THE IMPACT OF TRAINING ON THE PERIOPERATIVE AND INTERMEDIATE FUNCTIONAL OUTCOMES AFTER HOLMIUM LASER ENUCLEATION OF THE PROSTATE

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(Presentation to be made by Dr. Haidar M. Abdul-Muhsin)

Objective: Holmium Laser Enucleation of the Prostate (HoLEP) is an established surgical treatment of benign prostatic hyperplasia (BPH). However, the widespread adoption has been slow due to the steep learning curve associated with the acquisition of a new set of endoscopic skills. The purpose of this study is to systemically measure the impact of trainees’ participation on the perioperative and functional outcomes after HoLEP in a residency training setting.

Material and Methods: BPH patients who underwent HoLEP at our department between January 2007 and January 2013 were stratified based on trainee’s postgraduate level. All cases were performed or supervised by a single endourology fellowship-trained urologist who was well past the learning curve for this operation. Patients with prostate cancer, previous prostatic intervention or concomitant urethral stricture disease were excluded. IRB approval was obtained and all perioperative outcomes and complications were retrospectively collected and analyzed. Functional outcomes were assessed using a comprehensive validated questionnaire that was sent by an independent third party survey center. The questionnaire included Sexual Health Inventory for Men (SHIM), International Prostate Symptom Score (IPSS) and International Continence Society (ICSmaleSF) questionnaires. Patients were divided into three groups. Group 1 if no trainee participated in the operation, Group 2 if a senior trainee (Post graduate year (PGY) 4 or 5) performed the operation and Group 3 if a junior trainee (PGY 1, 2 or 3) participated in the operation. The patient’s baseline characteristics, complications, perioperative and postoperative outcomes were compared among the groups.

Results: There were no differences in the baseline clinical, urinary and sexual functional characteristics among the groups. Preoperative prostate size, prostate specific antigen, and uroflowmetry were comparable among the three groups. Intraoperatively there were significant differences in overall operative time and enucleation (p=0.0186, p=0.0047 respectively) with shorter operative time noticed with more experienced operators. However, the morcellation time was not different. There were no differences in the weight of the resected tissue, hemoglobin change, and incidence of blood transfusion. Postoperatively, all patients had similar length of stay and urinary catheter duration. Complications were graded using the Clavien-Dindo grading system and were not significantly different among the groups. Uroflowmetry was performed at six weeks postoperatively and every three months afterward. There were no differences in the maximum flow rate, average flow rate or post void residual at any time point. However, the voided volume was different at six weeks (p=0.03). There were no differences regarding SHIM, IPSS and ICS male VS among the groups. When the incontinence scale (ISC male IS) was analyzed there was a significant difference among the three groups where the highest score seen in group 2.

Conclusion: Trainee participation in HoLEP in a controlled training environment with an experienced mentor does not compromise the safety or the functional outcomes of the procedure. The overall sexual and functional outcomes are comparable, however cases perform by senior trainees may have higher incidence of storage symptoms.
HOLMIUM LASER ENUCLATION OF THE PROSTATE: MEDIAN LOBE-ONLY
TECHNIQUE
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(Presentation to be made by Dr. Karen Stern)

Objectives: Holmium laser enucleation of the prostate (HoLEP) is now well established as the gold standard for the surgical treatment of benign prostatic hypertrophy (BPH). Variations of the procedure, however, are rarely reported. This study reports one institution’s experience with median lobe-only HoLEP.

Materials and Methods: All patients who underwent a median lobe-only HoLEP by a single surgeon at our institution between August 2007 and January 2015 were identified from a prospectively maintained HoLEP database (n=20). Baseline patient characteristics are reported using medians with interquartile ranges and univariate comparison were performed using paired t-tests (Stata MP, version 12).

Results: A total number of 20 patients were identified who underwent median lobe-only HoLEP during the study period. The reasons for median lobe-only HoLEP were varied and included patients with Parkinson’s disease, patients with significant comorbidities that necessitated a decreased anesthetic time, patients with a desire to maintain antegrade ejaculation and patients with significant median lobe obstruction on preoperative cystourethroscopy. Mean follow-up was 5.2 months. Preoperative patient characteristics including age, ASA, BMI, transrectal ultrasound (TRUS) prostate size, PVR, and International Prostatic Symptom Score (IPSS) are summarized in the table below. Prior to surgery 17/20 (85%) patients were on medical therapy for their BPH and 8/20 (40%) were on preoperative catheterization, either an indwelling Foley or self-intermittent catheterization.

Six weeks after median lobe-only HoLEP patients showed a statistically significant improvement in IPSS and PVR. IPSS decreased from a preoperative mean of 21.5 to 6 (p < 0.0002). The IPSS Quality of Life (QoL) domain decreased from 5 before surgery to 1 (p < 0.0096). Mean PVR decreased from 383.4 mL to 138.2 mL (p < 0.0261). Those significant results were sustained at 3 months post-op.

Conclusions: A median lobe-only HoLEP is a viable surgical option for the appropriate patient with symptomatic BPH. The abbreviated procedure may make HoLEP more attractive and available to wider breadth of surgeons and patients.

Source of Funding: None

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Objective: Diet has a strong effect on systemic inflammation, a process that has been implicated in prostatic carcinogenesis and other cancer types. However, it is unknown whether this mechanism affects benign prostatic hyperplasia – an entity in which inflammation has also been implicated to play a causative role. The goal of this study was to evaluate the effects of a pro-inflammatory diet and serum markers of systemic inflammation on prostate volume.

Methods: We conducted an analysis of data from the Diet and Prostate Cancer Risk case-control study conducted from 2001 to 2006 at the Portland Veterans Affairs Medical Center. We studied the effect of dietary-induced inflammation on prostate volume from 230 biopsy-negative patients. Dietary inflammation was measured by the dietary inflammatory index (DII) score; a measure of dietary inflammatory potential. Systemic markers studied included plasma IL-6 and CRP. Multivariable logistic regression analysis was used to measure the effect of systemic inflammation (DII, IL-6, CRP) and clinical factors (age, BMI and PSA) on prostate volume.

Results: Mean prostate volume was 52.6 ± 25.5 cc, mean PSA was 6.4 ± 4.6 ng/ml and BMI was 29.3 ± 5.0 kg/m2. Mean DII score -0.81 ± 2.1, mean IL-6 was 2.6±2.9 pg/ml and mean CRP was 2.9 ± 4.8. We found no significant association between DII score (p = .283), IL-6 (.891) or CRP (.154) with prostate volume. In contrast, significant predictors of volume included age (p = .000), PSA (p = .015), and BMI (p = .001). The overall logistic regression model improved with removal of the DII and IL-6 (p=.238 to .848, Hosmer “goodness-of-fit” test)

Conclusion: DII score and plasma markers of systemic inflammation were not associated with prostate volume in this study. However Age, PSA and BMI were strong predictors of prostate volume. These data indicate that while local inflammation may play a role in the genesis of benign prostatic tissue, these data do not support a role for systemic inflammation.
Objectives: The role of metformin in prostate cancer chemoprevention remains unclear. Our aim was to evaluate the link between metformin use and prostate cancer diagnosis using the REDUCE study.

Materials and Methods: REDUCE was a 4-year, multicenter, randomized, double-blind, placebo-controlled study that followed biopsy-negative men with protocol-dictated PSA-independent biopsies at 2- and 4-years. In diabetic men from REDUCE, we tested the association between metformin use, use of other anti-diabetic medications, vs. no anti-diabetic medication use and prostate cancer diagnosis as well as prostate cancer grade (low-grade Gleason 4-6, high-grade Gleason 7-10) using logistic regression.

Results: Of the 540 diabetic men with complete data, 205 (38%) did not report use of any anti-diabetic medications, 141 (26%) reported use of at least one anti-diabetic medication other than metformin, and 194 (36%) reported use of metformin. After adjusting for various clinical and demographic characteristics, we found that metformin use was not significantly associated with total (OR=1.19, p=0.50), low- (OR=1.01, p=0.97), or high-grade (OR=1.80, p=0.19) prostate cancer diagnosis. Likewise, there was no significant association between the use of non-metformin anti-diabetic medications and prostate cancer risk in both crude (OR=1.02, p=0.95) and multivariable analysis (OR=0.85, p=0.58). Furthermore, the interactions between anti-diabetic medication use and BMI, geographic location, coronary artery disease, smoking, and treatment group were not significant (all p>0.05).

Conclusions: Among diabetic men with a negative pre-study biopsy who all underwent biopsies largely independent of PSA, metformin use was not associated with reduced risk of prostate cancer diagnosis. These findings do not support the use of metformin as prostate cancer chemoprevention in men with a negative biopsy.

Funding: This study was supported by GlaxoSmithKline (GSK).
QUANTITATIVE IMAGE TEXTURE ANALYSIS PREDICTS MALIGNANCY ON MULTIPARAMETRIC PROSTATE MRI
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(Presentation to be made by Dr. Geoffrey Sonn)

Objectives: Multiparametric MRI (mpMRI) and targeted biopsy are transforming prostate cancer diagnosis. Results from multiple centers demonstrate improved detection of clinically significant prostate cancer using MRI-guided biopsy. During MRI interpretation, lesions are most commonly scored using the Prostate Imaging Reporting and Data System (PI-RADS) grading system. For MRI to gain widespread acceptance and utility, its results must be reproducible. However, despite a standardized reporting system, the clinical utility of mpMRI is limited by variation in image interpretation across radiologists. At our institution, the overall cancer yield for biopsied PI-RADS 4 lesions is 47% (34/72), but the cancer yield among different radiologists who diagnose PI-RADS 4 lesions varies tremendously (range 0-100%). To overcome difficulty with reproducibility of mpMRI and to reduce the variability of radiologists, we propose to incorporate a computerized image analysis algorithm into image interpretation. We hypothesized that computerized quantitative image analysis would improve MRI interpretation beyond that achieved by radiologists alone. Specifically, we sought to apply quantitative image texture analysis to lesions identified on MRI to improve prediction of malignancy.

Materials and Methods: To date, mpMRI and targeted biopsy has been performed on 141 subjects harboring 173 lesions on MRI at our institution. 3T MRI images of 33 lesions in 33 patients were obtained. Each lesion had been classified as PI-RADS 3, 4 or 5 by a radiologist and subsequently targeted at biopsy. Targeted biopsy pathology was used as the gold standard. Each lesion was circumscribed by a radiologist based on three MRI sequences (T2, Apparent Diffusion Coefficient (ADC), and peak contrast Differential Subsampling with Cartesian Ordering (DISCO)). The coefficients from a Riesz wavelet analysis of the images were computed as image features to characterize tissue texture within each lesion. Riesz wavelets are advantageous because they do not presuppose any particular biologically-relevant patterns that are often required by other types of image texture features. Riesz coefficients from each pulse sequence, separately or in combination, were analyzed using an elastic net linear regression model to predict whether the lesion was benign or malignant. Performance of the prediction methodology was evaluated using leave-one-out cross validation.

Results: Radiologist classification of the 33 lesions was PI-RADS 3 (n=11), PI-RADS 4 (n=13), or PI-RADS 5 (n=9). On biopsy, cancer was detected in 2 (18%) PI-RADS 3 lesions, 6 (46%) PI-RADS 4 lesions, and 9 (100%) PI-RADS 5 lesions. Overall, the biopsy pathology was cancerous for 17 lesions and benign for 16 lesions. The highest performance of the texture analysis was obtained with a combination of ADC and peak contrast DISCO Riesz features. The area under the curve (AUC) of the receiver operator characteristic (ROC) curve was 0.83. This AUC was higher compared to classifiers based on Riesz features from each sequence considered individually or in any other combination. Overall, the classifier correctly predicted the biopsy result for 64% of PI-RADS 3 lesions, 85% of PI-RADS 4 lesions, and 78% of PI-RADS 5 lesions.

Conclusions: This study demonstrates the feasibility of using quantitative Riesz texture analysis to predict whether a suspicious lesion on mpMRI (PI-RADS ≥3) is cancerous. Particularly notable is the 85% correct prediction for PI-RADS 4 lesions, given the tremendous variability of biopsy results for PI-RADS 4 lesions among different radiologists. Validation of this approach in a larger dataset is ongoing. In the future, we expect that quantitative image analysis will be incorporated into grading systems to refine prostate mpMRI image interpretation, enable greater reproducibility across radiologists, and improve patient counseling and decision making about prostate biopsy.

Source of Funding: None
PROSPECTIVE PILOT STUDY OF A NOVEL HIGH RESOLUTION DIFFUSION-WEIGHTED PROSTATE MRI
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Background: Multiparametric (MP)-MRI can identify larger tumors in prostatectomy candidates. However, not all tumors are visible on MP-MRI and many small tumors typically found in active surveillance (AS) patients are below the limits of detection. There is a need to characterize the long-term natural history of low-volume tumors and even target them for biopsy.

Objective: Introduce a novel high resolution diffusion-weighted imaging sequence (HR-DWI) and compare it to standard DWI (S-DWI).

Design Setting, and Participants: Prospective pilot trial of a novel HR-DWI and S-DWI, integrated into a routine MP-MRI protocol and read by two radiologists.

Outcome Measurements and Statistical Analysis: In AS patients, suspicious lesions detected by S-DWI and HR-DWI were compared to a standard 12-core biopsy.

Results and Limitations: HR-DWI produced a 5-fold improvement in spatial resolution when compared to S-DWI. In the clinical trial, the diagnostic characteristics of MP-MRI were considered for each of 6 zones of the prostate (left/right- base/mid/apex; total of 102 zones). MP-MRI incorporating S-DWI was useful for predicting biopsy results (AUC 0.72, Fisher’s exact p<0.001); however, using HR-DWI allowed MP-MRI to be more highly predictive of biopsy results (AUC 0.88, Fisher’s exact p<0.001). AUC for MP-MRI incorporating HR-DWI was significantly larger than MP-MRI incorporating S-DWI (p=0.002). MP-MRI with HR-DWI had a sensitivity of 95.7%, identifying tumor in 22 of 23 zones proven to have cancer on biopsy. In contrast, MP-MRI with S-DWI had a sensitivity of 60.9% and only identified 14 of 23 biopsy-positive zones (p=0.004). The clinical trial results require validation and are hypothesis generating, however it illustrates the use of a novel HR-MRI that can be immediately used on existing MRIs with a simple software upgrade.

Conclusion: We developed a novel HR-DWI optimized for prostate imaging that improves image quality and resolution, yielding better sensitivity for detecting low-volume prostate cancers typically observed in AS patients.
BEYOND PSA DENSITY: EXPLORING ALTERNATIVE PSA DERIVATIVES AS PREDICTORS OF AGGRESSIVE PROSTATE CANCER

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Portland, OR
(Presentation to be made by Dr. Daniel Sackman)

OBJECTIVES: The most commonly used PSA density (PSAD) cutoff utilized is 0.15. If this were used as a hard cut-off for biopsy up to 50% of prostate cancer (CaP) could be missed, as a result the NCCN does not recommend its use in screening. Currently the only NCCN recommended use for PSAD is as a component of risk stratification for patients with a diagnosis of CaP although their panel felt it is clinically underutilized. Previously transition zones (TzPSAD) as well as peripheral zone PSAD (PzPSAD) have been explored with mixed results. Here we investigate novel alternative PSAD derivatives as predictors of high-grade CaP.

MATERIALS AND METHODS: An IRB approved retrospective review was performed on all patients between 2009 and 2013 who underwent their initial TRUS biopsy at the Portland VA Medical Center. Inclusion criteria was a pre-biopsy PSA between 0-10 ng/ml. PSA, biopsy result, prostate volume (total, Pz & Tz) were collected for each patient. PSAD, PzPSAD, TzPSAD & 3 preliminary exploratory metrics were calculated. The most promising exploratory metric \( \frac{\text{PSA} \times \text{Pzvolume}}{\text{Total volume}} \) was selected for further analysis. Patients were categorized as having high grade CaP (Gleason > 7) or not. The area under receiver operating curves (ROC) was calculated for the PSAD metrics and PSA.

RESULTS: Complete data was available for 727 patients. Mean patient age was 64 years (95%CI: 63.6-64.4), mean PSA 5.4 ng/ml (5.2-5.5), mean total volume 52.3 ccs, and mean PSAD was 0.127. 43.7% (40.1 - 47.3) of patients were diagnosed with CaP and 27.6% (24.3 - 30.9) were diagnosed with HG CaP. Our novel metric demonstrated the highest AUC (0.760, 95%CI 0.720-0.799), but this was not statistically different than TzPSAD (0.756, 0.717-0.795) or PSAD (0.753, 0.714-0.792). All 3 of these metrics were superior to PSA (0.623, 0.579-0.667), however TzPSAD and the novel metric were superior to PzPSAD (0.672, 0.630-0.715) whereas PSAD was not.

CONCLUSIONS: Although the point estimate of our metric was superior to PSAD the difference was not significant. This metric may outperform PSAD in certain clinical scenarios but further research is required to delineate this.

SOURCE OF FUNDING: none
Introduction and Objectives: The optimal strategy for prostate cancer screening has yet to be defined. The controversy surrounding the value of PSA screening for early detection of prostate cancer was intensified by the USPSTF recommendation against PSA testing in May 2012. Traditional strategies of prostate cancer screening with PSA lead to high rates of over-diagnosis and over-treatment. Several clinical guidelines recommend that a single PSA value warrants a prostate biopsy. In 2009, the Portland VA changed their policy regarding the recommendation of a prostate biopsy to requiring a second (confirmatory) PSA value >4.0ng/ml. The goal of this study was to evaluate whether a confirmatory PSA value >4.0ng/ml increased the detection of clinically significant prostate cancer.

Methods: Subjects were identified utilizing The VA Corporate Data Warehouse electronic database. Data was retrospectively collected from 9/1/2009 and 9/1/2013 on 1054 patients. The data were divided into three groups to evaluate the effect of policy changes on cancer detection. Period 1 was from 9/1/2009 to 9/2/2011, when a confirmatory PSA was not required. Period 2 was from 9/2/2011-5/1/2012, the time period preceding the USPSTF recommendation against PSA screening. Period 3 was from 5/2012-9/1/2013. Age, Race, PSA, PSA Density (PSAD), Gleason Score, T stage, and NCCN prostate cancer risk categories were compared between these time period groups using Chi-Squared analyses and simple T tests.

Results: A total of 1054 patients were enrolled in the study between 9/1/2009 and 9/1/2013. Study population of Period 1; n = 600, Period 2; n = 205, and Period 3; n = 249. Mean patient age was 64.7 (SD ±6.0), Median PSA was 5.8 ng/ml (IQR = 3.9). Mean prostate volume was 51.6 cc. Age, Race, PSA, and prostate volume were compared between these three groups and were not found to be statistically significant (p = .253, p = .543, p = .674, p = .863; respectively). Cancer cases were categorized by NCCN Risk: Low (n=131), Intermediate (n=222), and High (n=160). The positive biopsy rates for Period 1, Period 2, and Period three were 48%, 48%, and 50%, respectively. These were not significantly different. Gleason scores were compared between the three periods. Patients in Period 2, had significantly high Gleason scores (P<0.001) when compared to patients in Period 1 and Period 3, where 85.5% of patients had Gleason 7 or higher in Period 2. A chi-squared analysis was done to compare NCCN prostate cancer risk between the three periods. The overall Chi-Squared was 23.9 and P<0.001. Patients in Period 2 had 12 patients diagnosed with low risk NCCN cancer, where the expected amount by model was 24.9 patients (6.7 contribution to Chi-square). In Period 2, more intermediate and high risk patients were diagnosed than predicted by the model. In Period 3, 48 patients were diagnosed with low risk cancer and the model predicted 30.9 patients should have been diagnosed (contribution to Chi-square 9.3). Period 3 also saw few intermediate and high risk men being diagnosed.

Conclusion: The Portland VA internal policy change requiring a confirmatory PSA value >4.0 ng/ml was associated with an increase in the diagnosis of intermediate- and high-risk prostate cancer by NCCN criteria. The USPSTF screening changes were associated with the diagnosis of significantly more low risk prostate cancer and fewer intermediate and high risk prostate cancer. The USPSTF recommendation has led to an inappropriate referral pattern of patients who undergo prostate biopsy at the Portland VA.
ARE PROSTATE BIOPSY COMPLICATION RATES OF UROLOGY RESIDENTS HIGHER COMPARED TO STAFF UROLOGISTS? A COMPARATIVE STUDY OF 893 PATIENTS

Daniel Sackman MD, Nick Cowan MD, Wesley Stoller MA*, Laura Peters RN*, Mark Garzotto MD, Portland, OR.
(Presentation to be made by Dr. Daniel Sackman)

OBJECTIVES: Competency in the performance of trans-rectal ultrasound (TRUS) prostate biopsies is required by the ACGME for completion of urologic training in the US. However, to our knowledge the safety of TRUS procedures in urologic training has not been reported. Here we present the largest cohort to date evaluating resident TRUS biopsies and the first to examine the complication rate as we compare resident performance to staff urologists.

MATERIALS AND METHODS: An IRB approved retrospective review was performed on all patients between 2005 and 2013 who underwent their initial TRUS biopsy at the Portland VA Medical Center. All patients received a pre-procedure enema, peri-procedural oral antibiotics, and a 10-core biopsy using a standardized template. Post-procedure chart review and phone follow-up was performed in all patients by a urology nurse to identify complications. The primary endpoint was to compare resident and staff complication rates. Secondary endpoints included: 1) the effect of resident experience (1-10 vs. 11-20 vs. >20 procedures) on complication rates and, 2) severity of complications by the Clavien-Dindo classification.

RESULTS: 893 biopsies were included in the analysis. Median patient age was 64 (IQR = 6), median PSA was 5.5 (IQR = 3.2) and mean prostate volume was 43.7 cc (SD ±29.2). No difference was seen between resident and staff cohorts with regards to age (p = 0.081), volume (p = 0.759), and PSA (p = 0.880). A total of 21 complications occurred in the study population yielding a complication rate of 2.1 %. The complication rate amongst staff and residents was 1.5% and 2.8%, respectively (Student t, p= 0.144). The complication rate amongst residents performing their first 10 biopsies, subsequent 10 biopsies, and >20 biopsies was 1.2%, 4.3%, and 2.9%, respectively. There was no significant difference in the overall complication rates between these groups (p=0.5). Severity of complications was assessed by Mann-Whitney U test, this showed the mean rank was higher among residents than staff (12.2 vs. 9.6, respectively); however, this effect was not significant (p= 0.303).

CONCLUSIONS: There was no difference in overall complication rates or severity between staff and urology residents. Further there was no difference in rate of complications by biopsy procedure number among residents. Based on these data it appears residents can perform TRUS biopsy with complication rates comparable to those commonly published.

SOURCE OF FUNDING: none
THE 4KSCORE TEST IDENTIFIES RISK OF HIGH-GRADE PROSTATE CANCER IN MEN WHO HAVE UNDERGONE A PRIOR PROSTATE BIOPSY

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(Presentation to be made by Dr. Stephen Zappala)

Objectives: Current options to improve risk assessment for aggressive prostate cancer prostate cancer in men with a prior negative biopsy are of limited accuracy. The 4Kscore® is a blood test validated in US and European cohorts to accurately identify an individual man’s risk for high-grade prostate cancer on prostate biopsy, regardless of prior biopsy status. The purpose of this study was to assess the accuracy of the 4Kscore test in men who were biopsy-naïve and men who had a prior negative prostate biopsy.

Methods: A recent large, US multi-center prospective trial enrolled 1312 men referred for prostate biopsy for suspicion of prostate cancer regardless of age, PSA, digital rectal exam findings or prior biopsy status. Prior to TRUS-guided prostate biopsy, blood was collected for a 4Kscore test. The 4Kscore calculates the risk of high-grade (Gleason ≥7) prostate cancer on prostate biopsy by a blood test that measures levels of four kallikrein biomarkers (total PSA, free PSA, intact PSA, and human kallikrein-2) plus age, DRE findings, and prior biopsy status. The primary outcome of this study was to identify Gleason ≥7 prostate cancer on biopsy. From these data, we investigated the accuracy of the 4Kscore test to predict Gleason ≥7 prostate cancer on prostate biopsy in either biopsy-naïve men or men with at least one prior negative prostate biopsy.

Results: Among the 1312 men enrolled in this trial, 251 (19%) men had undergone a prior biopsy. In this subgroup, 27 (10.8%) were diagnosed with Gleason ≥7 prostate cancer on biopsy. The AUC of the 4Kscore test vs. total PSA (tPSA) to detect Gleason ≥7 cancer on biopsy was 0.7700 [0.6790, 0.8610] vs 0.6998 [0.5965, 0.8032]. Of the 1061 biopsy-naïve men, 264 (24.9%) were found to have Gleason ≥7 prostate cancer on biopsy. The AUC of the 4Kscore test vs. tPSA to detect Gleason ≥7 cancer on biopsy was 0.8342 [0.8065, 0.8618] vs 0.7330 [0.6992, 0.7669].

Conclusions: The 4Kscore test accurately identifies risk of aggressive prostate cancer on prostate biopsy in men who are biopsy-naïve and men who had a prior negative prostate biopsy. Among men who are suspected to still have prostate cancer in spite of a prior negative prostate biopsy, the 4Kscore test accurately identifies the risk of aggressive prostate cancer.

Source of Funding: OPKO
TREATMENT PATTERNS OF VETERAN’S ADMINISTRATION PROSTATE CANCER PATIENTS: DOES DELAY IN ACCESS TO CARE AFFECT OUTCOMES?

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(Presentation to be made by Dr. Sackman)

Objectives: There has been recent negative publicity surrounding the issue of delay in access to care at Veteran’s Administration (VA) medical centers. No prior study has investigated the potential relationship between delay in treatment, treatment patterns and prostate cancer outcomes comparing VA patients to other insurance groups. We examine time to treatment, treatment patterns and prostate cancer outcomes comparing VA patients with other insurance groups over a fifteen year period in Oregon.

Materials and Methods: Using the state-mandated Oregon State Cancer Registry (OSCaR) data on prostate cancer, we analyzed treatment patterns and outcomes for men diagnosed between 1996 and 2011. Men with VA insurance were compared to other insurance groups with regard to time to treatment and initial treatment selection (surgery, radiation therapy or androgen deprivation therapy). Patients were risk stratified into low, intermediate and high risk groups according to PSA, cancer stage and grade. Multiple logistic regression was used to assess the association between VA and other insurance groups with prostate cancer risk, treatment selection after adjusting for the race, age, and Charlson comorbidity score. Bonferroni correction was used for multiple comparison adjustment. Analysis of Covariance (ANCOVA) was used to evaluate the average time from diagnosis to initial treatment between insurance groups with risk group, age, race, Charlson score as covariates. Overall and prostate cancer specific mortality rates were also assessed using multiple logistic regression with Bonferroni correction.

Results: Between 1996 and 2011, 37,156 men were diagnosed with prostate cancer and complete data was available for 14,454. Of these, 3.4% had VA health care while 93.6% had private insurance or Medicare, and 3.0% had Medicaid or were uninsured. VA patients on average experienced a significant delay from diagnosis to initial treatment (85 days) when compared to other insurance groups (72 days, p<0.0001). VA patients of all risk groups were far more likely to be treated with radiation than surgery (estimated odds ratio = 5.742, adjusted p-value < 0.0001, 95% adjusted CI: 4.646 – 7.098). While overall mortality odds were twice as high in VA patients when compared to other insurance groups, even after controlling for Charlson comorbidity score and race (estimated odds ratio = 1.975, Bonferroni adjusted p-value = 0.0003, adjusted 95% CI: 1.367 – 2.854), there was no significant difference in prostate-cancer-specific mortality.

Conclusion: VA prostate cancer patients experience a delay in initiation of treatment compared to other insurance groups, and are significantly more likely to be treated with radiation than surgery. However, while overall mortality is worse in the VA population, even after controlling for comorbidities, prostate-cancer-specific mortality does not appear to be significantly affected by treatment delay or selection.

Source of Funding: None.
ACTIVE SURVEILLANCE: HOW TO MEASURE, MANAGE AND IMPROVE?
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(Presentation to be made by Dr. Franklin Gaylis)

Objectives: Active surveillance (AS) has emerged as an important strategy to limit the overtreatment of low risk prostate cancer (PCa). In collaboration with UC San Diego (UCSD), Genesis Healthcare Partners (GHP) established a best practice for AS inclusion criteria and follow-up regimens. The collaborative aimed to measure past AS adoption rates, institute the best practice, and then measure the AS adoption rates following implementation of the best practice.

Materials and Methods: Patient biopsy and treatment data was retrieved from an integrated EMR (Allscripts) and stored in a Microsoft Access database for analysis. AS adoption rates were calculated using 4 different methods. The percentage of patients treated with AS was calculated from the following groups: 1) All newly diagnosed PCa patients; 2) Newly diagnosed PCa patients treated at GHP; 3) Patients eligible for AS treatment according to the National Comprehensive Cancer Network (very low risk and low risk categories) guidelines and treated at GHP; and 4) Patients eligible for AS treatment according to the UCSD/GHP best practice and treated at GHP, according to the following inclusion criteria: Stage T1c; PSA Density (PSAD) < 0.15 ng/mL/cc and absolute PSA level < 10 ng/mL; Gleason ≤6; ≤3 cores (+); No individual core with > 50% involvement.

Between years 2013 and 2014, GHP physicians underwent an educational training program on the UCSD/GHP best practice for managing low-risk PCa patients with AS. Comparative report cards on AS adoption were sent to all physicians.

Results: See Table 1.

Table 1: Active Surveillance Treatment Distribution by Method and Year

<table>
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<tbody>
<tr>
<td>Method 1</td>
<td>#AS Pt / All New +Bx</td>
<td>12.90%</td>
<td>13.50%</td>
<td>14.74%</td>
<td>.1290 vs. .1474 (NS)</td>
</tr>
<tr>
<td>Method 2</td>
<td>#AS Pt/ All New +Bx Tx at GHP</td>
<td>15.17%</td>
<td>16.76%</td>
<td>18.31%</td>
<td>.1517 vs. .1831 (NS)</td>
</tr>
<tr>
<td>Method 3</td>
<td>#AS Pt/ Eligible for AS (NCCN)</td>
<td>31.90%</td>
<td>38.26%</td>
<td>58.46%</td>
<td>.319 vs. .5846 (NS)</td>
</tr>
<tr>
<td>Method 4</td>
<td>#AS Pt/ Eligible for AS (Best Practice)</td>
<td>43.75%</td>
<td>47.50%</td>
<td>82.61%</td>
<td>.4375 vs. .8261 (NS)</td>
</tr>
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NS = not significant
* = significant at p < α

Conclusions: Active Surveillance adoption improved in those patients who were considered most eligible (according to evidence based guidelines/best practice) for AS following institution of an educational program and comparative reporting in a community practice. Selection criteria appear to significantly impact AS adoption rates.

Source of Funding: None.
THE 4KSCORE TEST PREDICTS UPGRADING AT PROSTATECTOMY AMONG MEN WITH LOW-GRADE PROSTATE CANCER ON PROSTATE BIOPSY

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1Andover MA USA and 2Miami, FL USA
(Presentation to be made by Dr. Stephen Zappala)

Objectives: Most men diagnosed with prostate cancer in the United States are found to have low-grade tumors. While many of these men are candidates for active surveillance, a proportion may have a bad outcome owing to aggressive prostate cancer that was missed on initial biopsy. A recent prospective study confirmed the 4Kscore® Test accurately predicts the likelihood of aggressive cancer on prostate biopsy. The purpose of this study was to see if the 4Kscore could predict the presence of Gleason ≥7 in a cohort of men with low-grade tumors on prostate biopsy who underwent radical prostatectomy.

Methods: A recent large, US multi-center prospective trial enrolled 1312 men referred for prostate biopsy for suspicion of prostate cancer regardless of age, PSA, digital rectal exam findings or prior biopsy status. Prior to TRUS-guided prostate biopsy, blood was collected for a 4Kscore test. The 4Kscore calculates the risk of high-grade (Gleason ≥7) prostate cancer on prostate biopsy by a blood test that measures levels of four kallikrein biomarkers (total PSA, free PSA, intact PSA, and human kallikrein-2) plus age, DRE findings, and prior biopsy status. The primary outcome of this study was Gleason ≥7 prostate cancer on prostate biopsy. We selected a subgroup of men who were found to have low-grade (Gleason 6) cancer on biopsy and underwent radical prostatectomy (RP) to determine whether the prebiopsy 4Kscore test results were associated with prostate cancer grade in the surgical specimen.

Results: Among the 1312 men enrolled in this trial, 142 men were found to have prostate cancer and underwent radical prostatectomy. Of these men who elected to undergo surgical extirpation, 50 men had Gleason 6 cancer on prostate biopsy, of which the RP pathology revealed 42% (21) men had Gleason ≤6 prostate cancer, 53% (26) men had Gleason 7 prostate cancer, and 4% (2) men had Gleason ≥8 cancer. One patient was found not to have cancer at surgery. Using a 4Kscore cut off of 7.5%, tumor upgrading occurred in 35% (6/17) men with a 4Kscore ≤ 7.5% vs. 67% (22/33) men with a 4Kscore >7.5%. For a 4Kscore cut off of 20%, tumor upgrading occurred in 85% (11/13) men with a 4Kscore >20%.

Conclusions: In a subset of men who had Gleason 6 disease on biopsy and underwent RP, higher 4Kscores were associated with disease upgrading at surgery. Men with 4Kscores >20% and Gleason 6 prostate cancer on biopsy have the highest likelihood of harboring Gleason ≥7 disease and as such these men may not be suitable candidates for active surveillance protocols.

Source of Funding: OPKO
SIGNIFICANT REDUCTION IN THERAPEUTIC BURDEN FROM USE OF CCP TEST IN TREATMENT DECISIONS AMONG NEWLY DIAGNOSED PROSTATE CANCER PATIENTS IN A LARGE PROSPECTIVE REGISTRY

Philip Weintraub MD, MBA1, Neal Shore MD2, Adam Blatt MD1, Shahin Chandrasoma MD1, Lawrence Flechner MD, PhD1, Gregory Barme MD1, Judd Boczko MD3, Naveen Kella MD4, Brian J. Moran MD5, Fernando J. Bianco MD6, E. David Crawford MD7, Rajesh Kaldate MS8, Michael K. Brawer MD8 and Mark L. Gonzalgo MD, PhD9

1Skyline Urology, Burbank, CA; 2Carolina Urologic Research Center, Myrtle Beach, SC; 3WESTMED Medical Group, Woodmere, NY; 4The Urology and Prostate Institute, San Antonio, TX; 5Prostate Cancer Foundation of Chicago, Westmont, IL; 6Urological Research Network, Miami Lakes, FL; 7University of Colorado at Denver, Aurora, CO; 8Myriad Genetic Laboratories, Inc., Salt Lake City, UT; 9University of Miami Miller School of Medicine, Miami, FL

(Presentation to be made by Dr. Philip Weintraub)

Objectives: The cell cycle progression (CCP) test is a validated molecular assay that assesses risk of prostate cancer-specific disease progression and mortality when combined with standard clinicopathologic parameters. PROCEDE–1000 is the largest (n=1206) prospective registry to evaluate CCP test impact on personalizing prostate cancer treatment. Results of a subset analysis of 99 patients from 16 physicians at Skyline Urology are presented.

Methods: Untreated patients with newly diagnosed (≤6 months), clinically localized prostate adenocarcinoma were enrolled. The physician’s initial therapy recommendation (pre–CCP) was recorded on the first questionnaire. The CCP test was then conducted on prostate biopsy tissue. Three post–CCP questionnaires recorded the physician’s revised treatment recommendation, physician/patient treatment decision, and actual treatment administered. Changes in treatments between the pre–CCP and post–CCP questionnaires demonstrated the impact of CCP testing on treatment decisions at each stage.

Results: There was a significant reduction in the treatment burden recorded at each successive evaluation (P =0.0010), with mean number of treatments per patient decreasing from 1.87 pre–CCP test to 1.27 in actual follow-up. From pre–CCP therapy recommendation, the CCP risk score caused a change in actual treatment administered in 51% of patients; of these changes, 72% were reductions in treatment. These reductions occurred in radical prostatectomy (33%), radiation therapy (42% primary; 83% adjuvant), brachytherapy (33% interstitial; 83% HDR). A considerably high percentage of patients (40.4%; 40/99) were recommended for conservative management pre–CCP testing. The subset analysis of patients from Skyline Urology supports and mirrors the data obtained from the entire patient set.

Conclusion: The CCP risk assessment score has a significant impact in helping physicians and patients reach consensus on an appropriate personalized treatment decision, often with major reductions in interventional treatment burden.

Financial Disclosure: Study funded by Myriad Genetic Laboratories, Inc.
ROLE OF A 17-GENE GENOMIC PROSTATE SCORE FOR TREATMENT SELECTION IN MEN WITH NEWLY DIAGNOSED PROSTATE CANCER (PCA): COMBINED RESULTS FROM TWO CLINICAL UTILITY STUDIES
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(Presentation to be made by Dr. Marc Dall’Era)

Introduction and Objectives: The Oncotype DX Prostate Cancer Assay is a validated, biopsy-based gene expression assay that reports a Genomic Prostate Score (GPS) which, combined with clinical features, provides a more individualized estimation of disease aggressiveness at the time of diagnosis. Here we report two studies: a chart review study and a prospective clinical practice study, both assessing the impact of incorporating the GPS on treatment recommendations (TR) and decisions in men with very-low to low-intermediate risk clinical features.

Material and Methods: In the chart review study, urologists who ordered the commercial assay for at least 4 men between 5/13 and 1/14 participated in the study. Clinicopathologic data, GPS results and treatment information were abstracted from medical records for GPS patients and for a similar baseline group without GPS. In the prospective study, urologists at three centers recorded TR on pre- and post-GPS questionnaires. In both, changes in TR pre- and post-GPS were described.

Results: 15 community-based urologists completed the chart review study on 211 men (124 GPS; 87 baseline). With GPS, the relative increase in TR for AS increased from 51% at baseline to 61% for GPS patients, an absolute difference of 10% and relative increase of 22%. GPS pts followed AS more often than baseline pts (67% for GPS; 43% for baseline, absolute increase of 24% and relative increase of 56%). Of men recommended for AS, 96% of GPS and 80% of baseline pts accepted it. Among the 158 men in the prospective study, which included one academic and 2 community-based practices, 18% of TR between active surveillance (AS) and immediate treatment changed post-GPS. The absolute increase in recommendation for AS was 10% (41% to 51%) and the relative TR increase for AS was 24%. Change in TR modality and/or intensity occurred in 26% of men (25 decreased; 14 increased; 2 equivocal).

Conclusions: Results of these two studies, conducted with different methodologies, demonstrate that use of GPS provides a meaningful change in TR and decisions in men with newly diagnosed PCa. Incorporating GPS increases urologists’ recommendations for AS, increasing the pool of eligible men by nearly 25%. In the chart review study, TR changes appear to underestimate changes in actual treatment received and significantly more GPS patients than baseline patients were assigned to AS, supporting the clinical utility of GPS in the initial assessment and management of men with low risk PCa.

Source of Funding: Genomic Health Inc.
A MULTI-CENTER COMPARISON OF A 17-GENE GENOMIC PROSTATE SCORE (GPS) AS A PREDICTOR OF OUTCOMES IN AFRICAN-AMERICAN (AA) AND CAUCASIAN (CA) MEN WITH CLINICALLY LOCALIZED PROSTATE CANCER (PCA)

Matthew Cooperberg MD, San Francisco, CA; Jennifer Cullen* PhD, Rockville MD; Isabell Sesterhenn* MD, Silver Spring MD; Eric Klein* MD, Cleveland, OH; James Mohler* MD, Buffalo NY; H Jeffrey Lawrence* MD, Redwood City, CA; Nan Zhang* PhD, Redwood City, CA; Tara Maddala* PhD, Redwood City, CA; Dejan Knezevic* PhD, Redwood City, CA; Athanasios C Tsiatis* MD, Redwood City, CA; Phillip G. Febbo MD, Redwood City, CA; Peter Carroll MD, San Francisco, CA

(Presentation to be made by Dr. Matthew Cooperberg)

Objectives: For clinical adoption of predictive cancer assays, it is imperative to demonstrate that they have equivalent performance in different racial groups. GPS is a tissue-based RT-PCR assay clinically validated to predict the likelihood of aggressive PCa (adverse pathology – AP, and biochemical recurrence - BCR). The assay measures the expression of 12 cancer related genes, representing 4 biologic pathways (stromal response, androgen signaling, cellular organization and proliferation), and 5 reference genes. We assessed the clinical performance of the test in different racial groups.

Methods: We compared GPS results (scale 0-100) and individual gene group scores in specimens from 138 AA and 957 CA patients in 4 independent cohorts (3 biopsy-based - CPDR, PCaP, and UCSF and one RP-based - CC) with clinically low to intermediate risk PCa. In 3 cohorts (CPDR, CC, UCSF), the association between GPS, race and outcomes were assessed using logistic regression and Cox PH models as appropriate.

Results: Although each cohort had different baseline risk distributions (as reflected by different median GPS), within each cohort median and interquartile ranges of GPS were similar between AA and CA men and were not statistically different. Individual gene group expression patterns were similar between the two racial groups and not statistically different. In each of the 3 cohorts with AP endpoints, race was not predictive of outcome; in the CPDR study, race was not predictive of BCR. In a multivariable model with GPS, NCCN risk group and race in the CPDR and UCSF studies, only GPS was significantly (p<0.001) associated with clinical outcomes. In the CPDR study, GPS was strongly predictive (p<0.05) of clinical outcomes in both racial groups.

Conclusions: The tumor biology measured by GPS is similar between AA and CA men. AA and CA patients had comparable clinical outcomes in these cohorts. In the largest cohort (CPDR), GPS was predictive of AP and BCR in both racial groups.

Source of Funding: Genomic Health, Inc.
COMPARING THE RATE OF POSTOPERATIVE COMPLICATIONS IN OBESE VERSUS NON-OBSESE PATIENTS FOLLOWING OPEN PROSTATECTOMY AT A HIGH-VOLUME HOSPITAL

Ross A. Wopat M.D., Wesley Stoller MS, Mark Garzotto M.D.: Portland, OR

Objectives: Obesity is an independent risk factor for complications from both open and robotic prostatectomy. Complication rates are higher following prostatectomy at low-volume centers. In a recent analysis of NSQIP data, major complications occurred in 5% of robotic and 9% of open prostatectomies (Liu et al. 2013). We sought to determine the rate of complications in obese vs. non-obese patients following open prostatectomy at a high volume center.

Materials and Methods: We reviewed the charts of 115 consecutive patients who underwent an open prostatectomy for clinically localized prostate cancer at our institution from 2012 through 2014. We queried age, BMI, race, preoperative PSA, prostate volume, Gleason score, lymph node count, length of stay (LOS), as well as incidence and severity 30-day postoperative complications. Obesity was defined as BMI ≥30. The Clavien-Dindo classification was used to categorize the severity of each complication. Continuous variables were compared using Student’s t-test and categorical variables compared used Pearson’s Chi-Square test.

Results: Mean BMI for the entire cohort was 29.2 ± 4.8 kg/m2 (range 20.5-43.7) of which 39% of patients (n=43) were obese. Mean BMI was 26.3 kg/m2 in non-obese vs. 34.1 kg/m2 in obese pts. (p = 0.000). Mean age (64.3 ± 4.9 years), prostate volume (35.8 ± 16.7 cm3), PSA (8.9 ± 6.0 ng/ml), length of stay (3.1 ± 2.7 days) and lymph node count (15.2 ± 7.7) were not statistically different (p > 0.05). When the rates of post-operative complications for obese versus non-obese patients were compared, there was a trend toward a higher rate of complications in the obese population (32.5% vs 18%), but this difference was non-significant (p=0.094). Major complications were similar between the study groups and occurred in 1.4% of the non-obese group (1 pt = pulmonary embolism) and 2.3% of the obese group (1 pt = cerebrovascular accident) (p = 0.727). Transfusions occurred in 3% of non-obese and 5% of obese patients (p = 0.60). Obesity was correlated with increased pathologic Gleason score (p=0.024). Clavien-Dindo grade of complications was not related to BMI (p = 0.145).

Conclusions: In our patient population, there was no statistically significant difference in the incidence or severity of complications following open prostatectomy in obese patients. The rate of major complications was lower than in other published series. Open prostatectomy should be offered to obese patients as curative therapy for clinically localized prostate cancer.

Funding: Portland Veterans Administration Health Care System
Introduction and Objectives: Depression is an increasing problem in older men especially with prostate cancer. The EPIC 26 HR-QOL questionnaire is a standardized measurement of patient’s urinary and sexual recovery after prostate cancer treatment. However, it is unknown whether this questionnaire may be used to monitor and assess prostate cancer patient’s depression. The PHQ-2 and PHQ-9 are validated questionnaires employed by primary care physicians. The PHQ-9 is used to assess and screen depression and the PHQ-2 is an abbreviated version used to quickly screen depression. We examine whether the EPIC 26 question on depression may be used as a surrogate for the PHQ-2 and 9 questionnaires.

Methods: 4538 men with a positive biopsy between March 2011 and April 2013 were enrolled in the EPIC 26 QOL study. Men who completed a PHQ-2 or PHQ-9 as well as an EPIC 26 HR-QOL were included. Men were excluded if they had more than 90 days between the time they answered the PHQ questionnaire and EPIC 26 or if they received treatment between taking the two questionnaires. The responses on the PHQ-2 or PHQ-9 were compared with the same patient’s responses on the EPIC 26.

Results: After the inclusion and exclusion criteria, 220 matched surveys were compared. 124 patients had PHQ2 questionnaires that were compared to their most recent EPIC 26 scores. The PHQ2 responses were not significantly associated with the EPIC 26 responses: Spearman’s correlation coefficient = 0.058, p = 0.520. 96 patients with PHQ9 and EPIC 26 responses were compared. There was a strong correlation between these two tests: Spearman’s Rank correlation coefficient =0.471 with p<0.0001.

Conclusion: The EPIC 26 did not correlate with the PHQ2, the abbreviated screening questionnaire for depression. However, it has a strong correlation with the PHQ9 the longer and more validated questionnaire for screening and assessing patients with depression. This may allow us to better screen and assess depression in patients with prostate cancer, and better track how different prostate cancer treatments affect patient’s mental health in the future.

Source of Funding: Intuitive Surgical, Inc.
POORER QUALITY OF LIFE IS ASSOCIATED WITH INCREASEAD HEALTHCARE UTILIZATION IN MEN FOLLOWING ROBOTIC-ASSISTED RADICAL PROSTATECTOMY

George A Abdelsayed MD, Brian Kim MD, Madhur Merchant MD, Jeff Slezak, MS, William Chu MD, Patrick Kilday MD, Kimberly Porter, PhD, Joy Gelfond *, Steven J Jacobsen MD/PhD, Gary W Chien MD:

Los Angeles, CA

(Presentation to be made by: Dr. George Abdelsayed)

Introduction: Management strategies for prostate cancer patients have become increasingly focused on maximizing health-related quality of life (HRQOL). The purpose of this study was to evaluate whether differences in HRQOL after robot-assisted radical prostatectomy (RARP) are associated with variations in healthcare utilization.

Methods: We enrolled all men who underwent a RARP for prostate cancer within Southern California Kaiser Permanente from March 2011 to September 2013. Men completed the Expanded Prostate Cancer Index Composite (EPIC)-26, a validated HRQOL survey, at baseline (time of diagnosis) and 90 days following surgery. Patients were stratified according to change in EPIC-26 scores into good (decline <40 points), Intermediate (decline 40-60 points), and poor (decline >60 points) groups. Post-operative hospital and clinician utilization were compared between groups using the Chi-squared and Wilcoxon Rank-Sum tests.

Results: With respect to the EPIC-26 sexual domain, there were 173 (42.1%), 90 (21.9%), and 148 (36.0%) men with good, intermediate, and poor scores at 90-days post-op respectively. Men with good scores were significantly older and were more likely to be married (p<0.05). Multivariate analysis revealed significantly more clinician email encounters from men with the poorest scores (p=0.039). In regards to the urinary incontinence domain, there were 142 (34.9%), 109 (26.8%), and 156 (38.3%) men with good, intermediate, and poor scores at 90-days post-op respectively. All groups were similar in regards to patient demographic and clinical characteristics. The multivariate model showed significantly more physical therapy visits in men with the poorest scores (P=0.0007). There were no differences in clinician office visits, ER visits, or telephone encounters.

Conclusions: Men with the poorest HRQOL at three-months following RARP were more likely to seek care via email and physical therapy encounters related to sexual function and urinary incontinence respectively. This suggests that achieving good post-treatment HRQOL outcomes for patients can potentially reduce clinician workload and healthcare utilization costs.

Source of Funding: Intuitive Surgical, Inc.
THE EFFECT OF SMOKING ON SEXUAL FUNCTION AFTER ROBOTIC PROSTATECTOMY
Patrick S. Kilday, M.D., George A. Abdelsayed, M.D., Peter A. Elliott, M.D., Jeff M. Slezak*, Teresa N. Harrison*, Steven J. Jacobsen, M.D.*, Gary W. Chien, M.D.: Los Angeles, California
Presentation to be made by Dr. Kilday

Introduction: Smoking is a well-established cause of erectile dysfunction. It can also delay wound healing and recovery after surgery. Smoking cessation education has become a focal point of smoker’s visits to physicians. Currently, it is unknown exactly what effect smoking has on patients after robotic prostatectomy, and if smoking cessation after diagnosis can help with recovery. Using the EPIC 26 HR-QOL study we examined how a patient’s smoking habits would affect recovery after robotic prostatectomy.

Methods: All patients who underwent robotic prostatectomy between March 2011 and April 2013 in our healthcare system and who were current smokers were included. Patients were categorized into 2 groups based on their smoking habits: continued smokers (n=355) and quitters (n=184). The “quit” group stopped smoking after the diagnosis of prostate cancer. Patients filled out the EPIC 26 HR-QOL study at baseline and during their recovery, up to two years. Patients’ age, Charlson comorbidity score, preop and postop clinicopathology were also examined. A linear regression model was also used to predict sexual function recovery.

Results: All demographics and clinicopathology were similar between the two groups. Smoking cessation was not associated with significant difference in urinary or hormonal domains of the EPIC 26. Patients that stopped smoking had more improvement in their sexual function as compared to patients who continued. At 6 months post prostatectomy the quit group had a statistically significant improvement as compared to the smokers (p=0.0509) and this continued throughout follow-up (as seen in the graph below), though never again reaching statistical significance.

Conclusions: Patients that stop smoking even after the diagnosis of prostate cancer have improved recovery of sexual function as compared to their smoking counterparts as measured by the EPIC 26 survey. This information is an additional reason for patients to quit smoking when planning on undergoing radical prostatectomy, and should be used to help counsel patients in the future.

Source of Funding: Intuitive Surgical, Inc
Purpose: The role of Androgen Deprivation Therapy (ADT) has not been explicitly evaluated in the context of dose escalated external beam radiation therapy (EBRT) and optimal duration is not well established. While benefits of ADT have been to improve survival for men with intermediate- to high-risk prostate cancer undergoing external beam radiation treatment (EBRT), contemporary trends in practice and outcomes in the community setting have not been well described. We investigated usage and outcomes of men receiving EBRT with or without ADT, using data from a large, community-based prospective disease registry.

Methods: Using the Cancer of the Prostate Strategic Urologic Research Endeavor (CaPSURE) registry we evaluated 1,262 men diagnosed with prostate cancer between 1990 and 2006 who received primary treatment with EBRT. Clinical risk at diagnosis was measured using the UCSF Cancer of the Prostate Risk Assessment (CAPRA) score. Patient characteristics were compared across year categories using the Mantel-Haenzel chi-square test for trend and analysis of variance (ANOVA). Patients were divided into cohorts by year of diagnosis to assess practice patterns, clinical progression, and survival over time. In addition, patients who received EBRT with subsequent ADT were compared to those receiving EBRT alone. We conducted time-to-event analysis using life tables, log-rank test, Cox proportional hazards regression and competing risk regression models. We evaluated biochemical recurrence (PSA nadir + 2.0 ng/ml), bone metastasis, prostate cancer specific mortality (PCSM), and all-cause mortality (ACM).

Results: The percentage of patients receiving ADT in addition to EBRT as their primary treatment for prostate cancer has increased from 42% in 1990-1999 to 52% in 2003-2006 (p<0.01). Of the patients receiving EBRT+LHRH, the percentage of patients receiving greater than six months of ADT has increased from 12% to 20% in this time period (p<0.01). Among patients with high CAPRA risk scores, the use of LHRH has significantly increased over time, with 68% of patients receiving LHRH in 2003-2006 compared to 13% in 1990-1999 (p<0.01). Treatment type was not associated with recurrence-free survival among all CAPRA risk groups (log-rank p=0.62). However, in the high CAPRA clinical risk group there was a trend toward statistical significance for those receiving EBRT+ADT (p=0.14) (Figure 2). There was no difference in clinical disease progression at five years, measured by number of patients with bone metastasis (log rank p=0.88) and prostate cancer specific mortality (log rank p=0.37) between those receiving EBRT alone and EBRT+ADT, among all CAPRA groups. Treatment modality was not associated with clinical progression or overall survival in any clinical risk group.

Conclusions: Use of ADT in patients receiving primary EBRT has increased in frequency and duration since 1990. In a cross-sectional analysis intermediate risk patients are nearly equally likely to receive ADT vs EBRT alone. Our time trend analysis has also demonstrated increased use among patients with high CAPRA clinical risk score, in line with available trial evidence. While the trials for high- risk patients strongly suggest benefit of ADT, our study did not demonstrate the translation of these benefits to the community setting.

Source of Funding: CaPSURE is supported in part by an unrestricted educational grant from Abbott Laboratories. This research was also supported in part by the Agency for Healthcare Research and Quality grant 1R01HS019356-01.
LONG TERM EFFECT OF NEOADJUVANT LEUPROLIDE INJECTION ON QUALITY OF LIFE FOLLOWING RADICAL PROSTATECTOMY

Patrick S. Kilday, M.D., Peter A. Elliott, M.D., George A. Abdelsayed, M.D., Jeff M. Slezak*, Teresa N. Harrison*, Steven J. Jacobsen, M.D.*, Gary W. Chien, M.D.: Los Angeles, CA

Presentation to be made by Dr. Kilday

Introduction: Neoadjuvant leuprolide acetate injection is commonly used prior to radical prostatectomy in patients with locally advanced disease. While literature shows its ability to decrease the positive margin rates, it is unknown whether neoadjuvant leuprolide can have long term effects on quality of life. We examine neoadjuvant leuprolide injection’s effect on patient’s long term recovery following surgery.

Methods: From March 2011 to April 2013, 4538 men with a positive prostate biopsy were enrolled and followed up to 24 months. A cohort of the men with one dose of leuprolide acetate injection, 22.5mg, prior to robotic prostatectomy (n=51) was compared 1:3 to a matched group of men who underwent robotic prostatectomy as their primary therapy (n=153). Patients were matched on Charlson comorbidities, biopsy Gleason score, and node status on final pathology. The Kruskall-Wallis test was used to compare the groups on the basis of their bowel, urinary, sexual, and hormonal domains of the EPIC 26 HR-QOL at Baseline, 1, 3, 6, 12, 18 and 24 months.

Results: The urinary and bowel domains were similar in the neoadjuvant and control groups at each point during the 24 months. The neoadjuvant group did persistently worse as compared to the matched cohort in the sexual domain (illustrated in the below graph) up to two years following surgery, these differences were statistically significant at 3 and 12 months. In the hormonal domain the results were even more apparent with the neoadjuvant group having continued worse QOL scores up to two years and reaching statistically significance at 1, 3, 6 and 18 months.

Conclusion: Patients who receive neoadjuvant leuprolide injection have worse outcomes for up to two years after robotic prostatectomy with respect to sexual and hormonal domains of quality of life. Patients who underwent neoadjuvant leuprolide have similar outcomes in the urinary and bowel domains after prostatectomy when compared to controls. Neoadjuvant leuprolide can have a lasting negative impact on a patient’s sexual and hormonal recovery after surgery and these effects should be considered prior to administering this treatment.

Source of Funding: Intuitive Surgical, Inc.
TRUMPET: A TREATMENT REGISTRY FOR OUTCOMES IN PATIENTS WITH CASTRATION-RESISTANT PROSTATE CANCER

Daniel W. Lin, M.D., Lawrence Karsh, M.D., David Quinn, M.D.,
Daniel H. Shevin, M.D.*, Neal Shore, M.D., James T. Symanowski, Ph.D.*,
Andree Amelsberg, M.D., M.B.A., Scott C. Flanders, Ph.D.*,
Gretchen Otermat, M.A.*, Robert J. Simko, Pharm.D.*, Kathryn Starzyk*,
Samuel D. Wilson, M.S.*, Jun Wu, M.D., M.S.*, Elaine K. Wong, M.Sc., M.D.*,
David F. Penson, M.D.: Seattle, Washington
(Presentation to be made by Dr. Daniel W. Lin)

Objectives: Clinicians may offer patients with castration-resistant prostate cancer (CRPC) treatment with first-generation anti-androgens or androgen synthesis inhibitors. Certain clinical scenarios in patients with CRPC may require treatment with novel second-line hormonal therapy (such as enzalutamide and abiraterone acetate plus prednisone), chemotherapy (such as docetaxel plus prednisone and cabazitaxel plus prednisone), radionuclide therapy (such as radium Ra 223 dichloride), and immunotherapy, with widely varying treatment patterns arising from differences in patient characteristics and preferences, as well as physician practices. Due to advances in available therapeutic agents for use in patients with CRPC, treatment options and sequencing make clinical decision-making more complex. The purpose of this study is to improve scientific understanding of patients with CRPC and their treatment patterns and quality of life (QoL), along with health care resources associated with management.

Materials and Methods: This is a prospective, observational multi-center study of patients with CRPC in the United States. Approximately 2000 patients will be enrolled over 24 months from urology and oncology sites. A 48-month observation period will follow the last patient enrolled. Caregiver QoL data will also be collected. Patients with CRPC (defined as a minimum of two rising prostate-specific antigen levels measured at least 7 days apart and serum testosterone level ≤1.73 nmol/L [50 ng/dL], or with new evidence of metastatic disease) who are initiating the first active course of anti-cancer treatment for M0 or M1 with life expectancy of ≥6 months will be enrolled. Primary objectives are to describe patterns of care, disease assessment methods, treatment decisions, treatment settings, physician referral patterns, and CRPC patient characteristics associated with these, as well as health-related QoL outcomes associated with CRPC and its management. Secondary objectives are to describe factors influencing treatment decisions including the reason(s) for treatment choices and trigger(s) for CRPC treatment changes, and to describe clinical outcomes based on baseline characteristics. Exploratory objectives are to describe QoL outcomes for patients’ caregivers and to describe utilities (quality-adjusted life years) associated with disease progression for patients. In a sub-study, patient work productivity and treatment satisfaction will be described.

Results and Conclusions: Study in progress, with 13 patients enrolled as of June 9, 2015.

Source of funding: This study is jointly sponsored by Astellas Pharma, Inc. and Medivation, Inc.

*Non AUA or AUA Western section member