active surveillance was observed between participating practices.

Conclusions: PURC successfully enrolled more than 2,500 patients across six participating sites in its first year of data collection. Significant variation in healthcare delivery was observed between practices, identifying a number of targets for standardization of care and quality improvement. Further collaborative growth across Pennsylvania is in progress.

Penetrating Injuries are More Likely to Result in Intervention Following Low Grade Renal Trauma

Matthew Brennan, Beett Styskel, Amanda Leigh Gifford, Tianyu Li, Steve Sterios, Robert Uzzo, Jay Simhan

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Introduction: Though the kidneys are the most commonly injured genitourinary organ, non-interventional strategies are often touted as the mainstay in management for the majority of renal injuries. Nevertheless, previously reported population-based data have described an overwhelmingly high rate of utilization of angiography and/or surgery for even the lowest-grade renal traumas. We evaluate presenting ER factors predictive of procedural intervention for isolated renal trauma.

Materials & Methods: We queried the prospectively maintained, largest statewide trauma registry in the country (PA Trauma-Outcomes Study) for all isolated renal injuries from 2000-2013. Therapeutic intervention and ICD-9 codes identified angiography and/or surgery immediately following ER presentation, while renal injury was stratified by AAST grade and designated through AIS codes. Multivariate models identified presenting factors associated with intervention.

Results: Of 449,422 patients, 1628 (0.4%) isolated kidney injuries were identified of which 1480 (91%) patients (77% male, median age 29 yrs [range 3-92]) had data available for analysis. Of these, 71.1% of low-grade (75/1062, AAST ≤ 3) and 36.6% of high-grade (153/418, AAST ≥ 3) renal injuries underwent intervention with angiography being the more common procedural intervention (118/228, 51.7%). Controlling for presenting ER vital signs, GCS, demographics, trauma center level designation, mechanism, and intubation status, penetrating trauma presentation (OR 9.6, CI [4.7-20.0]) was independently associated with immediate procedural intervention for low-grade renal trauma.

Conclusions: Although conservative management strategies are considered standard of care for low-grade renal trauma, penetrating traumas presenting to the ER appears to significantly influence provider decisions regarding procedural interventions for isolated low-grade renal trauma.
Monitoring Dendritic Cell Trafficking in Mice Using Multi-Spectral Imaging

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** Introduction: **Prostate cancer is a leading cause of cancer deaths, with no curative treatments once it spreads. Alternative therapies, including immunotherapy, have shown limited efficacy. We aimed to study trafficking of dendritic cells in vivo, and to modify the method of delivery of dendritic cells to optimize therapy effectiveness.

** Materials & Methods: **A novel DC labeling system was developed using 1,1'-dioxadecyltetramethyl indocarbocyanine Iodine (DiR) for in vivo fluorescent imaging. DC harvested from mice were matured, labeled, and injected intravenously, subcutaneously, or intratumorally, with or without tumor lysate, into prostate cancer bearing mice. Signal intensity was measured in vivo.

** Results: **Signal intensity at the tumor site increased over time, suggesting trafficking of DC to the tumor with all modes of injection. Subcutaneous injection showed trafficking to lymph nodes and tumor. Intravenous injection showed trafficking to lungs, intestines, lymph nodes and tumor. Intratumoral injection resulted in trafficking to spleen and lungs. Intravenous injection of unprimed DC had high signal within the tumor in vivo. Subcutaneous injection of primed DC resulted in the highest increase in signal intensity at the tumor site and lymph nodes, suggesting subcutaneous injection of primed DC leads to highest preferential trafficking of DC to the tumor site.

** Conclusions: **To our knowledge, this is the first experiment to track DC in vivo using a novel fluorescent imaging system. As little is known about trafficking of DC in immunotherapies, we hope this work will contribute to optimization of DC based vaccines for patients with advanced prostate cancer.

Increased Rates of Adverse Pathology in African American Men with Low and Intermediate Risk Prostate Cancer: Implications for Active Surveillance Eligibility

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* Temple University Hospital, Philadelphia, PA

** Introduction: **Active surveillance (AS) is gaining acceptance as a management strategy for early stage prostate cancer. We aimed to study the association between race and adverse pathology in men treated with RP for low and intermediate risk prostate cancer.

** Materials & Methods: **We reviewed data from men who underwent RP at our institution between September 2010 and June 2015. We identified patients who met the University of Toronto AS eligibility criteria, including PSA <2 ng/ml and biopsy Gleason score ≤3+4. We determined pathological outcomes and rates of adverse pathology (pathological Gleason score > 4+3, stage > pT3 or positive lymph nodes) after RP, and compared outcomes by race.

** Results: **Of 295 Caucasian and AA men who underwent RP, 186 men (63.1%) met AS eligibility criteria. Rates of adverse pathology were significantly higher in men who did not meet AS eligibility criteria compared to those that did (70.8% vs. 16.6%, p < 0.01). 216 men (72.2%) were Caucasian and 79 (26.8%) were AA. There was no significant difference in the percentage of Caucasian vs. AA men meeting AS criteria (61.9% vs. 66.2%, p = 0.50). Compared to Caucasians, AA men meeting AS eligibility criteria had significantly higher rates of adverse pathology after RP (27.5% vs. 12.3%, p = 0.01).

** Conclusions: **Among men with low and intermediate risk prostate cancer meeting liberal AS eligibility criteria, rates of adverse pathology were higher in AA men.

The Use of Percatheter Retrograde Urethrogram to Assess Urethral Healing After Urethroplasty

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** Introduction: **There is a relative paucity of literature concerning the application of pericatheter retrograde urethrogram (PUG) in evaluating post-operative healing following urethral reconstruction. Here we describe our technique and examine the outcomes of post-urethroplasty PUGs.

** Materials & Methods: **A retrospective study of our urethroplasty database was conducted and patients undergoing PUG following urethroplasty were identified. PUG was performed in a standardized fashion with patient in oblique position and penis on stretch, instilling contrast through an “angiocath” alongside indwelling urethral catheter under dynamic fluoroscopy. The image was then examined for extravasation of contrast.

** Results: **From September 2012 to March 2016, 101 urethroplasties were performed. Thirteen urethroplasties (13.9% of total urethroplasties) did not require PUGs based on the type of operation. Ninety-nine PUGs were done on 88 patients. Initial PUGs were done within 17-43 days (mean 26.0 days) following urethroplasty. Nine patients (9.1% of total patients undergoing PUG) required repeat PUGs and 1 patient required a third PUG. Only 1 patient (1.0% of total patients undergoing PUGs) presented with urinary leak and scrotal abscess after an initial PUG that showed no extravasation. There were no infectious complications related to PUG. We found PUG to demonstrate 94.4% sensitivity for detecting extravasation and 98.9% accuracy.

** Conclusions: **Our PUG technique is a safe, feasible, and reproducible technique to effectively assess urethral healing after urethroplasty and determine timing of catheter removal. This study suggests that PUG provides results comparable to voiding cystourethrography and retrograde urethrogram, which have traditionally been used to assess healing after urethroplasty.

A Peri-Procedural Povidone Iodine Rectal Preparation Decreases Bacteriuria and Bacteremia following Prostate Needle Biopsy: Final Results from a Prospective Trial

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** Introduction: **Infectious complications following transrectal ultrasound-guided prostate needle biopsy (TRUS PNB) continue to rise. Povidone iodine is a topical antiseptic that reduces surgical site microorganism colonization. We evaluated the impact of a peri-procedural povidone iodine rectal preparation (PIRP) on bacteriuria, bacteremia, and infectious complications following TRUS PNB.

** Materials & Methods: **Between March 2013 and August 2015, a prospective cohort of patients comparing the impact of a peri-procedural PIRP versus standard of care for TRUS PNB was accrued. All patients received Ciprofloxacin 500 mg the day before and morning of the biopsy. Urine, blood, and rectal cultures were obtained post-procedure and measured by colony forming units (CFUs) after 48 hour incubation.

** Results: **150 men were prospectively accrued with 95 receiving PIRP and 55 standard of care. The two cohorts were matched with respect to baseline or biopsy characteristics. In the PIRP cohort, rectal cultures before and after PIRP administration noted a 99.3% reduction in microorganism colonies (2.4 x 105 CFU/mL vs. 1.7 x 103 CFU/mL, p < 0.001). Mean urine bacterial counts following TRUS PNB were 0 CFU/mL for PIRP vs 7 CFU/mL for standard cohort (p < 0.001). Blood bacterial counts following TRUS PNB were 0 CFU/mL for PIRP vs 3 CFU/mL for standard of care (p < 0.01). Infectious complications occurred in 1% of the PIRP cohort vs. 5.5% in the standard cohort.

** Conclusions: **PIRP yields decreased rates of bacteriuria, bacteremia, and infectious complications following TRUS PNB making it a cost-effective strategy to reduce infections without need for rectal culture swabs or additional systemic antibiotics.
T Cell Responses to Intravesical Therapy in an Immune Competent Bladder Cancer Model
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Introduction: The objective of the present study was to understand the effect of intravesical BCG and chemotherapy on T cell subpopulations in an immune competent murine model of non-muscle invasive bladder cancer.

Materials & Methods: Fischer 344 rats aged 7 weeks received 1.5 mg/kg N-Nitroso-N-methyleurea (MNU) every other week for 6 weeks (4 doses). Dysplasia begins by week 8 and by week 16 the majority of rats have a NMIBC phenotype. Beginning week 8 following the first MNU dose, rats were intravesically administered 0.3 ml of BCG (Tice®), cisplatin (1 mg/ml), Mitomycin C (2 mg/ml), MMC+ BCG, or saline (n = 10 for all groups) weekly for 6 total doses. Animals were sacrificed at week 16, and bladders were processed for histopathology and digested into single cell suspensions for flow cytometry. T lymphocyte subpopulations were then compared using unpaired two-tailed t tests.

Results: Rats treated with BCG had a 42% rise in CD4+ cells compared to saline controls (p < 0.001). Animals receiving intravesical cisplatin had no significant differences in CD4+ (p = 0.15), Foxp3+ CD4+ cells (p = 0.25), or CD8+ cells (p = 0.85) vs. control. While rats treated with MMC had a 30% reduction in CD8+ cells vs. control (p = 0.03), the group receiving BCG+MMC had an equal proportion of CD8+ cells vs. control (p = 0.77).

Conclusions: In an immune competent murine model of bladder cancer, our analysis of lymphocytes in the bladder wall suggests that BCG induces a large increase in CD4+ effector T cells, without a significant change in Foxp3+ regulatory T cells or CD8+ cells.

Sarcopenia is Associated with Increasing Tumor Stage in Patients Undergoing Radical Nephroureterectomy
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Introduction: Radical nephroureterectomy (RNU) remains the gold standard for upper tract urothelial carcinoma (UTUC) in patients with normal contralateral kidney function. Sarcopenia has been implicated as a novel surrogate for predicting surgical outcomes. We investigate the association between sarcopenia and adverse perioperative or oncologic events in patients with UTUC after RNU.

Materials & Methods: Retrospective review of our institutional UTUC database identified all patients who underwent RNU from 2000-2014. Skeletal muscle index (SMI) was measured at the L3 vertebral level and standardized according to patient height (cm2/m2). Sarcopenia was defined as < 55 cm2/m2 for men and < 39 cm2/m2 for women. Logistic regression and Wilcoxon Rank Sum tests examined the relationship between sarcopenia and several independent variables.

Results: 94 patients (62 men and 32 women) with a median age of 69 years, BMI 30, Charlson Comorbidity Index 4.5, tumor size 3.5 cm, and SMI of 30.8 cm2/m2 were included. 40 patients (42.6%) were sarcopenic. Median EBL was 150 mL, OR duration was 316 minutes, and length of stay was 5.0 days. Males had higher odds of sarcopenia than females (p = 0.0004). Sarcopenia was associated with increasing tumor stage (p = 0.035), but not with adverse perioperative events (Table).

Conclusions: Sarcopenia is associated with higher tumor stage independent of disease-specific mortality. Larger studies are necessary to further define the effects of sarcopenia on RNU outcomes and patient prognosis.

Liposomal Bupivacaine to Control Post-operative Pain Following Buccal Mucosal Graft Harvesting: Short Term Results from a Randomized Controlled Trial
Robert Streblow, Jeremy Torken, Jack Zuckerman, Jeff Goodwin, Ramon Virasoro, Kurt McCammon
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Introduction: Pain following urethroplasty with buccal mucosal graft (BMG) is primarily at the harvest site and results in significant increases in patient morbidity and narcotic use. Lidocaine with epinephrine (LWE) is routinely injected for hydrodissection and hemostasis during harvesting, but contributes little to post-operative pain control. A novel liposomal formulation of bupivacaine (LB) has been introduced as a 96-hour delayed release. Infiltration of this medication may reduce post-operative pain.

Materials & Methods: A prospective, randomized, single blind controlled trial was organized with males requiring a urethroplasty and BMG. Patients were randomized to receive either LWE during BMG harvesting or LWE plus buccal infusion of LB. A standardized pain and morbidity questionnaire was performed preoperatively, then daily for the first seven days post-op. The primary endpoint was pain reduction on the 10-point numerical rating scale, with a secondary endpoint being reduction in morphine equivalents used.

Results: Ten patients were randomized to the LB group and fourteen for LWE group. Patients in the LB group had reductions in pain each of the first three postoperative days (P0D). This difference was no longer significant by P0D7. Morphine equivalent use was also lower in the LB group. There were no intraoperative complications.

Conclusions: LB appears to lower postoperative pain at the BMG harvest site in the first 3 days after surgery and also lowers narcotic use during hospital stay.

Demographic and Utilization Trends in Cytoreductive Nephrectomy Before and After the Advent of Targeted Therapy for Metastatic Renal Cell Carcinoma
James Mills, Stephen Culp, Tracey Krupski
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Introduction: There is currently no level 1 evidence demonstrating a survival benefit for cytoreductive nephrectomy (CN) in the context of targeted therapy (TT) for patients with metastatic renal cell carcinoma (mRCC). We sought to evaluate CN practice patterns pre- and post-TT and identify demographic and clinical factors predictive of undergoing CN.

Materials & Methods: Surveillance Epidemiology and End Results Program data were used to identify patients diagnosed with mRCC from 2001-2012. Statistical analysis included multivariable logistic regression analysis to identify independent predictors of undergoing CN and tests for trend using both year of diagnosis and pre- (2001-05) vs. post-TT (2006-12) time periods.

Results: Of 17,782 mRCC patients, 6,672 (37.5%) underwent CN. There were no significant differences in CN utilization either by year of diagnosis or in the pre- vs. post-TT time periods, except for African-American females, who demonstrated a significant downward trend in CN utilization with year of diagnosis (p = 0.005). Demographic factors predictive of not undergoing CN included increasing age, African-American or Hispanic race, lack of private insurance, and being treated in the Eastern United States. Hispanic females were 21 percent less likely to undergo CN compared to Hispanic males (p = 0.028).

Conclusions: We analyzed a large population-based cancer cohort and found that utilization rates of CN remained similar after the introduction of targeted therapy despite lack of level 1 evidence demonstrating a survival benefit. African-American and Hispanic patients were less likely to undergo CN compared to Caucasians and a gender discrepancy existed within the Hispanic community.
Utility of High Throughput Screening in Identifying and Repurposing Small Molecule Inhibitors for Urothelial Carcinoma
Louis Spencer Kranz, Reema Rallkar, Kai Hammerich, Priyush Agarwal
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Introduction: In this study we performed the first identified quantitative high throughput screening to identify potential targets in urothelial cancer cell lines. We noted a potential new therapy (bardoxolone methyl) and validated this compound with further in vitro studies in cell lines not included in the screen.

Materials & Methods: We screened 8 bladder cancer cell lines against 1,912 oncology-focused drugs using a 48 hr cell proliferation assay with an ATP-based readout (CellTiterGlo), for activity and potency of the compounds in a dose response manner. We identified candidate drugs based on two-parameters: 1) more than 70% inhibition at 48 hours 2) a curve class of -1.1/-1.2 indicating curve class with good fit (r2 > 0.9). Follow up assays in additional cell lines, including viability, invasion, cell cycle and NRF2 pathway activation were used as confirmation of efficacy of the bardoxolone methyl.

Results: Ward clustering analysis of the initial cell lines is demonstrated in figure 1.

Among the candidate drugs which were most active in all compounds, bardoxolone methyl was the most attractive based on IC 50 and previous human safety studies. Invasion assays and pathway activation analysis demonstrated dose dependent success in inhibition of urothelial cancer cell lines and cell cycle arrest.

Conclusions: Quantitative high throughput screening was successful in identifying bardoxolone methyl as a novel treatment of urothelial carcinoma in vitro.

PD26

New Prostate Cancer Grading System Predicts Long Term Survival Following Surgery for Gleason Score 8-10 Prostate Cancer
Won Sik Ham, Heather Chalfin, Zhaoyong Feng, Bruce J. Trock, Jonathan I. Epstein, Carling Cheung, Elizabeth Humphreys, Alan W. Partin, Misop Han
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Introduction: Newly proposed five-tiered prostate cancer grading system (PCGS) divided Gleason score (GS) 8-10 disease into GS 8 and GS 9-10 based on biochemical recurrence (BCR) following radical prostatectomy (RP) as an outcome. However, BCR does not necessarily portend worse survival outcomes. We assess the long-term survival outcomes following RP for GS 8 versus 9-10 disease.

Materials & Methods: Of 23,918 men who underwent RP between 1984 and 2014, there were 721 men with biopsy (Bx) GS 8-10, and 1,047 men with RP GS 8-10. We divided Gleason score (GS) 8-10 disease into GS 8 and GS 9-10 based on biochemical recurrence (BCR) following radical prostatectomy (RP) as an outcome. However, BCR does not necessarily portend worse survival outcomes. We assess the long-term survival outcomes following RP for GS 8 versus 9-10 disease.

Results: Among men with Bx GS 8-10, 115 died (82 due to PC) with a median follow up of 4 years (range: 1-29). Of men with RP GS 8-10, 221 died (151 due to PC) with a median follow-up of 5 years (range: 1-28). PC-specific survival rates were significantly lower for men with GS 9-10 compared to men with GS 8 (p < 0.01 for all).

Conclusions: Men with GS 9-10 had higher ACM and PCSM rates compared to those with GS 8. GS 8 and GS 9-10 PC should be grouped separately as suggested by the new PCGS.

PD27

Metabolic Syndrome and its Components are Not Associated with Increased Likelihood of Prostate Cancer in Minority Populations
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Introduction: It remains unclear whether metabolic syndrome and its components (obesity, hypertension, dyslipidemia and insulin-resistant diabetes mellitus) are associated with an increased risk of prostate cancer. We aimed to characterize associations between the components of metabolic syndrome and the presence of prostate cancer, and assess whether these associations differ by race.

Materials & Methods: Patients undergoing prostate biopsy between July 2012 and November 2015 at our institution were included. Status and severity of the components of metabolic syndrome were noted at time of biopsy.

Results: 703 patients (mean age: 65.33, median PSA 5.9 ng/ml, median prostate volume 42 cc) comprised the cohort including 123 (17.3%) Caucasians, 426 (60.6%) African Americans and 154 (21.2%) Hispanic men. Associations between metabolic syndrome parameters and the likelihood of positive biopsy, with patients stratified by race, are shown in the table.

Conclusions: This data do not support strong associations between metabolic syndrome components and the risk of prostate cancer. For certain metabolic syndrome components, we noted a differential effect by race. Further research is needed to confirm or refute the variable effect among races of these comorbidities on prostate cancer risk.

PD28

African-American Men with Prostate Cancer have Larger Tumor Volume than Caucasian Men Despite No Difference in Serum Prostate Specific Antigen
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Introduction: Recent research suggests that among men with low-grade prostate cancer, African Americans (AA) produce less prostate specific antigen (PSA) than Caucasians. We investigated racial differences in PSA levels and tumor volume among men with prostate cancer, regardless of tumor grade.

Materials & Methods: We identified men from our institutional prostate cancer database that underwent radical prostatectomy between 2012 and 2015. Clinicopathologic parameters were compared by race. Multivariable linear regression was then performed to identify factors associated with PSA and tumor volume, adjusting for race, age, body mass index, and pathologic parameters.

Results: 178 men were included in the analysis, including 123 (69.1%) Caucasian and 55 (30.9%) AA. PSA did not differ significantly between AA and Caucasian men (9.1 vs. 7.8, p = 0.41). In contrast, tumor volume was significantly greater in AA men (13.3 vs. 9.0 cc’s, p < 0.01). The results of the multivariable linear regression models are shown in the table. AA race was not associated with PSA (p = 0.27) but was associated with tumor volume (p < 0.01).

Conclusions: AA men who undergo radical prostatectomy have larger tumor volume than Caucasian men despite having similar PSA levels. This association suggests that prostate cancers in AA men may produce less PSA than in Caucasian men. These findings have implications for prostate cancer screening and treatment, as PSA may underestimate the presence or extent of cancer in AA men.
Scientific Session IV
PD29 – PD31

PD29

Tele-Cystoscopy: A Pilot Study to Widen Access to Bladder Cancer Surveillance
Jessica N. Jackson, Helen Hougen, James Mills, Jennifer Lobo, Kathleen Lee, Thomas Corey, Noah Schenkman, Tracey Krupski
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Introduction: Urology workforce shortages in rural areas lead to decreased access to surveillance cystoscopy. To address this, we developed a tele-cystoscopy infrastructure whereby allied health professionals (AHPs) perform surveillance cystoscopies that are transmitted real time for interpretation by a board-certified urologist. We hypothesized that after completing our training program, tele-cystoscopy and traditional cystoscopy findings will be comparable.

Materials & Methods: Once the AHP underwent training and demonstrated proficiency (Figure 1) we employed a sequential dual-cystoscopy model. Patients followed for NMIBC received tele-cystoscopy and, prior to removing the scope, a urologist blinded to the findings performed a traditional cystoscopy. We compared the transmitted tele-cystoscopy images with traditional cystoscopy images.

Results: One AHP completed training and performed 50 cystoscopies in preparation. We performed 14 dual cystoscopies and found a 93% (13/14) concordance between the tele-cystoscopy and traditional cystoscopy findings, including one tumor seen in both. The only discrepancy was a bladder diverticulum identified by tele-cystoscopy but missed by traditional cystoscopy. Qualitatively, AHPs were most satisfied with training with fresh tissue cadavers, which offered high fidelity training and opportunities for repetitive practice.

Conclusions: The tele-cystoscopy model has the advantage that AHPs do not need to interpret the findings. The high concordance of findings in this pilot field study between tele-cystoscopy and traditional cystoscopy suggests that tele-cystoscopy is a feasible model to project urologic manpower to underserved areas.

PD30

Comparison of Urodynamics and Non-Invasive Accelerated Hydration in Characterizing Participants with Urinary Urgency
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Introduction: Diagnosis of overactive bladder (OAB) can involve an invasive urodynamic procedure. This study’s objective was to compare real-time bladder sensation during urodynamics (UD) with non-invasive hydration in patients with OAB.

Materials & Methods: Distinct groups of volunteers with OAB were enrolled in accelerated hydration or standard UD studies. The hydration group drank 2L of Gatorade-G2® and complete two fill/void cycles. Both groups recorded standardized verbal sensory thresholds and real-time sensation (0-100% scale) using a novel “sensation meter.”

Results: In the hydration group, filling duration decreased and voided volume did not significantly increase from fill1 to fill2. UD duration was shorter than either hydration fill; however, the UD fill volume was not statistically larger than the total volume of either hydration fill. Estimated volumes for sensory thresholds of First Sensation, First Desire, and Strong Desire in fill1 were different from identical thresholds in the UD group. The UD sensation–volume curve was not statistically different from hydration fill1 at sensations < 30%, but fill2 showed a left-shift compared to fill1 and UD at sensations 25%-50%.

Conclusions: This study demonstrates a non-invasive hydration protocol to characterize bladder sensation in participants with OAB, which provides data consistent with UD studies. Differences between fill1 and fill2 may reveal dynamic characteristics of the bladder that cannot be identified by a single UD fill and suggest that bladders in subjects with OAB may undergo acute changes in bladder compliance, tone, and/or sensation. Multiple fill/void cycles may be useful in the sub-categorization of individuals with OAB.

PD31

Financial Relationships Between Urologists And Industry: An Analysis of Open Payments Data
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Introduction: The Physician Payment Sunshine Act was enacted to “shine” light on the financial relationships between physicians and the medical device and pharmaceutical industry. We sought to examine the non-research related financial relationships between urologists and industry in US using the latest Open Payments data.

Materials & Methods: A descriptive analysis of Open Payments data released by the Centers for Medicare & Medicaid Services for 2014 was performed. The payments were grouped into American Urological Association’s sections based on the physicians’ zip codes.

Results: There were 232,207 payments totaling $32,418,618 made to 8618 urologists (73.6% of practicing urologists in the US) during calendar year 2014. The median payment was $15. While the majority of the individual payments (68%) were ≤ $20, 82% of the urologists in the database received > $100 from industry during 2014. Most commonly reported payment type was food and beverages (88%), but this only represented 14.5% ($4.7M) of the sum of payments. Speaker fees constituted 24.3% ($7.8M) of the sum of payments. Southeastern section had the highest proportion of practicing urologists receiving payments at 82.8% (2,062/2,491) and the highest median annual payment per physician ($422). Mirabegron and sacral nerve neurostimulator was the most common drug and device respectively associated with payments.

Conclusions: Nearly 75% of urologists in US received non-research payments from industry in 2014. Most individual payments were less than $20 in value but the majority of urologists received more than 100 dollars in aggregate during the study year, with most of the money going toward speaker fees.

PD32

The Technique of V-Y Flap Scrotoplasty (VYFS): A Novel, Easy to Perform Ancillary Maneuver at the Time of Penile Implantation
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Introduction: Penoscrotal web reduction (PWR) at the time of inflatable penile implantation (PI) has demonstrated improved patient satisfaction and perception of phallic length. Nevertheless, previous PWR techniques often result in a large wound defect requiring complex closure and may pose technical challenges for lower volume implanters. Here, we describe our one-year experience with a novel approach, termed VYFS, for PWR at the time of PI.

Materials & Methods: From December 2014-December 2015, all patients undergoing PWR at the time of PI were enrolled. PI was performed. The postoperative outcomes were assessed.

Results: 26 patients underwent PI with VYFS. With a mean follow-up of 4.5 months (2-12), patients experienced minor wound complications and were managed successfully with local wound care. One device related complication (1/26, 3.8%) was noted in a patient that underwent ectopic reservoir placement with delayed reservoir herniation. Not directly related to the scrotoplasty, this patient required a reservoir revision to the space of Retzius.

Conclusion: Our approach to PI through VYFS offers optimal tailoring of the penoscrotal junction and is an easy alternative to previously described techniques that often result in a large penoscrotal wound necessitating complex closure. Additional objective assessment of patient satisfaction following this novel approach is currently underway.
PD33

Failed Primary Bladder Exstrophy Closure with Osteotomy: A Multivariate Analysis of a 25-year Experience

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Introduction: A successful primary bladder exstrophy closure provides the best opportunity for patients to achieve a functional closure and urinary continence. Use of osteotomy during initial closure has significantly improved success rates, however failures can still occur. This study aimed to identify factors that contribute to a failed primary exstrophy closure with osteotomy.

Materials & Methods: A prospectively-maintained institutional database was reviewed for classic bladder exstrophy patients who were primarily closed with osteotomy who were primarily closed with osteotomy at our institution (2008-2014) without a diagnosis of prostate cancer and 2 patients with a post-operative diagnosis of AUSx. Two-tailed t-test, Wilcoxon rank sum test, and chi-square tests were used for unadjusted analysis. Logistic regression with stepwise backward elimination produced a multivariate model, presented as odds ratios (OR) with 95% confidence intervals (CIs).

Results: The final cohort consisted of 585 men who underwent EP or LP for BPH at our institution (2008-2014) without a diagnosis of prostate cancer and 2 patients with a post-operative diagnosis of AUSx. Two-tailed t-test, Wilcoxon rank sum test, and chi-square tests were used for unadjusted analysis. Logistic regression with stepwise backward elimination produced a multivariate model, presented as odds ratios (OR) with 95% confidence intervals (CIs). Results: The final cohort consisted of 585 men who underwent EP or LP for BPH at our institution (2008-2014) without a diagnosis of prostate cancer and 2 patients with a post-operative diagnosis of AUSx. Two-tailed t-test, Wilcoxon rank sum test, and chi-square tests were used for unadjusted analysis. Logistic regression with stepwise backward elimination produced a multivariate model, presented as odds ratios (OR) with 95% confidence intervals (CIs).

Conclusions: The ultimate goal of male bladder exstrophy closure is to achieve a functional closure and urinary continence. Factors that contribute to failure include age, obesity, and severity of exstrophy.

PD35

Impaired Immunological Synapse In Sperm Associated Antigen 6 (SPAG6) Deficient Mice: New Insights Into Immune Infertility

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Introduction: Sperm-associated antigen 6 (SPAG6) was discovered as a target protein for anti-sperm antibodies. As a component of the “9+2” axoneme, SPAG6 is critical for cilia and flagellar motility. Its role in immune system development and adaptive functions is unknown. While immune cells lack a cilium, the immunological synapse is a surrogate cilium as it utilizes the same machinery as ciliogenesis including the nucleation of microtubules at the centrosome. We hypothesize that SPAG6 regulates immunological synapse formation and function, which may provide insight into immune causes of infertility.

Materials & Methods: WT mice were irradiated and reconstituted with WT or Spag6KO bone-marrow. Actin clearance and centrosome polarization at the synaptic cleft or “bifurcation point” of WT and Spag6KO mice is analyzed using immuno-histochemistry in order to examine synapse formation.

Results: SPAG6 is required for optimal synapse formation and function. This work reveals the potential controllability of immune deficiency and immune infertility. Impaired immunological synapse formation in patients with SPAG6-associated infertility may precipitate chronic inflammation in the male reproductive tract and decrease immune-modulatory factors that prevent sperm autoimmunization.

Conclusions:SPAG6 is required for optimal immunologic synapse formation and function. This work reveals the potential controllability of immune deficiency and immune infertility. Impaired immunological synapse formation in patients with SPAG6-associated infertility may precipitate chronic inflammation in the male reproductive tract and decrease immune-modulatory factors that prevent sperm autoimmunization.

PD34

Robotic Ureteroplasty Using Buccal Mucosa Graft for the Management of Complex Ureteral Strictures

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Introduction: Buccal mucosa is well-suited for grafting in the urinary tract as it is easy to handle, compatible with a wet environment, and has a highly vascular lamina propria that facilitates imposition and inosculation. Although buccal mucosa grafts are widely utilized in urethroplasties, their use in ureteroplasties is limited. We describe robotic ureteroplasty with buccal mucosa graft (RU-BMG) for the management of complex ureteral strictures not amenable to primary ureteroureterostomy.

Materials & Methods: We retrospectively reviewed 10 patients who underwent RU-BMG between September 2014 and March 2016. An orotinal wrap was performed concomitantly in all cases. Ureteral stents were removed 6 weeks postoperatively. On follow-up, patients were assessed for: clinical success, the absence of symptoms from ureteral pathology; and radiological success, the absence of ureteral obstruction on renal scan and serial ultrasounds.

Results: Six of 10 (60%) patients had proximal and 4/10 (40%) patients had mid ureteral strictures. Seven of 10 (70%) patients had previously undergone a failed ureteral reconstruction. All 10 patients underwent successful RU-BMG. The median length of strictures was 3 centimeters (range 2-5). The median operative time was 225 minutes (range 126-344) and estimated blood loss was 100 milliliters (range 50-200). There were no intraoperative complications. The median length of stay was 1.5 days (range 1-6 days). At a median follow-up of 5 months (range 1-19), all cases with follow-up > 6 weeks were clinically and radiologically successful.

Conclusions: RU-BMG is feasible and effective in managing complex proximal and mid ureteral strictures not amenable to primary ureteroureterostomy.

PD36

Failed Primary Bladder Exstrophy Closure with Osteotomy: A Multivariate Analysis

Amar Raval, Ali Syed, Benjamin Scott, Ajay Puri, Perry Weiner, Akhil Das, Bradley Figler
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Introduction: While anterior urethral strictures (AUSxs) following Laser and Electrocautery Transurethral Prostatic Surgery

Anterior Urethral Stricture following Laser and Electrocautery Transurethral Prostatic Surgery

Amar Raval, Ali Syed, Benjamin Scott, Ajay Puri, Perry Weiner, Akhil Das, Bradley Figler
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Introduction: While anterior urethral stricture (AUSx) is a well-described risk of transurethral resection, risk of AUSx after electrocautery (EP) vs. laser transurethral prostatic surgery (LP) has not been studied. We sought to compared rates of AUSx following EP and LP.

Materials & Methods: Claims data were used to identify 1) patients who underwent EP or LP for BPH at our institution (2008-2014) without a diagnosis of prostate cancer and 2) patients with a post-operative diagnosis of AUSx. Two-tailed t-test, Wilcoxon rank sum test, and chi-square tests were used for unadjusted analysis. Logistic regression with stepwise backward elimination produced a multivariate model, presented as odds ratios (OR) with 95% confidence intervals (CIs).

Results: The final cohort consisted of 585 men who underwent EP (n = 235) or LP (n = 350). Median follow-up days were 727 for EP and 493 for LP (p < 0.01). Pre-operative AUSxs was present in 9 (4%) EP and 6 (2%) LP patients (p = 0.12). Post-operative AUSxs was present in 16 (6.8%) EP and 9 (2.6%) LP patients (p = 0.02) with proximal bulbar/membranous urethra in 12 (4.8%), bulbar urethra in 7 (28%), meatus/vesicourethral in 2 (8%) and not specified in 4 (16%). Adjusting for age and sheath size, LP was associated with a lower likelihood of AUSx (OR 0.34, 95% CI 0.12-0.98) in patients with no pre-operative AUSx. Post-operative AUSxs was present in 9 (4%) EP and 6 (2%) LP patients (p = 0.12). Pre-operative AUSxs was present in 9 (4%) EP and 6 (2%) LP patients (p = 0.12). Post-operative AUSxs was present in 16 (6.8%) EP and 9 (2.6%) LP patients (p = 0.02) with proximal bulbar/membranous urethra in 12 (4.8%), bulbar urethra in 7 (28%), meatus/vesicourethral in 2 (8%) and not specified in 4 (16%). Adjusting for age and sheath size, LP was associated with a lower likelihood of AUSx (OR 0.34, 95% CI 0.12-0.98) in patients with no pre-operative AUSx.

Conclusions: In this modern single-institution cohort, LP was associated with a lower likelihood of post-operative AUSxs than EP. This study demonstrates a novel advantage of LP over EP for BPH treatment.
One-stage Urethroplasty for Panurethral Stricture - the Washington Hospital Center Experience

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Introduction: Urethral stricture disease occurs most commonly in the bulbular urethra and treatment is fairly standardized. However, panurethral stricture (>8 cm, involving both bulbar and penile urethra) still presents a challenge, with a wide variety of approaches described. We review our experience using the Kulkarni technique, to access and repair the entire length of stricture in one-stage via perineal incision.

Materials & Methods: We retrospectively reviewed our urethral stricture database to identify patients with panurethral stricture disease treated with urethroplasty. We tabulated patient characteristics, peri-operative data and outcomes.

Results: Seventeen patients underwent single-stage full-length urethroplasty for panurethral stricture. Mean patient age was 55 years; mean stricture length was 13.6 cm, ranging from 8-20 cm; mean BMI was 28.7. Stricture etiology was idiopathic in 9 patients, iatrogenic in 6, and Lichen Sclerosus in 2. All patients had undergone previous instrumentation for stricture disease, 1 patient had previous reconstruction using a scrotal flap. At a mean follow-up of 9.8 months, 4 patients had recurrence of stricture - a success rate of 76.5%. The recurrences were not full-length, 3 were meatal stenosis, 1 had a stenosis at the anastomotic junction of two oral mucosal grafts.

Conclusions: The one-stage urethroplasty described by Kulkarni is a reproducible technique. In contrast to earlier series, lichen sclerosus was not a common etiology of panurethral stricture.

Day of Catheter Removal May Predict Cure Rates in Men Undergoing the Advance Sling for Post-Prostatectomy Incontinence at Extended Follow Up (≥ 24 Months)

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Introduction: The male urethral sling (MUS) is a minimally invasive procedure for managing post-prostatectomy incontinence (PPI) with excellent success. The optimal perioperative care of these patients is unknown. We investigated whether day of indwelling urinary catheter (IUC) removal was predictive of cure in those with ≥24 months of follow-up.

Materials & Methods: We performed a retrospective analysis of patients who underwent placement of the AdVance® MUS between 2008 and 2014. Cure was defined as no pads per day (PPD).

Results: A total of 108 patients were available for analysis. Median follow-up was 29.8 months (IQR 19.5-42.6). Thirty-seven patients had sufficient follow-up (≥24 months) for inclusion in our analysis of cure rates (20 for POD0, 17 for POD1). IUC removal on POD1 was associated with lower post-operative acute urinary retention (AUR) (3/17 [17.7%] vs. 11/20 [55%]; p = 0.02), lower post-operative PPD (median 0 [IQR 0-1] vs. median 1 [IQR 0-1]; p = 0.03), and improved cure rates (10/17 [58.8%] vs. 5/20 [26.3%]; p = 0.048). In a multivariate analysis, only day of IUC removal (p = 0.04) and pre-operative PPD (p = 0.02) were predictors of cure.

Conclusions: IUC removal on POD1 vs. POD0 was associated with improvements in post-operative AUR and long-term cure rates in those undergoing the AdVance® MUS for PPI.

Table 1. Patient characteristics and outcomes based on day of IUC removal in patients with ≥24 months of follow-up

| Day of IUC Removal | PFD ≤ 1 Pad | PFD > 1 Pad | PPD ≤ 1 Pad | PPD > 1 Pad | Age (Years) | Pre-Radiation | Pre-PSMT | History of BNC | Palpal/Urethra | OG Pre-operatively | Pre-operative PPD | Non-operative PPD | Cure Rates | Median follow-up (Months) |
|--------------------|------------|------------|-------------|-------------|-------------|--------------|-----------|--------------|---------------|-----------------|-----------------|-----------------|------------------|-------------|---------------------|
| POD0               | 64.5 ± 7.9 | 64.5 ± 7.0 | 5.93 ± 1.9  | 5.93 ± 1.7  | 15/20       | 5/5 (100%)   | 5/5 (100%)| 5/5 (100%)   | 5/5 (100%)    | 1/5 (20%)       | 2/3 (66.6%)     | 0/3 (0%)        | 0.012            | 0.088   |
| POD1               | 64.5 ± 7.9 | 64.5 ± 7.0 | 5.93 ± 1.9  | 5.93 ± 1.7  | 11/20       | 9/10 (90%)   | 3/10 (30%)| 5/10 (50%)   | 5/10 (50%)    | 0/10 (0%)       | 1/10 (10%)      | 5/10 (50%)      | 0.012            | 0.088   |

Prognostic Implications of Renal Vein Involvement Versus Perinephric Fat Involvement in T3a Renal Cell Carcinoma

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Introduction: The TNM staging system is used globally as the standard for interpreting the extent of cancer. Currently, T3a renal cell carcinoma is classified as tumor extending into the perinephric fat or renal vein. Our hypothesis is that renal vein involvement portends a worse prognosis as compared to perinephric fat involvement.

Materials & Methods: Our data was gathered from the medical records of all patients who underwent radical or partial nephrectomy at our institution by a single group of urologists between 2000 and 2014. Overall and disease-free survival was compared among patients with renal vein involvement and perinephric fat involvement. Gender, smoking status, age at diagnosis, BMI, tumor grade, tumor size, and tumor histology were also analyzed.

Results: Of 140 patients, 42 patients were found to have renal vein involvement. Mean follow-up was 52.1 months (0.3-183.4) versus 28.8 months (0.3-98.0) for patients with perinephric fat involvement and renal vein involvement, respectively. Kaplan-Meier analysis using log rank comparison demonstrates lower overall survival (p < 0.048) and disease-free survival (p < 0.048) for patients with renal vein involvement.

Conclusions: In our study, patients with T3a renal cell carcinoma that have renal vein involvement as opposed to perinephric fat involvement have lower overall and disease-free survival. With this in mind, we propose that the TNM classification system should be amended to reflect the differences between these two very different disease states.
PD39 – PD45

Scientific Session VI - Nephrectomy/Nephroureterectomy

PD41

Evaluation of Percutaneous Renal Mass Biopsy Techniques and Diagnostic Outcomes at Johns Hopkins Hospital

Sasha Druskin, Sara Wobker, Christopher Vandenbussche, Mark Ball, Michael Gorin, Michael Johnson, Christian Pavlovich, Mohammad Allaf, Phillip Pierorazio
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Introduction: Renal masses are increasingly managed with observation or ablative techniques. In this setting, percutaneous fine-needle aspiration (FNA) and core biopsy (CB) may have a growing role. We sought to assess the diagnostic abilities of these techniques.

Materials & Methods: We reviewed pathology reports of renal mass biopsies performed over the last 10 years. Overall diagnostic rate (DR), as well as rates of RCC subtype and Fuhrman grade assignment were determined. Trends in the usage of FNA and CB over time were assessed.

Results: 328 biopsies were identified (100 FNA; 228 FNA+CB). DR was 81.4% overall (58% for FNA only; 91.7% for FNA+CB). For FNA+CB and FNA, samples were diagnosed as RCC, other cancers, and benign in 54.4%, 15.4% and 21.9%, and 21%, 17% and 20% of cases, respectively. RCC diagnoses included subtype in 86.3% of FNA+CB and 71.4% of FNA, and Fuhrman grades in 56.8% and 10%, respectively. Dividing all cases into tertiles by date of biopsy, the earliest, middle, and latest tertile used FNA+CB 44%, 80.7%, and 83.6%, respectively. DR also increased by tertile: 75.2%, 84.4% and 84.5%, respectively, as did the rate of reported Fuhrman grade (11.8%, 62.7% and 61.7%) and RCC subtype (58.8%, 92.2% and 91.7%).

Conclusions: FNA+CB (vs. FNA alone), had higher DR and reporting rates of RCC subtype and Fuhrman grade. Throughout the study period, FNA was increasingly combined with CB; this was associated with an increase in DR as well as reporting of RCC subtype and Fuhrman grade.

PD42

Genitourinary Paragangliomas: An Analysis of Seer 18 (2000-2012)

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Introduction: Extra-adrenal paragangliomas (PGL) are infrequent, benign, neuroendocrine tumors arising from chromaffin cells of the autonomic nervous system. While most develop within the head, neck, and trunk, they have rarely been reported in the genitourinary (GU) tract. Due to the paucity of literature on the rates of GU paraganglioma, our study aims to describe demographic, pathologic, and clinical characteristics of GU PGL and compare them to non-GU sites of PGL.

Materials & Methods: Population based information on PGL from SEER 18 was used to compare data on GU and non-GU PGL diagnosed from 2000 through 2012. Descriptive analysis was performed.

Results: Of the 299 cases of PGL retrieved, 28 (6.7%) arose from the GU tract. GU PGL were less common in whites compared to PGL at other sites (p=0.04). As expected, most GU PGLs (83.3%) were located in the bladder. Only 50% of GU PGLs were organ confined at the time of presentation. There were 2 (10%) cause-specific deaths in GU PGL group. All PGLs were treated with surgery. Non-GU PGL tumors arose mostly within the endocrine system, and resulted in deaths in 24% of patients.

Conclusions: GU PGLs represents around 7% of all PGL cases, and is found less commonly in whites compared to non-GU PGL. Bladder represents the most common site of involvement. Surgery is the mainstay of treatment of GU PGLs.

PD43

Lymphadenectomy at the Time of Radical Nephrectomy for Upper Tract Urothelial Cancer Does Not Adversely Impact Perioperative Surgical Outcomes

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Introduction: Radical nephrectomy (RNU) is the referent standard for management of non-metastatic upper tract urothelial cancer (UTUC). The impact of lymph node dissection (LND) on operative morbidity of RNU is incompletely defined. We investigate perioperative outcomes associated with lymphadenectomy during RNU for UTUC.

Materials & Methods: A retrospective review identified 103 individuals who underwent a RNU for UTUC from 2002-2015. Wilcoxon Rank Sum Test and Chi-Square test were used to compare variables for patients with and without a lymphadenectomy. Within the lymphadenectomy cohort, the median number of lymph nodes removed was calculated to dichotomize this subset.

Results: Of the 103 patients who underwent RNU, 48 (47%) had a lymphadenectomy performed. Comparing the two groups (LND vs. no LND), there were no differences in estimated blood loss, operative time, length of hospital stay, comprehensive complication index (CCI), and total complications. (Table) Among the 48 patients that had lymphadenectomy performed, the median number of lymph nodes removed was 3.9. When dichotomizing by the median number of lymph nodes, there were no differences in estimated blood loss, operative time, or length of hospital stay. Additionally, CCI and total complications were found unexpectedly to be greater in the group with fewer lymph nodes removed.

Conclusions: In this RNU cohort, lymphadenectomy (and extent of dissection) was not associated with adverse perioperative outcomes.

PD44

Extra-adrenal paragangliomas (PGL) are infrequent, benign, neuroendocrine tumors arising from chromaffin cells of the autonomic nervous system, and resulted in deaths in 24% of patients.

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Penn State Hershey Medical Center, Hershey, PA

Introduction: Extra-adrenal paragangliomas (PGL) are infrequent, benign, neuroendocrine tumors arising from chromaffin cells of the autonomic nervous system, and resulted in deaths in 24% of patients.

Materials & Methods: A retrospective review identified 103 individuals who underwent a RNU for UTUC from 2002-2015. Wilcoxon Rank Sum Test and Chi-Square test were used to compare variables for patients with and without a lymphadenectomy. Within the lymphadenectomy cohort, the median number of lymph nodes removed was calculated to dichotomize this subset.

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Conclusions: In this RNU cohort, lymphadenectomy (and extent of dissection) was not associated with adverse perioperative outcomes.
Identification of Surgical Complications in Partial and Radical Nephrectomies: Assessment of the Traditional Surgical Morbidity and Mortality Conference and a Manual Chart Review Compared with the National Surgical Quality Improvement Program

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Introduction: Traditionally, surgical departments have tracked perioperative complications through Morbidity and Mortality (M&M) conferences or by Manual Chart Review (MCR), however more hospitals are moving towards utilizing a national database. The purpose of this study was to compare the detection rate of perioperative complications for partial and radical nephrectomies reported in M&M and MCR to the National Surgical Quality Improvement Program (NSQIP).

Materials & Methods: We performed a retrospective MCR on all patients who underwent partial/radical nephrectomies from 4/2014-7/2015 in our IRB approved institutional database. The self-reported departmental M&M database was queried for partial/radical nephrectomies. We then determined the sensitivity of M&M and MCR compared to NSQIP for the identification of perioperative complications.

Results: 4264 patients were identified with a partial/radical nephrectomy. We identified 41 complications (9%) which were identified in all 3 databases. NSQIP detected 18 complications (18 patients), M&M revealed 15 complications (15 patients) and MCR detected 18 complications (18 patients). From 128 partial nephrectomies, NSQIP and M&M detected 12 complications (12 patients) and MCR detected 16 complications (16 patients). From 14 radical nephrectomies, NSQIP and MCR detected 2 complications (2 patients) and M&M revealed 2 complications (2 patients).

Conclusions: Compared with NSQIP, M&M and MCR have lower sensitivities for the detection of perioperative complications in our cohort. Complications arising from radical nephrectomies were more likely to be identified than partial nephrectomies irrespective of M&M or MCR. NSQIP may become a primary tool for urologic departments to learn from their performance.

2016 MA-AUA Annual Meeting Abstracts
Introduction: The GPS Assay is a validated, biopsy-based gene expression assay that provides an individualized estimation of the likelihood of favorable pathology at the time of surgery. Herein we report patient and physician perceived value of the GPS and its impact on patients’ decisional conflict in men with newly diagnosed low risk PCA.

Materials & Methods: PCA patients with NCCN® very low (VL), low (L), or intermediate (Int) risk received GPS in a prospective observational study. The first 298 study patients with evaluable GPS were included in this analysis. Urologists reported on perceived utility of the test and changes in confidence in treatment plan following discussion of the test results. Physicians reported perceived utility of the test and completed the Decisional Conflict Scale (DCS, 0-100) before and after receiving the results. Low decisional conflict was defined as DCS ≤ 25.

Results: Patients were enrolled from 22 community sites in US with 26% NCCN VL, 44% L and 30% Int. Physicians found the GPS useful in 91% of cases; in 93% of cases GPS increased confidence in treatment recommendations. 96% of patients reported perceived utility of the test and completed the Decisional Conflict Scale (DCS, 0-100) before and after receiving the results. Low decisional conflict was defined as DCS ≤ 25.

Conclusions: For newly diagnosed patients with low risk PCA, the GPS assay can play a useful role in improving physician confidence in treatment recommendations and reducing decision conflict for patients.

Effect of Individualized Antibiotic Prophylaxis on Rate of Infection due to Prostate Needle Biopsy

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Introduction: Transrectal prostate needle biopsy (TPNB) carries a high risk of post-operative infection that is rising yearly, with antibiotic resistance of rectal bacteria a major contributing factor to this trend. To minimize infection due to TPNB, a course of two broad-spectrum oral antibiotics and one injectable antibiotic is practiced widely as standard practice for antibiotic prophylaxis. While this strategy maintained historically low infection rates, over-use of antibiotics can adversely affect patients’ health and promote growth of antibiotic-resistant organisms. In the interest of antibiotic stewardship, a policy of rectal swabbing and targeted prophylaxis based on individual resistance profile was implemented in April 2015. The effect of these changes on practice infection rates will help determine future prophylaxis protocols.

Materials and Methods: The data used for this report were gathered from electronic medical records, including rectal swab results and antibiotics used. Data were self-reported by practice physicians. Infection is defined as any adverse event requiring physician attendance, such as fever, hospitalization, or sepsis.

Results:

<table>
<thead>
<tr>
<th>Result of Data from April 2015-March 2016 TPNB Cases</th>
<th>Aggregate Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of Patients Biopsied</td>
<td>250</td>
</tr>
<tr>
<td>Total Number of Patients Swabbed</td>
<td>228</td>
</tr>
<tr>
<td>Total Percentage of Patients Stratified</td>
<td>97.5%</td>
</tr>
<tr>
<td>Total Number of Retained Patients</td>
<td>18</td>
</tr>
<tr>
<td>Percentage of Retained, Stratified Patients</td>
<td>52.7%</td>
</tr>
<tr>
<td>Total Number of Patients Given No Prerense</td>
<td>194</td>
</tr>
<tr>
<td>Total Percentage of Patients Given No Prerense</td>
<td>82.4%</td>
</tr>
<tr>
<td>Total Number of Patients Given INIV</td>
<td>34</td>
</tr>
<tr>
<td>Total Percentage of Patients Given INIV</td>
<td>45.3%</td>
</tr>
<tr>
<td>Total Number of Patients Given Prophylaxis</td>
<td>124</td>
</tr>
<tr>
<td>Total Percentage of Patients Given Prophylaxis</td>
<td>60.7%</td>
</tr>
<tr>
<td>Total Number of Patients Given Prophylactic</td>
<td>19</td>
</tr>
<tr>
<td>Total Percentage of Patients Given Prophylactic</td>
<td>15.3%</td>
</tr>
<tr>
<td>Percentage of Infections April 2016-April 2017</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

Conclusions: The results indicate that individualized antibiotic prophylaxis based on rectal bacterial culture results may be an effective strategy to reduce antibiotic usage while maintaining a historically low infection rate. These data will be used to guide future practice protocols, and to contribute to the growing body of research concerning antibiotic prophylaxis for TPNB.
BMI Does Not Impact Quality of Life Outcomes After Robotic Prostatectomy
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Introduction: Prior studies of body mass index (BMI) and quality of life after robotic-assisted laparoscopic radical prostatectomy (RALP) demonstrate mixed results. We hypothesized that men with BMI 25 or greater have poor recovery of urinary and sexual function.

Materials & Methods: We reviewed pre- and postoperative surveys from all men who underwent RALP (2004-2014). Surveys included: Sexual Health Inventory for Men (SHIM), Urinary Behavior, Leakage, and Incontinence Impact Questionnaire (BII). A repeated measures analysis with autoregressive covariance structure was employed with linear splines with 2 knots for the time factor. We fit unadjusted and adjusted models and stratified by BMI (under/normal weight, overweight, and obese). Adjusted models included age, race, smoking status, diabetes, operation length, PSA, pathologic stage, and nerve-sparing status.

Results: The cohort consisted of 712 men with mean age of 59 years. Most men were overweight (42%) and obese (41%). Under- and normal weight comprised 14% and 3% were missing. There were no significant differences by BMI category in baseline responses to all 4 surveys. All quality of life indicators demonstrated initial steep decline to 3 months after surgery followed by slow improvement over time. When stratified by BMI category, there were no significant differences in adjusted urinary or sexual function recovery trajectory.

Conclusions: There are no significant differences in quality of life recovery trajectory by BMI category after RALP. These results may inform perioperative counseling of overweight and obese men considering RALP for clinically localized prostate cancer.

Clinical Features and Outcomes of Tunica Vaginalis Mesothelioma: A Case Series from the National Institute of Health
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Introduction: Malignant mesothelioma of the tunica vaginalis is extremely rare, representing 0.3% to 5% of all malignant mesotheliomas. The disease has been linked to asbestos exposure and historically has poor prognosis even with aggressive surgical procedure.

Materials and Methods: Six patients from 2003 to 2014 with urogenital mesothelioma were identified from the NIH database. These charts were retrospectively reviewed and included clinical features, surgical and pathological history, and follow up data were collected.

Results: Six patients with urogenital mesothelioma, average age at diagnosis 57.3 years. None of the patients had confirmed asbestos exposure. Three patients presented with hydrocele, one with scrotal mass, one with inguinal mass, one with spermatocele. Radical orchietomy was performed in all patients and three received subsequent radiation. All patients were followed up with periodic imaging to assess recurrence. Five patients did not have recurrence, one had recurrence 12 months after surgical treatment.

Conclusions: Previous reported cases have shown poor prognosis despite aggressive surgery and adjuvant therapies. However, 5 of the 6 patients had no evidence of recurrence. This may suggest that prognosis of the disease may be affected by early diagnosis and treatment. Post-treatment surveillance is imperative and should include imaging routinely within the first 2 years. Interestingly none of our patients had confirmed asbestos exposure thus negative screening history cannot rule this diagnosis out.

Table 1: Patient characteristics, treatment, and outcomes

Comparison of Transrectal Ultrasonography and Computed Tomography in Prostate Volume Estimation
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Introduction: Prostate volume can be estimated by transrectal ultrasonography (TRUS) or computed tomography (CT) measurements. We compared prostate volumes calculated by TRUS and CT to prostate-scan weight after radical prostatectomy to determine which modality is more accurate in pre-operatively assessing prostate volume.

Materials & Methods: We identifi ed patients in our institutional database who underwent radical prostatectomy and had a CT scan within 1 year of surgery date. For each patient, we determined TRUS volumes using the ellipsoid formula (L*W*H*.5π/24) and CT volumes were calculated using the ellipsoid formula and the bullet formula (L*W*H*.5π/24). The volume assessments were correlated with prostate specimen weight after radical prostatectomy.

Results: 32 patients were included in the analysis. The figure shows TRUS and CT volume vs. specimen weight. On average TRUS volume differed from specimen weight by 21%. Using the ellipsoid formula, CT volume differed from specimen weight by an average of 21%, compared to 33.8% using the bullet formula. TRUS underestimated prostate volume 77.3% of the time, CT underestimated 48.3% of the time.

Conclusion: Error in predicting prostate volume was similar using TRUS (21%) or CT with ellipsoid formula approximation (21%). TRUS more often underestimated prostate volume as compared to CT.

Volume Estimation

CT and TRUS Prostate Volume Estimation Compared to Prostatic Specimen Volume
Compliance with Active Surveillance for Low-Risk Prostate Cancer in the Indigent, Urban Population
Andrew McIntosh, Mark Dwizemianowicz, Michel Pontari, Daniel Eun, Jack Mydlo, Adam Reese
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Introduction: Active surveillance (AS) is an effective modality for managing low-risk prostate cancer. Men in indigent patient populations are less compliant with healthcare protocols. These populations are often African American (AA), with an increased risk of advanced disease. We assessed compliance with AS in our population of urban, indigent patients.

Materials & Methods: We analyzed a prospective database of men enrolled in AS from 2013-2015. Our protocol includes office visits every 120 days and repeat biopsy within 365 days. Strict compliance was defined as attending two follow-up visits within 10 months of diagnosis and undergoing repeat biopsy within 14 months. Loose compliance was one follow-up visit within 6 months and biopsy within 14 months. Factors associated with compliance were assessed using chi-square analysis.

Results: 37 patients met inclusion criteria, including 27 AA men (82%). Median time on AS was 332 days (range 119-805). For patients with adequate follow-up, the compliance rate with the initial follow-up visit (within 6 months) was 80%, and compliance with at least two follow-up visits (within 10 months) was 50%. The rate of compliance with biopsy was 67%, with a median time to biopsy of 382 days. 20% of patients were “strictly compliant”, while 40% were “loosely compliant.” No significant associations were observed between patient age, race, or insurance status and compliance measures.

Conclusions: In an indigent, urban patient population, compliance with AS follow-up visits and surveillance biopsies was moderate. Improved patient education and additional ancillary support may help to improve compliance in this population.

Contemporary Analysis of Prostate Cancer Screening by Primary Care Practitioners Before and After the USPSTF 2012 Guidelines
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Introduction: In 2012, concern over the harms of over-diagnosis and over-treatment of low-risk prostate cancer (CaP) led the United States Preventative Services Task Force (USPSTF) to release updated guidelines regarding prostate cancer screening (PCS). We sought to assess the effects of these guidelines on practice patterns among primary care practitioners (PCPs).

Materials & Methods: A self-administered survey, was distributed to the Internal and Family Medicine practitioners at the University of Pennsylvania Health System (UPHS) and Einstein Healthcare Network (EHN). The survey assessed providers’ awareness of the guidelines, and comfort level with screening and digital rectal exam (DRE). Fisher’s exact test was performed for statistical analysis.

Results: Of the 81 respondents, 85% and 48 %, respectively reported that they were aware of the 2012 USPSTF guidelines and American Urologic Association (AUA) recommendations. Only 53% of respondents correctly identified the USPSTF guidelines as a Grade D recommendation and only 54% reported they were mostly comfortably discussing PCS with their patients. 94% of those practitioners in practice > 5 years were at least moderately comfortable discussing PCS compared with just 65% of those in practice < 5 years (p = 0.05). Additionally, 37% of providers in practice > 5 years were at least moderately comfortable with detection of a nodule on DRE compared with just 3% in practice < 5 years (p = 0.001).

Conclusions: Despite the 2012 USPSTF and AUA guidelines, there is a wide variety of practice patterns and comfort of PCPs regarding PCS. Early involvement of urologists in PCS may assist with improved screening and detection of CaP.

Concomitant Use of Glucocorticoids in Patients with Metastatic Castration Resistant Prostate Cancer (mCRPC) Treated with Oral Therapies
Yoming Xiao1, Ajay S. Beh1, Lorie A. Ells2, Dominic Pilone3, Patrick Lefebvre4
1Groupe d’analyse, Litté, Montréal, QC, Canada; 2Janssen Scientific Affairs, LLC, Horsham, PA

Introduction: Glucocorticoids (GCs) are commonly used to offset the toxicities of chemotherapy and hormonal therapy in mCRPC patients. This study aims to assess whether there was an association between concomitant GC usage and dose reduction in mCRPC patients treated with oral therapies (i.e., abiraterone acetate [AA] or enzalutamide [ENZ]).

Material & Methods: The MarketScan® databases were used to identify mCRPC patients who were initiated on AA or ENZ (index date) between 10/2012 and 12/2014, eligible during a 6-month pre-index baseline, and with a PC diagnosis during the study period. Patients were followed up to 12 months during which dose reduction was measured using relative dose intensity (RDI) at two thresholds (i.e., RDI < 85%, < 80%). Multivariate Cox proportional hazards models were used to assess association between concomitant GC usage and risk of dose reduction in oral PC therapies.

Results: The study population included 2,591 and 807 patients initiated on AA or ENZ, respectively. During follow-up, GCs were used in 91% of AA patients and 52% of ENZ patients. Cox models showed that use of GC was associated with a lower risk of dose reduction (hazard ratio [HR] = 0.49, 0.39, 0.50 for RDI < 0.85 in all, AA and ENZ patients, respectively; and 0.44, 0.33, and 0.54 for RDI < 0.8, all p < 0.01).

Conclusions: GC usage was associated with a lower risk of dose reduction in oral mCRPC therapies for patients initiated on AA or ENZ. Additional research is needed to understand this protective effect of GC usage on oral mCRPC therapy dose reduction.

Direct Pharmacokinetic and Pharmacodynamic Comparison of Subcutaneous Versus Intramuscular Leuprorelin Acetate Formulations in Male Subjects
E. David Crawford1, John A. McLane2, Stuart Atkinson3, Alex Yang3, Judd Moul4
1University of Colorado, Aurora, CO; 2Tolmar Inc., Fort Collins, CO; 3Tolmar Pharmaceuticals Inc., Lincolnshire, IL; 4Duke University Medical Center, Durham, NC

Introduction: Leuproletide acetate (LA) is the standard-of-care LHRR1 agonist used to suppress serum testosterone (T) to the level equivalent to surgical orchiectomy in the treatment of advanced prostate cancer. There are currently two LA formulations available: a viscous liquid that forms a solid, controlled-release implant injected subcutaneously (SC) or a microsphere intra-muscular (IM) injection. The study compared the pharmacokinetics (PK) /pharmacodynamics (PD) of both formulations at the 1-month dose (7.5 mg).

Material & Methods: Thirty-two healthy men were randomized to receive a single 7.5 mg injection of SC-LA (n = 16) or IM-LA (n = 16) in this phase 1, open-label, parallel-group study. Serum LA, T, and leuteinizing hormone (LH) were assessed.

Results: The duration in which LA concentration was above the level of quantitation was longer in SC-LA (up to 56 days vs. 42 days for SC-LA and IM-LA, respectively). As a result, SC-LA demonstrated a longer duration of both LH and T suppression. Median LH concentration remained low until Day 56 in the SC-LA group, whereas LH levels began to rise by Day 35 in the IM-LA group. Serum T levels began to rise by Day 42 in the IM-LA group, whereas at Day 56, thirteen SC-LA patients maintained serum T levels below 50 ng/dL.

Conclusions: SC-LA demonstrated a consistent delivery of drug over time and a longer duration of action compared to IM-LA, despite the same 1-month dosing of active drug. As a result, subjects treated with SC-LA experienced a longer period of suppression of serum LH and T, up to 56 days post-injection.
**Display Posters**

**P33**

**Effects of Reminder Phone Messaging on Improving Patient Adherence to Clinic Appointments in a Military Subspecialty Clinic**

Ines Stromberg, Chanc Walters

**EVMAS, Virginia Beach, VA; 2 NMC Portsmouth, Portsmouth, VA**

**Introduction:** Missed appointments is a detrimental factor on healthcare causing inefficiency, increase costs and delays in diagnosis and treatment. This is especially troublesome in clinics with access to care limitations. Working on identifying modifiable factors is important to fully utilize our health care system. We analyzed whether a system contacting clinic patients 24 hours before appointments in addition to the command automated system would improve clinical care metrics.

**Materials & Methods:** Clinic records were retrospectively reviewed over a 6 month period comparing two 3 month periods. In Block 1 the patients were contacted by the automated reminder system only. In Block 2 all patients were contacted within 24 hours and by the automated system. No-show rates, facility cancellations, patient cancellations and access to care were evaluated from the two blocks.

**Results:** In Block 1 the no show rate was 5.6%, patient cancellation rate was 16%-17%, and the facility cancellation rate was 3%-8%. In Block 2 the no show rate was 4%-6%, patient cancellation rate was 17%-20%, and facility cancellation rate was 4%-7%.

**Conclusions:** A reminder call the day prior to appointments did not improve clinic attendance rates for our practice and may not be the best utilization of personnel. Further studies to better characterize patients that do not show may allow targeted contact to improve no show rates.

Source of Funding: None

**P35**

**Gene Expression and Risk Refinement Within Gleason Score 7 (GS7) PCa at Biopsy Using a Validated 17 Gene Genomic Prostate Score (GPS)**

Michael Bonham, Debbie McCullough, Ruxiao Lu, John Bennett, Phillip Febbo, Athanasios Tsatsos

**Genomic Health, Redwood City, CA**

**Introduction:** A higher percentage of Gleason pattern 4 (GP4) disease and GP4 histological subtypes have been associated with adverse outcomes in men with biopsy GS7 prostate cancer. However, men with biopsy GS7 cancer are often downgraded at prostatectomy and outcomes for men with organ confined Gleason 3+4 cancer are considered favorable.

**Materials & Methods:** 1,143 GS7 biopsies were centrally reviewed for percentage GP4 (%GP4) and morphologic subtype. Specimens were subdivided based on %GP4 and morphologic subtype. A median GPS was calculated for each subgroup.

**Results:** 1005 (88%) and 138 (12%) of GS7 biopsies were 3+4 (median GPS 31, IQR 23-40) and 4+3 (median GPS 37, IQR 27-47). Among 3+4 cases, median GPS was 29 (IQR 22-38), 33 (IQR 28-46), and 35 (IQR 27-46) for %GP4 1-10%, 11-25%, and 26-50%. Poorly formed glands was the most common GP4 morphology (PFG, 54%, n = 619), followed by fused glands (FG, 24%, n = 270), cribriform (19%, n = 214), and glomeruloid (3%, n = 40). Cribriform had the highest median GPS (35; IQR 26-44), followed by PFG (32; IQR 24-41), FG (30; IQR 26-43), and glomeruloid (25; IQR 20-32).

**Conclusions:** While there is a positive association between GPS and %GP4, widely overlapping GPS values suggest a biologic continuum beyond pathologic measures. GPS refines risk, helping to identify appropriate treatment in NCCN Intermediate patients.

**P34**

**Female Sexual Dysfunction and the Internet: A Lack of Patient-Oriented Information**

Eilee Lamin, Jessica L. Chan, Samantha B. Schon, Puneet Masson

**University of Pennsylvania, Philadelphia, PA**

**Introduction:** With advances in the digital age, patients are utilizing the Internet to research medical options regarding their sexual health. Though there have been considerable advances in the evaluation and treatment of male sexual dysfunction, there is a generalized consensus regarding limited options for patients presenting with female sexual dysfunction (FSD).

**Materials & Methods:** Between 7/2015-9/2015, the websites of the US News and World Report top 50 Urology and OB-GYN programs were evaluated. Websites were surveyed for: practice type, practice location, availability of information on female sexual dysfunction including definition and types, treatment options, and psychosocial resources. Chi-square and Fisher’s exact tests were used for analysis.

**Results:** 85% of Urology program websites had information on male sexual dysfunction, while only 5.8% of those programs had information on FSD. In comparison, 22% of OB/GYN programs have information on FSD (p = 0.022). There was no statistical significance between geographic location and availability of information on FSD for both Urology and OB/GYN programs. Between academic and community programs there was no statistically significant difference in information availability (p = 0.375). There were only 2 websites that included information on treatment options for FSD.

**Conclusions:** While patients are using the Internet more than ever to search for treatment options, our data shows the paucity of information on FSD. There is significantly more information on male sexual dysfunction on the Urology websites than FSD. With more research being done on FSD, both Urologists and gynecologists have an opportunity to offer FSD information on their patient oriented websites.

**P36**

**Improvement of Urologic Robotic Operating Room Turnover Time Using DMAIC Cycle**

Caitlin Cheung, Heather Chalfin, Mary Grace Hensell, A. Scott Dunbar Pritzker, Misop Han

**Johns Hopkins Medicine, Baltimore, MD**

**Introduction:** A quick turnover between surgical cases can improve operating room (OR) efficiency, maximize OR utilization and reduce costs. Robot-assisted laparoscopic prostatectomy (RALP) and nephrectomy (RALN) are common urologic procedures that typically take long turnover time (TOT). We performed a quality improvement (QI) project to reduce TOT between robotic urologic procedures at a tertiary referral center.

**Materials & Methods:** As part of a QI project, the DMAIC (Define, Measure, Analyze, Improve and Control) cycle was used to improve TOT. In 2013, a group from urology, nursing, and QI departments defined TOT as: time it takes to turn the room over from wheels out to the next case wheels in. We measured TOT by assigning a circulating nurse to document the TOT and the cause for delay, which were analyzed and reported daily by email. We held regular meetings to review results, re-educate and share ideas for improvement. Finally, we included this project as the urology QI dashboard measure for self-accountability.

**Results:** Initial TOT between urologic robotic cases was approximately 50 minutes. Gradually, the target TOT was lowered from 40 minutes to 35 minutes over a two year period. The TOT goal was reached in most months.

**Conclusions:** With persistence and planning, it was possible to improve TOT efficiency between urologic robotic cases while maintaining excellent patient care. The DMAIC cycle for this project was implemented in an academic setting but may be used in any institution. We plan to expand the TOT project to all urologic cases at our institution.
Increasing Screening for Overactive Bladder (OAB) and Incontinence (UI) in At-Risk Patient Population

Madeleine G. Manka, Nilay Gandhi, E. James Wright
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Introduction: OAB and UI remain underdiagnosed and undertreated, despite existing evidence–based guidelines. Diabetic and obese women are particularly at risk. Advanced practice providers (APPs), nurse practitioners (NPs) and physician assistants (PAs), in primary care, may improve outcomes by consistently screening patients and using strategies that promote patient adherence to treatment. The aim of this practice building activity was to increase APPs’ communication and use of guideline–based screening tools to improve diagnosis, treatment adherence, and long-term monitoring of OAB and UI.

Materials & Methods: APPs (n = 54) reviewed medical records of 4 patients with type 2 diabetes (TZDM) and/or obesity and answered 7 questions about their care, online (baseline). APPs then received 4 email briefs reinforcing important aspects of optimal patient care and proceeded to complete an Action Plan. In the final phase, APPs reviewed charts of 4 new patients with TZDM and/or obesity and answered the same questions to determine whether a performance change occurred.

Results: There was a 141% increase over baseline in percentage of clinicians asking their 4 patients all 5 main questions (p < .01), and a 125% increase in the percentage of clinicians offering all 4 patients a voiding diary (Figure 1).

Conclusions: This activity, which requires clinicians to assess practice patterns before and after an educational intervention, led to significant improvements in OAB and UI screening and management of at-risk patients.

Longitudinal Assessment of TVTO in the Treatment of Stress Urinary Incontinence

Andrew Colhoun1, David Rapp2
1Virginia Commonwealth University, Richmond, VA; 2Virginia Urology, Richmond, VA

Introduction: TVTO is an effective treatment for stress urinary incontinence (SUI). While long-term investigation suggests significant improvement in incontinence in comparison to baseline, less clear is how symptom benefit evolves over the initial time period after sling placement. We sought to assess longitudinal outcomes over several time points across 2-year follow-up.

Materials & Methods: A retrospective analysis of prospective data on 96 patients undergoing TVTO was performed. Primary outcomes assessment comprised validated measure of urinary incontinence (ICIQ-FLUTS). Secondary outcomes included quality of life (IIQ-7), in addition to 3-day bladder diary (PPD) and cough test. Outcomes were assessed at baseline, 6-weeks, 12- and 24-months post-operatively.

Results: ICIQ domain score for SUI demonstrated significant improvements across all follow-up time points (0.7 ± 1.3, 6-week, 0.7 ± 1.3, 12-month, 0.9 ± 1.4, 24-month) in comparison with baseline assessment (3.8 ± 2.9) (p < .05, all analyses). Similarly, analysis of secondary outcomes demonstrated persistent improvements in IIQ-7, pad use, and cough test (p < .05, all analyses). No significant benefit was seen in comparison of ICIQ SUI domain and IIQ-7 scores in comparison of 6-week vs. 1-year and 1-year vs. 2-year outcomes (p = NS). Only 3 and 3 patients reported improvement or deterioration, respectively, in ICIQ SUI domain score ≥ 2 in comparison of 6-week and 1-year assessments.

Conclusion: TVTO placement is associated with improvements in a variety of measures of SUI and quality of life. Mean improvements in these outcomes appear to be stable through two-year follow-up. Further, our data suggest that incontinence outcome at 6-weeks is similar to that observed at longer-term assessment in most patients.
Display Posters
P25 – P50

P41
Patient-reported Bother Correlates with Rate of Sensation Change During Filling
Andrew Colhoun, Adam Klauser, John Speich, David Rapp
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Introduction: Urodynamic derivatives have been shown to correlate with sensory questionnaire scores. First sensation ratio (FSR) (volume at first sensation/maximum cystometric capacity (CCmax)) correlates with Urgency Perception Scores, suggesting that rate of sensory progression during filling is associated with more severe urgency symptoms. We sought to correlate FSR and a validated measure of overactive bladder (ICIQ-OAB) using a real-time patient-controlled sensation meter during urodynamics.

Materials & Methods: Individuals with overactive bladder (ICIQ-OAB question 5a-3) underwent filling cystometry. Patients reported ICS sensory thresholds during filling. Sensation was also recorded via real-time patient-controlled sensation meter (0-100%, 1% increments). FSR was calculated as previously described and by using the first patient-reported sensation on the sensation meter (FSRureth=volume at sensation meter1%/CCmax). Both FSR and FSRureth values were correlated with ICIQ-OAB sensory items (questions 3b and 5b).

Results: Ten patients (n=10) completed the protocol. There was no difference between average FSR and FSRureth values (0.17 ± 0.04 and 0.19 ± 0.05, p = 0.23). Average ICIQ-OAB 3b and 5b scores were 8.4 ± 0.6 and 9.2 ± 0.5, respectively. There was an inverse correlation between FSR and ICIQ-OAB 3b and 5b scores (R2 = 0.50 and 0.42, respectively) as well as FSRureth and ICIQ-OAB 3b and 5b scores (R2 = 0.71 and 0.93, respectively).

Conclusions: FSR calculated with ICS thresholds and patient-controlled sensation meter inversely correlate with ICIQ-OAB sensory items in overactive bladder patients. These findings confirm prior investigation using alternate validated questionnaires of sensation. Sensory parameters/derivatives relate with urgency and bother level. Further studies are ongoing define sensory characteristics in a larger cohort and establish normal references.

P43
Post-surgical Telephone Surveillance in Global Health Mission Work
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1Virginia Commonwealth University, Richmond, VA, 2Virginia Urology, Richmond, VA

Introduction: Post-surgical follow-up in global health missions is often difficult. When providing urology/neurological care, developing countries may lack significant exposure to this subspecialty. Based on experience suggesting telephone interview as an effective method of reaching surgical patients, we performed a pilot program to standardize post-operative interviews with visiting physicians.

Materials & Methods: Surgeries were performed in Belize over three separate trips by a visiting urology/neurological team between April 2014 and May 2015. All patients were provided a discharge packet, including a specific date and time for 6-week post-operative telephone interview with visiting physician located in the US. Patients were also provided with access to free telephone minutes to minimize cost and facilitate compliance.

Results: Thirty-five patients undergoing surgery participated in our initial experience. Eighteen (51%) patients were compliant with telephone interview at the specified time. Average length of telephone interview was 8 minutes. Three (17%) of 18 patients reported issues that were resolved by visiting physician assistance. Program costs for telephone minutes comprised $175 (USD). Local health care specialists were able to subsequently achieve follow-up with all but six patients. Three of these six patients were then located via new telephone numbers.

Conclusion: Our program achieved successful follow-up of approximately 90%. This follow-up allowed not only for more detailed outcome assessment, but also alerted visiting physicians to several patients who needed assistance or medical evaluation. Optimization of follow-up during international health missions remains difficult and is important to address adverse events/assess outcomes. Further development of this program is ongoing.

P42
Perirenal Fat Invasion by Renal Oncocytoma: Academic Curiosity or Clinical Concern?
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Introduction: Renal oncocytoma is diagnosed in 3%-7% of resected renal masses. Though considered benign, some excised oncocytomas demonstrate histopathologic features encountered in malignant neoplasms such as vascular extension, perirenal fat invasion (T3), and calcifications. Our objective was to characterize the outcomes of patients diagnosed with pT3 renal oncocytoma.

Materials & Methods: We queried our institutional database for patients diagnosed with resected oncocytoma between 1994-2014. We performed a sub-group analysis on patients with histologic evidence of perirenal fat invasion. Radiographs were retrospectively analyzed. A chart review was performed to assess patient follow-up.

Results: 194/2864 (7.2%) patients were diagnosed with renal oncocytoma after extirpation. 8/194 (4.1%) were pT3 on final pathology. 7/8 (85%) were male, and all were Caucasian. Median age at surgery was 74 (range 53-85). All tumors were unilateral. Median tumor size in largest dimension was 3cm. 1 patient with pT3 oncocytoma had surgery for multifocal disease. No patient had a local or contralateral recurrence at median follow up of 72 months (range 1-177 months). 2/8 (25%) patients expired from unrelated causes during follow-up.

Conclusions: We present the first outcomes analysis of patients with pT3 renal oncocytoma. Available data do not show increased risk of tumor recurrence or mortality compared with oncocytomas of lower stage. This study supports existing evidence that oncocytoma is considered benign, some excised oncocytomas demonstrate histopathologic features consistent with malignancy. Though considered benign, some excised oncocytomas demonstrate histopathologic features consistent with malignancy. Further study is needed to determine clinical significance.

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Prospective Analysis of Positioning Injuries in Laparoscopic Robotic Surgery
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Introduction: Positioning injuries are a known surgical complication and can result in significant patient morbidity. Prior studies have shown a small, but significant number of neurovascular injuries associated with robotic surgery, due in part to patient factors (e.g. ASA class) and in part to case-specific factors (e.g. length, positioning). We sought to look prospectively at positioning injuries in a series of robotic surgeries.

Materials & Methods: Patients undergoing any robotic-assisted procedure were eligible for inclusion. For those patients who consented, we performed pre- and post-operative neurologic exams, hand grip tests, and subjective questioning to track the type and number of injuries. We followed the course of injury resolution or long-term sequelae.

Results: We enrolled a total of 26 participants and have full data on 24 patients, although 4 of these patients refused at least part of the post-op testing. Subjective injuries occurred in 4 patients (17%) and included: one left and one right shoulder injury, upper arm weakness, and bilateral leg pain. The neurologic exams correlated only with the latter two injuries. While the shoulder injuries recovered rapidly after surgery, the upper arm weakness resolved by the first outpatient post-op visit; the leg injury persisted 2 months later.

Conclusions: Retrospective analysis of positioning injuries have reported around a 3% rate for laparoscopic surgeries and we have previously reported a 6.6% rate in a series of robotic laparoscopic surgeries. Our prospective study, although small, suggests a higher rate of total injuries, but similar rate (1/24, 4.2%) of long-lasting injuries.
Real-time Bladder Sensation Characterization in Participants with and without Overactive Bladder during an Accelerated Hydration Protocol

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Introduction: The current evaluation tool for overactive bladder (OAB) is multi-channel urodynamics, which is an invasive procedure. This investigation’s objective was to develop a non-invasive and unprompted method to characterize real-time bladder sensation.

Materials & Methods: Volunteers with and without OAB were enrolled in an accelerated hydration study. Participants drank 2L Gatorade® and recorded standardized verbal sensory thresholds and real-time sensation (0-100% scale) using a novel, touch-screen “sensation meter”. 3D bladder ultrasound images were recorded throughout fillings for a subset of participants. Sensation data were recorded for two complete fill and void cycles.

Results: Data were obtained from 12 OAB and 14 normal volunteers. Filling duration decreased in fill2 vs. fill1, but volume did not significantly change. In the normal group, adjacent verbal sensory thresholds (within-fill) did not overlap, and identical thresholds (between-fill) were similar, effectively differentiating between degrees of %bladder capacity. In the OAB group, within-fill thresholds overlapped and between-fill thresholds were different. In normals, real-time %capacity-sensation curves shifted left from fill1 to fill2, consistent with expected viscoelastic behavior; but in OAB unexpectedly shifted right. 3D ultrasound volume data showed fill rates that started slowly and accelerated with variable ending rates.

Conclusions: This study demonstrates a method to non-invasively characterize real-time bladder sensation using a novel sensation meter during a two-fill accelerated hydration protocol. Verbal sensory thresholds were inconsistent in OAB, and a right shift in OAB %capacity-sensation curve suggests potential sensitization and/or biomechanical alterations. This methodology could be useful in the sub-categorization of individuals with OAB.

Sensation During Filling Cystometry Correlates with Detrusor Wall Tension in Patients with Overactive Bladder

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Introduction: In a compliant bladder, intravesical pressure (pves) increases minimally during filling but sensation increases dramatically. Detrusor smooth muscle is in-series with pelvic afferent nerves. We hypothesize that detrusor wall tension, rather than pves, better correlates with patient sensation during filling.

Materials & Methods: As part of an IRB–approved extended urodynamics (UD) protocol, patients with overactive bladder syndrome (OAB) (ICIQSe 5a ≥ 3) underwent standard UD testing and simultaneously used a real-time sensation meter to record continuous changes in sensation from 0–100%. Sensation values were time-linked with volume infused and pves. Bladder wall tension was calculated using recorded pves and infused volume, assuming spherical bladder filling. Normalized bladder wall tension and pves were sampled for each patient at 10% sensation increments. Regression analysis correlated bladder wall tension and pves to patient sensation.

Results: Twelve patients underwent UD with use of the sensation meter, and three were excluded (transducer malfunction, fill to only 30 mL, only 10% sensation reached). Based on regression analysis, bladder wall tension exhibited an improved correlation to patient sensation compared to pves (adjusted R² = 0.95 vs. 0.59, respectively, n = 9). Regression slope (β) also demonstrated a better correlation and was significantly different for bladder wall tension compared to pves (β = 0.56 vs. 0.15, p < 0.0001, ideal β = 1).

Conclusions: Bladder wall tension demonstrates an improved correlation with patient sensation during filling compared to pves. Development of techniques to more accurately measure detrusor wall tension such as combining real-time 3D ultrasound with UD may help identify and treat a subset of patients with tension-mediated OAB.

The Comprehensive Complication Index (CCI) is an Alternative Grading System for Classifying Morbidity Following Radical Nephrectomy

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Introduction: Approximately 20% of patients will experience a complication following radical nephrectomy (RN). The Comprehensive Complication Index (CCI) incorporates each post-operative complication to account for the cumulative effect of individual events. This study evaluates the association of patient- and disease-specific factors with increasing CCI score.

Materials & Methods: Retrospective review of our institutional kidney tumor database identified all patients who underwent radical nephrectomy from 2000-2014. 30-day complications were reviewed and individual CCI scores were generated. Logistic regression examined the relationship between the CCI upper quartile (> 20.9) with patient-specific, perioperative, and oncologic variables.

Results: 436 patients (270 men and 166 women) with a median age of 63 years and BMI of 30 were included. Median EBL was 200 mL, OR duration was 214 minutes, and length of stay was 4.0 days. Surgical technique included 48.5% open resection, 32.7% laparoscopic, and 18.8% robotic- assisted. Stage distribution included 37% T1, 15% T2, 42% T3, and 5% T4. 126 patients (29%) developed post-operative complications, with 26 (21%) classified as Clavien III or greater, and CCI distribution ranging from 0-100.0 (Table). The CCI upper quartile (>20.9) was associated with increasing patient age at surgery (p = 0.03).

Conclusions: CCI accounts for the collective effect of adverse post-operative events. Future studies comparing the CCI and Clavien-Dindo systems are important to assess the utility of continuous versus categorical systems in grading post-operative complications.
**The Effect of Pre-Operative Tamsulosin on the Rate of Ureteral Navigation during Ureteroscopy in Pediatric Patients**

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**Introduction:** Balloon dilation of the ureteral orifice (UO) is not recommended in pediatric patients. Ureteral stents (US) are placed for passive dilation resulting in repeat ureteroscopy. We aim to evaluate whether pre-operative tamsulosin increases the rate of ureteral navigation for ureteroscopy (URS).

**Materials & Methods:** We retrospectively reviewed pediatric patients who underwent URS at our institution from January 2013 to November 2015. Cases were performed using a standard approach based on location of the stone; semi-rigid ureteroscope for distal ureteral, and flexible ureteroscope with or without a ureteral access sheath for proximal ureteral and renal stones. Patients were separated into 2 groups: those receiving 0.4 mg of tamsulosin daily for > 48 hours pre-operatively and those who didn’t receive tamsulosin pre-operatively. Patients with previously placed US were excluded. The student T and Z tests were used for statistical analysis.

**Results:** 32 patients underwent URS with 9 having pre-operative tamsulosin, 13 without tamsulosin. 10 patients were excluded. There was no significant difference between the groups with consideration to age (3 - 16 years) and weight (12.2-110.5 kg) of the patients, or stone size. We were able to navigate the ureter in 8 patients (88.9%) in the tamsulosin group and 6 patients (46.1%) in the no tamsulosin group (p = 0.04). We did not observe any adverse effect from tamsulosin.

**Conclusions:** Tamsulosin did significantly increase the success rate of ureteral navigation for URS, thus decreasing the number of surgeries in our pediatric patients.

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**Towards Reliable Tensioning of the Midurethral Sling: Polypropylene Mesh is not Weakened by Hemostat Fixation**

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**Introduction:** Urinary retention following midurethral sling placement occurs in 1.9% to 19.7% of cases. Tensioning techniques vary widely. Accurate tensioning can be improved by grasping the mesh with a hemostat to avoid elastic loading or slippage with deployment. We measured the effect of hemostat clamping on the tensile strength of midurethral slings to determine risk of mesh damage.

**Materials & Methods:** Ten 15 × 1-cm polypropylene mesh strips (SPARC/Monarc Sling, AMS Inc.) were used. Five specimens were clamped once, midsubstance, with a standard hemostat to its tightest closure. The other 5 were controls and not clamped. All specimens were stretched until failure on a servo-hydraulic materials testing machine at 50 mm/minute. Tensile strength was defined as the load at which failure (complete loss of mesh continuity) occurred. We recorded location of failure and distance between grip markings to determine deformation. A t-test compared the clamped and control groups.

**Results:** No clamped specimens failed at the clamp site. In all specimens, failure occurred at the grip sites. There was no significant difference between the mean tensile strength of the clamped group (81.9 N [95% CI, 72.0-91.7 N]) and control group (88.9 N [95% CI, 73.1-88.8 N]). The average permanent deformation was 1.5 cm (95% CI, 1.3-1.7 cm), or 43% strain. The force necessary to cause mesh failure was greater than those encountered physiologically.

**Conclusions:** Clamping had no measurable effect on mesh tensile strength. Sling tensioning may be standardized and simplified safely by grasping exposed mesh with a hemostat during placement.