Poster Session 2: Urinary Reconstruction and Men's Health
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MP-02.01

Analysis of Canadian penile prosthesis surgeries identifies geographic impact upon patient access to care

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Introduction and Objectives: Inflatable penile prostheses (IPP) are safe and efficacious options for the management of erectile dysfunction refractory to first and second-line therapies. Data suggest that the most common etiologies include post-prostate cancer treatment, diabetes, and cardiovascular disease. When viewed through the lens of cancer survivorship, the cancer care journey may be incomplete for Canadian men in many cases as anecdotal data suggest clustering of treatment access in Canada. We investigate cross-country distribution of IPP surgeries.

Methods: Review of data for 2010 and 2012 for 3-piece IPP, 2-piece Ambicor IPP and malleable implants, and identification of geographical trends, if any.

Results: Sixty percent of total surgeries were performed in Ontario, with similar asymmetric distributions observed when analyze for 3-piece IPP. Alberta registered 50% of national 2-piece IPP surgeries in 2012. Nova Scotia data for the malleable implant demonstrated 29% of national utilization (Table 1).

Discussion: There is a wide variance in penile prostheses usage in Canada, with a clear impact on patient access to ED care. In 2014, the population of Canada was estimated at 35.5 million, with Ontario the most populous province at 13.7 million (38% of general population). Distribution of IPP surgery does not follow population trends closely. Several factors may influence the availability of surgical ED treatment on the provincial level; it is interesting to note that urosurgeon reimbursement for IPP in Ontario is amongst the lowest in Canada, yet the majority of IPP surgery is clustered in the province.

Conclusions: Significant geographic variability exists for IPP utilization for the management of ED in Canada. Limitations of access may influence overall patient care, especially when viewed from a complete cancer-care viewpoint after radical prostatectomy or radiation therapy for prostate cancer.

Table 1. MP-02.01.

Province	2010	2012
AB Total	0.010	0.060
BC Total	0.225	0.179
MB Total	0.065	0.050
NB Total	0.041	0.034
NF Total	0.018	0.000
NS Total	0.006	0.031
ON Total	0.601	0.606
PE Total	0.000	0.000
QC Total	0.035	0.041
SK Total	0.000	0.000
Canada Total	1.001	1.001

MP-02.02

Ultra-structural defects in immotile sperm: Characterization of electron microscopy findings

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Introduction and Objectives: Up to 25% of men being evaluated for infertility have been reported to have asthenospermia. Normal sperm tail structure is critical for normal sperm motility. Sperm axonemal defects have been associated with reduced sperm motility and electron microscopy (EM) remains the only way to directly assess sperm for these abnormalities. EM has typically been reserved for those with severe asthenospermia (motility <10%) with high sperm viability (>58%). The purpose of the present study was to identify the frequency and types of ultra-structural defects in the sperm of men with normal viability and asthenospermia to determine the applicability of EM when investigating men with asthenospermia.

Methods: The medical records of men presenting to an infertility clinic with sperm motility <10% and viability >50% were retrospectively reviewed after obtaining review board approval. All available EM reports were reviewed and data regarding axonemal defects collected. Descriptive statistics were performed on available data.

Results: Between January 2008 and October 2014, EM assessment was performed on 187 semen analyses meeting sperm motility and viability criteria. EM abnormalities were identified in 117/187 (62.6%) semen analyses. Among abnormal EM studies, a mean of 2.2 (range 1 to 5) abnormalities were detected per specimen with 55.0% (range 5-100%) of sperm in each specimen containing abnormalities. Loss of central microtubules was the most common abnormality in 92/117 (78.6%), followed by loss of peripheral couplet microtubules in 69/117 (59.0%), random assortment of peripheral couplet microtubules in 59/117 (50.4%), extra peripheral couplet microtubules in 10/117 (8.5%), and compound forms in 13 (11.1%). Two patients (1.7%) demonstrated each extra central microtubules, misplaced central microtubules, acrosome loss, and absence of dynein arms. Mitochondrial abnormalities, coiled tails, fused tails and fibrous sheath abnormalities were seen each in one patient among the cohort.

Conclusions: The majority of men presenting with severe asthenospermia and high sperm viability have sperm ultra- structural defects. At present, we have no known way to treat men to reduce the rates of ultra-structural defects. EM studies would appear to be useful in men with normal viability and severe asthenospermia to assess whether they may have reversible causes for the asthenospermia.

MP-02.03

Motility parameters amongst men demonstrating sperm ultra-structural defects on electron microscopy

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Introduction and Objectives: Electron microscopy (EM) may be used to assess sperm for ultra-structural defects (USDs) that may contribute to impaired motility. While EM is classically indicated to further evaluate semen analyses with motility less than 20% and viability greater than 50%, USDs have been found primarily in semen analyses with a motility less than 7%. The purpose of the present study is to evaluate asthenospermic semen analysis parameters among samples with EM-diagnosed ultra- structural tail abnormalities.

Methods: Male patients presenting to an infertility clinic meeting sperm motility and viability criteria went on to undergo EM. After obtaining institutional review board approval, semen analyses and EM findings were reviewed for clinic patients between January 2008 and October 2014. T-tests and Chi2 were used to compare semen analyses with ultra-structural defects to those identified as normal by EM.

Results: Among 8988 patients undergoing semen analyses, 187 (2.1%) underwent EM and 117 were found to have ultra-structural flagellar defects. Mean patient age of those undergoing EM was 37 years (range: 25-55). For those with and without USDs, the average motility was 3.1% (range 0-32.3%) and 7.1% (range 0-34%), respectively ($p = 0.78$). Mean viability was 47.8% (range 0-85%) and 67.4% (range 25-80%) ($p= 0.12$) for the two groups. Quartiles were created based on sperm motility to further subdivide the cohort. The comparison of normal and abnormal EM findings between quartiles was found to be statistically significant ($p<0.001$). Among patients with USDs, the average frequency of abnormal sperm was significantly greater in the 1st quartile (66.2%) compared to the 4th (50.6%) ($p = 0.02$), however, comparisons between other quartiles were not statistically significant. Sensitivity and specificity were calculated to be 94% and 11.4%, respectively, based upon a classic motility cut off of 20%. Using 7% motility as the EM threshold would change the sensitivity and specificity to 73.5%, and 31%.

Conclusions: Patients with ultra-structural defects are more likely to present with lower motility. With worsening asthenospermia, the frequency of abnormal EM findings and proportion of abnormal sperm increase.

MP-02.04

Investigation and management of female urethral strictures

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Introduction and Objectives: Female urethral strictures (FUS) are uncommon and etiologies of this disease are often unclear. The purpose of this study was to identify and characterize the rare presentation of FUS in clinical practice and add to the small pool of knowledge regarding etiology and management.

Methods: A review of patient records diagnosed with FUS since July 2009 was undertaken. All data from the Electronic Medical Record was reviewed with regards to history, symptom score, flow rates (FR), post-void residuals (PVR) and cystoscopic findings. Management and follow up was recorded to assess the effect of intervention.

Results: Of ten females (aged 38-74) with FUS, 6 patients had unknown etiology for their presentation, 3 females had history of trauma, and 1 presented post-complicated pregnancy. Presenting symptoms included obstructive voiding, retention, incontinence, frequency, slow stream, and recurrent urinary tract infections. Duration of symptoms ranged from 1 to 360 months prior to presentation where median time was 30 months prior to presentation. Diagnosis was confirmed with obstruction seen on cystoscopy along with assessment of PVR (ranging from 109-537 mL) and peak flow rate (ranging from 2.8- 49 mL/s). Patients were managed with VIU under general anesthetic followed by self dilation (n=5), urethral dilation followed by self dilation (n=3), and urethral reconstruction with vaginal wall flap (n=1). The self-dilation program adhered to at vesia [Alberta Bladder Centre] is a 14 French in and out catheter performed bid x 1 month, od x 1 month, followed by Mon/Wed/Fri x 1 month before allowing the patient to perform as needed to keep their stricture patent. Patients are followed with periodic flow and scans, symptom scores and cystoscopy.

Conclusions: FUS presentations are rare and can present with unknown etiology and variable symptomology. Generally, patients present with high PVR, low FR and require cystoscopy for definitive diagnosis. FUS patients generally require intervention followed by self-catheterization since recurrence is essentially universal without urethral reconstruction.

MP-02.05

Sexual functional outcomes with dorsal vs. ventral substitution bulbar urethroplasty

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Introduction and Objectives: Sexual dysfunction after substitution bulbar urethroplasty may include erectile dysfunction (ED) and ejaculatory dysfunction (EjD). Proposed mechanisms include neural injury and bulbospongiosus myopathy. We sought to describe the incidence of ED and EjD with substitution bulbar urethroplasty and compare incidence between the ventral vs. dorsal approach. We hypothesize that the SD incidence will be lower with ventral substitution as it requires less dissection.

Methods: Data on all patients who underwent a dorsal or ventral buccal onlay urethroplasty for a bulbar urethral stricture from 2009-2014 were retrospectively reviewed from six centers in the Trauma and Urologic Reconstruction Network of Surgeons (TURNS). The pre-operative scores were compared to the post-operative scores for the Sexual Health Inventory for Men (SHIM, for ED) and Male Sexual Health Questionnaire (MSHQ, for EjD).

Results: A total of 194 men underwent buccal graft onlay urethroplasty: 120 (61.9%) ventral and 74 (39.1%) dorsal. Of the 194 men patients, 112 patients had pre-op questionnaires, 137 patients had 6-month post-op questionnaires and 99 had questionnaires at 12 months post-op. Clinical characteristics were similar between both groups when comparing stricture etiology, stricture location within the bulb, smoking, diabetes, coronary artery disease and previous urethroplasty (all $p>0.05$). The dorsal group had longer strictures than the ventral group: 4.5 cm vs. 4.0 cm, respectively ($p=0.02$). Pre-op MSHQ was 14.0 in both the dorsal and ventral groups ($p>0.05$). Pre-op SHIM was 22.5 in the ventral group vs. 24.0 in the dorsal group ($p>0.05$). There was no significant change in SHIM or MSHQ scores in either group post-operatively ($p>0.05$). Furthermore, the difference in differences was not significant. Individual items in each questionnaire were also examined and showed no change after surgery when examined at the group level.

Conclusions: Validated patient reported outcome measures do not detect an effect on either erectile or ejaculatory function with substitution bulbar urethroplasty. Further, there is no difference between ventral vs. dorsal approach. Individual patient experiences will vary with some having improved function and others impaired function; but, on average, there is no effect.

MP-02.06

Durability of revision surgery for stenosis of catheterizable channels in adults

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Introduction and Objectives: The incidence of stenosis of continent catheterizable channels varies by channel type (e.g. Mitrofanoff vs. Monti vs. tapered ileal limb) and patient factors. Up to 55% of channels will require intervention for stenosis; intervention is usually a dilation but for recurrent stenosis revision surgery may be required. We sought to describe the strategies of surgical revision for catheterizable channel stenosis and their outcomes.

Methods: We retrospectively reviewed the charts of 74 adult patients who underwent catheterizable channel revision or replacement from 2000 to 2014 for stomal stenosis or difficult catheterization. The primary outcome was continued ability to catheterize the channel post-operatively without surgical dilation or revision. Secondary outcomes included channel continence and post-operative complications. Revisions were classified into the following strategies: revision above the rectus fascia, below the fascia, or channel replacement.

Results: Revision approaches included 42% above the fascia, 30% below the fascia, and 28% channel replacement. Patients with congenital etiology of neurogenic bladder were more likely than other patients to undergo more complicated revisions (p=0.012). Channel patency was achieved in 65% at a median 34 months post-revision procedure; there was no difference by revision strategy (p=0.104). Severe stomal incontinence occurred in 3.2% after above the fascia repairs, 22.7% after below the fascia repairs and 14.3% after channel replacement (p=0.111). Surgical complications occurred in 28.4%; almost all were Clavien 1- 2 and there was no difference by revision strategy (p=0.293).

Conclusions: Surgical revision for continent channel stenosis can be performed with good rates of durable patency. Patency rates are similar across surgical strategies of revision. Those with congenital neuropathic bladder require more complex revisions. Severe post-operative channel incontinence is not uncommon. We present our management algorithm based on length of stenosis, the amount of redundant channel available for reconstruction, and the presence or lack of a continence mechanism prior to intervention (Fig. 1).

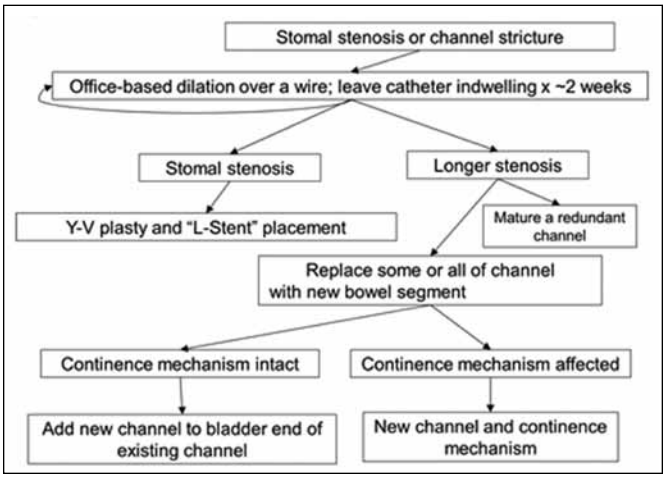

Fig. 1. MP-02.06. Stenosis of catheterizable channel treatment algorithm.

MP-02.07

Augmentation cystoplasty in patients with neurogenic bladders

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Introduction and Objectives: Augmentation cystoplasty (AC) can provide a safe functional reservoir that allows for urinary continence and prevention of upper tract deterioration. We report a single surgeon experience over 30 years.

Methods: We reviewed the records of all patients treated at our institution with AC for hostile neurogenic bladders dysfunction (NGD) over the last 30 years. Most were referred from outside institutions and/or from a children's hospital after the age of 18.

The procedures used for each patient were based on individual patient characteristics; 21 patients had urinary diversion prior to AC. Evaluation included a history, with review of previous operative reports, physical exam, cystoscopy, imaging, and multichannel urodynamics. These were recorded in our database.

Results: There were 153 patients, (mean age 32 y.) who underwent AC including, 63 males and 90 females. Spina bifida (77) and spinal cord injury (49) were the most common etiologies. Foley catheterization (62) and clean intermittent catheterization (42) with pads were the most common preop management methods. Pre-operatively, 28 patients had either moderate or severe hydronephrosis.

Of the 153 patients, 80 underwent continent stomas (18 males and 62 females). Nearly all of these required bladder neck procedures (79%). Of the 73 patients with AC alone (45 males and 28 females), the majority needed bladder neck procedures (85%). Thirty patients needed concomitant ureteral procedures, including the 21 undiversions. There was a significant postoperative increase in mean bladder capacity (204 to 519 cc $p<0.0001$) and decrease on endfilling pressure (42 to 14 cm water, $p<0.0001$). Re-interventions were required in 46% of patients over time, most commonly for bladder stones. All of the abnormal renal units stabilized or improved. Late re-interventions were also seen. Mean follow up time was 7.6 years (3-28).

Conclusions: AC is reasonable treatment for patients with hostile NGD. It is a complex surgical procedure that often requires concomitant ureteral and/or urethral procedures. Proper patient evaluation and selection, as well as approrpriate use of concomitant procedures lead to improved functionality of the lower urinary tract. Long-term follow-up is essential to assess for need of reintervention.

MP-02.08

Various approaches in the repair of rectourethral fistulae

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Introduction and Objectives: Rectourethral fistulae (RUF) represent a rare complication following extirpative or ablative treatment of the prostate. Presenting symptoms include fecaluria, pneumaturia, rectal urinary leakage and recurrent UTIs. Given the rare incidence, experience is limited to individual case series; we report a single surgeon experience over 30 years.

Methods: We reviewed the records of all patients treated at our institution for RUF over the last 30 years. Patient demographics, fistula characteristics, treatment and outcomes were recorded in our database. Most were referred from outside institutions.

The surgical approach used for each patient was based on individual patient and fistula characteristics; a diverting colostomy or ileostomy was performed in patients with symptoms or signs of infection, or as necessary. Evaluation included a detailed history, including review of previous operative reports, physical examination and imaging tests (cystoscopy, cystogram, CT, MRI) and occasionally examination under anesthesia to delineate the fistula.

Results: There were 24 men with a mean age at time of repair of 64.4 years (range 46-86). Etiology of the fistula was varied, with radical prostatectomy the most common etiology (17) and radiation therapy the second most common (7).
Various approaches for operative repair were used, including the posterior transspinchteric (York-Mason) approach in 12 patients, transanal in 3 patients, transperineal in 3 patients (one with gracilis muscle interposition). Of the 9 patients with a transabdominal repair, 7 underwent a radical prostatectomy and rectal repair.
Six patients had previous failed repairs: 4 had a transperineal approach, 1 prostatectomy and rectal closure, and 1 injection. Mean follow-up was 38 months (range 1.7-280). Initial repair at our institution was successful in all but one patient. Stress urinary incontinence was the most common complication with 16 patients experiencing this (8 severe). One patient underwent insertion of artificial urinary sphincter and one a male sling.
Conclusions: RUF remains a complex problem which often requires surgical correction. Proper evaluation and selection of patients, as well as management by an experienced surgeon is key to better outcomes in this rare, but troublesome problem.

MP-02.09

The safety and efficacy of Li-ESWT in 604 patients for the treatment erectile dysfunction: Summary of current and evolving evidence

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Introduction and Objectives: Low intensity shock wave therapy (Li-ESWT) is currently approved in over 20 countries and available at over 200 clinics worldwide. A US multicenter study has been completed and the data are currently under FDA review. Herein we provide an overview of the clinical experience to date on the safety and efficacy of Li-ESWT for the treatment of erectile dysfunction. Studies were conducted in men with ED considered responders and in men considered poor responders to PDE5i. We report pooled data from 5 randomized, placebo-controlled studies (USA, Israel, Greece and India) and 3 single-arm open label studies (Israel, Japan). Li-ESWT for ED has been recently included in the European Association of Urology guideline 2013 for male sexual dysfunction.
Methods: The database included men (N=604) using the same treatment protocol with Li-ESWT (ED1000 Medispec applicator; Active Rx N=440; Sham Rx N=164).; Li-ESWT was applied to the corpora 2X weekly for 3 weeks and repeated after a 3 week rest period for a total of 12 Rx sessions. Changes in IIEF-EF domain were assessed at baseline and at mid-treatment; 1 month (FU1), 3 months (3M), 6 months (FU2) 12 (FU3) and 24 months (FU4) post treatment. Objective measurements of efficacy were assessed by various measures including penile US Doppler (Greece, penile triplex), Flow Mediated Dilation (FMD, Israel) and nocturnal penile tumescence (NPT, USA). Incidence and severity of adverse events were recorded.
Results: Results of pooled data revealed that 55%, 61%, 65% and 71% of the subjects achieved a minimally clinical important difference (MCID) in their –IIEF-EF score from baseline at midterm, FU1, FU2 and FU3 and FU4 respectively. The mean change in IIEF-EF from baseline was 5, 6.8, 6.2 and 7 points at midterm, FU1, FU2 and FU3 and FU4 respectively. Li-ESWT applied via the ED-1000 was well tolerated; reported AEs were mild and resolved spontaneously. Results from selected studies in which objective measures were assessed are presented in Table 1.
Conclusions: In these pooled data analyses, Li-ESWT was demonstrated to be safe and effective for the treatment of ED in men considered responders as well as non-responders to PDE5i therapy. Li-ESWT was well tolerated,

Table 1. MP-02.09. Results from RTCs

Country	USA	Greece	Israel–		
	RCT	RCT	RCT1	*Group D	**RCT2
Response to PDESi prior to Li-ESWT	Responders	Responders	Responders	Responders	Poor responders
***MCID II-EF EF-EF domain	62% vs. 37.5% in treatment vs. placebo group, *p*=0.025	58.6% vs. 12.5% in treatment vs. placebo group, *p*=0.003	49.3% vs. 9.1% in treatment vs. placebo group, *p*<0.01	45.8% vs. 12.5% in treatment vs. placebo group, *p*=0.021	40.5% vs. 0% in treatment vs. placebo group, *p*=0.001
IIEF-EF change from baseline	6.1 vs. 2.5 points in treatment vs. placebo group, *p*=0.02	4.6 vs. 1.4 points in treatment vs. placebo group, *p*<0.001	5.3 vs. 0.2 in treatment vs. placebo group, *p*<0.001	5.5 vs. -0.1 points in treatment vs. placebo group, *p*<0.001	5.4 vs. 0.1 points in treatment vs. placebo group, *p*<0.001
US Doppler	NA	PSV increased by 4.5 vs. 0.6 cm/sec in treatment vs. placebo group, *p*<0.001	NA	NA	NA
FMD	NA	NA	Mean AUC difference, treatment vs. placebo, 361.3 *p*=0.002	Mean AUC difference, treatment vs. placebo, 316.9 *p*=0.002	Mean AUC difference, treatment vs. placebo, 276.2 *p*=0.001
NPT	Mean difference tratement vs. placebo, 0.52 *p*=0.016	NA	NA	NA	NA
Population	103 pt. (treatment-84, placebo-40)	46 pt. (treatment-31, placebo-15)	89 pt. (treatment-59, placebo-30)	24 pt.	55 pt. (treatment-37, placebo-18)

*Group D: Subjects from the placebo group of the RCT study who did not demonstate significant improvement in their IIEF-EF domain score received an additional treatment course with an active shockwave applicator. The treatment protocol those subjects received was identical to the original study protocol.
**RCT: Subjects that were poor responders to PDESi prior to Li-ESWT were allowed PDESi use at baseline and following last treatment until FU1 assessment (all pt. achieved erection hardness score ≤2 at baseline, and EHS≥3 in 62% at FU1. Population pilot study included).
***MCID (ROSEN): Success defined as: an increase in the IIEF-EF domain score ≥2 points from baseline for mild ED, ≥5 points for moderate ED, and ≥7 points for severe ED.
ED severity defined as: Mild ED – IIEF-EF score 17–22, Moderate ED – IIEF-EEF score 11–16, Severe ED – IIEF-EF score 0–10.

adverse events were mild, self-limited and resolved spontaneously. These results support the role of Li-ESWT in the management of men with ED.

MP-02.10

A survey of Canadian urologist opinions and prescribing patterns of testosterone replacement therapy in men on active surveillance for low grade prostate cancer

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Introduction and Objectives: Attitudes regarding the safety of testosterone replacement in hypogonadal men with prostate cancer (PCa) have changed over the past few years with the emergence of studies suggesting lower risk of cancer progression or recurrence than previously believed.

Methods: 57 physician members of the Canadian Urologic Association were surveyed regarding their opinions on testosterone therapy in men with low grade PCa and their prescribing habits.

Results: Of the 57 physicians, 53 (93%) actively treated men with PCa, and 54 (95%) used active surveillance (AS) as one technique to manage men with low grade/low stage disease.

49 (86%) physicians actively prescribed testosterone therapy for men with known testosterone deficiency without known PCa, and 37 (65%) believed it was safe for men with PCa on AS to be treated with testosterone in the presence of testosterone deficiency. Furthermore, 36 (63%) believed that use of testosterone did not increase the risk of progression of PCa in men on AS. A similar number of physicians (37, or 65%) said they would offer testosterone for men with testosterone deficiency syndrome who were on AS.

Despite the above figures, however, only 20 (35%) of physicians had ever offered testosterone replacement therapy for men on AS, while only 24 (42%) actually had patients who were taking testosterone while on AS.

Conclusions: The discrepancy between physicians' beliefs and their clinical practice patterns may be due to multiple factors. Physicians sampled may not have had a large number of men with both low grade PCa and testosterone deficiency. Another possibility is that these physicians were not screening for testosterone deficiency in their patients on AS. Alternatively, physicians may have been accepting of the potential safety of testosterone replacement in such men theoretically, but were not comfortable carrying out this act in real-life practice. Patient preference may also have played a role in low prescribing rates.

The results from this study will be used in the development of a national Canadian registry of men with low grade/stage PCa who are both on AS and are receiving testosterone replacement for testosterone deficiency syndrome.

UP-02.01

A shift in attitudes: Canadian urologists opinions regarding safety of testosterone replacement therapy in men treated for prostate cancer

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Introduction and Objectives: The role of testosterone in prostate cancer development, progression, and recurrence has remained controversial for over a half decade. It was previously held as dogma that testosterone would cause prostate to spread or relapse. Urologists historically avoided giving testosterone replacement therapy (TRT) to men who had previous been treated for prostate cancer by any modality. The objective of this study was to survey contemporary urologist beliefs regarding the safety of TRT in prostate cancer treated men.

Methods: An internet-based survey was administered to members of the Canadian Urological Association in September 2014. The survey specifically asked "Do you feel it is safe to administer testosterone to men who have received curative treatment for prostate cancer using the following modalities: radical prostatectomy, radiation therapy, brachytherapy".

Results: There were 57 active members of the Canadian Urological Association who responded to the survey. With respect to radical prostatectomy, 55 urologists (96%) believed TRT to be safe, while 2 (4%) disagreed. Similarly, 49 respondents (86%) believed TRT to be safe in men treated with radiation therapy, whereas 8 (14%) felt TRT was unsafe. Lastly, 49 urologists (86%) surveyed believed TRT to be safe in men previously treated with brachytherapy for prostate cancer. 8 respondents felt TRT to be unsafe in brachytherapy.

Conclusions: Clearly there has been a shift in the belief of Canadian urologists regarding the safety of TRT in the setting of previous curative treatment for prostate cancer using all major modalities. This affirms more contemporary data supporting no increased risk of prostate cancer recurrence with the use of TRT. Many men become symptomatically hypogonadal around the time of prostate cancer diagnosis and treatment. Better understanding of TRT safety will enable more men to be appropriately treated. It remains to be seen whether TRT will be seen as safe in other populations such as those on active surveillance for prostate cancer.

UP-02.02

Patient satisfaction and genital function after adult circumcision: Results of a post-operative survey

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Introduction and Objectives: There exists a paucity of data regarding patient satisfaction post-adult circumcision in terms of both functional and cosmetic results. The purpose of this study is to determine patient satisfaction with regard to various penile & sexual factors after adult circumcision.

Methods: A list of patients who underwent adult circumcision over a five-year period by four urologists was obtained. Patients were sent an information letter outlining the purposes of the study as well as the study survey by mail. The questionnaire obtained demographic data and surveyed patient satisfaction after circumcision (on a Likert scale) with regard to various aspects of sexual health and function (penile sensitivity, erectile function, appearance, etc).

Results: 68 patients completed the study survey with an average patient age at circumcision of 51 years. The majority of survey respondents underwent circumcision for medical reasons, most commonly phimosis (76%). There was no significant change in reported sexual desire or frequency before and after circumcision (p-value 0.25 & 0.82, respectively). There was no significant change in erectile function or sexual enjoyment before and after circumcision (p-value 0.09, 0.53). There was a statistically significant (p-value<0.01) decrease in the frequency of ejaculation with sexual activity after circumcision. There was also a statistically significant decrease in pain with intercourse (p-value<0.0001). There was no significant change in penile sensitivity (p-value 0.12) or length of time to orgasm (p-value 0.21) post-circumcision. 52% of respondents felt the appearance of their penis was better since surgery, while just 12% felt it looked worse. The majority (87%) of respondents reported no regret from undergoing circumcision.

Conclusions: Circumcision for medical indications does not appear to affect sexual desire, erectile function, sexual enjoyment, or penile sensation although there may be an improvement in penile pain and minor changes in ejaculation. The majority of patients undergoing circumcision feel that penile appearance improved after circumcision.

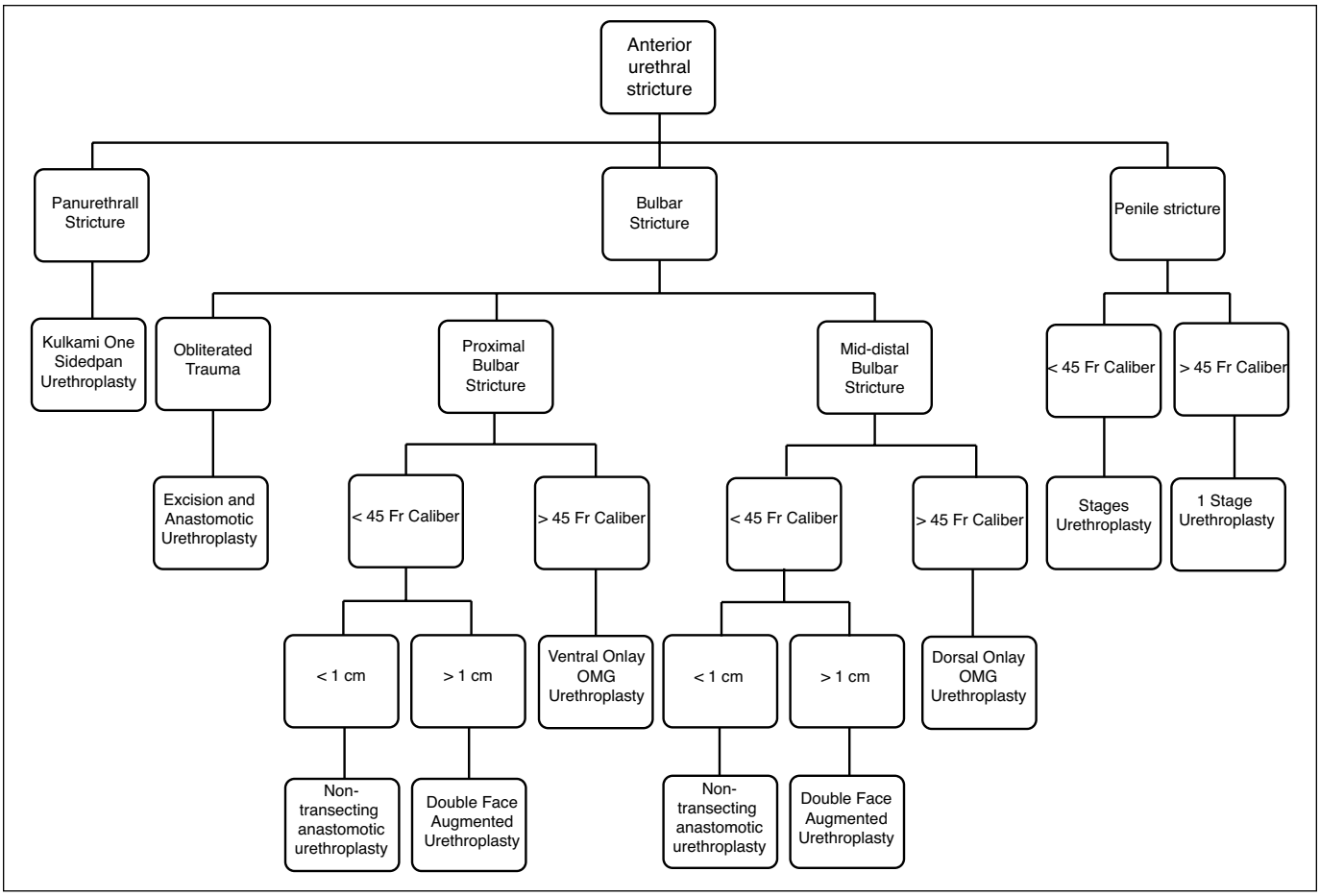

Fig. 1. UP-02.03.

UP-02.03

The benefits of using a small caliber ureteroscope in evaluation and management of urethral stricture

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Introduction and Objective: The proper evaluation of urethral strictures is an essential part of the surgical planning in urethral reconstruction. We propose that the use of small caliber ureteroscope (4.5 Fr and 6.5 Fr) can offer additional help and use for the surgical planning in urethroplasty.

Methods: We prospectively collected data on 58 patients who underwent urethroplasties in Kulkarni reconstructive urology center Pune, India. Patients had retrograde, and micturition urethrograms performed pre-operatively. Stricture was assessed visually using 6.5 Fr ureteroscope. If the stricture was smaller than 6.5 Fr, we attempted using the 4.5Fr ureteroscope. In non-obliterated strictures, we attempted bypassing the stricture making sure not to dilate the stricture. A glide wire would be passed to the bladder under vision. Stricture length, tissue quality, presence of other proximal strictures, false passages, and bladder for tumors or stones would be assessed visually. We then follow our algorithm for decision making post urethroscopy (Fig. 1).

Results: Urethroscopy was performed in 58 patients who presented for urethroplasty from July 2014 to September 2014. Bypassing the stricture was achieved in 51 patients (88%) while it was unsuccessful in 7 patients (12%). In all unsuccessful urethroscopies, the stricture was near obliterative <4.5 Fr. Our surgical planning changed in 19% of the cases. Out of 33 bulbar strictures the decision was changed in 21.2% where we performed 3 DFAU, 3 AAU, and 1 EAU. In 9 penile strictures, we opted for staged urethroplasty including (3 johansons, and 1 first stage Asopa) in 44.4%. In 16 panurethral urethroplasties 1 patient (6.25%) had a urethral stone found in a proximal portion of the bulbar urethra distal to a stricture ring that was removed using an endoscopic grasper.

Conclusion: The use of the small caliber ureteroscope can help in evaluation of the stricture calibre, length, and tissue quality. The scope can also aid in placing a guide wire, evaluating the posterior urethra, and screening for urethral or bladder stones. It can also improve the pre-operative patient counselling and avoid unwanted surprises.

UP-02.04

The effect of repeat endoscopic manipulation on bulbar urethral stricture length, urethroplasty complexity and urethroplasty outcomes

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Introduction and Objectives: Endoscopic procedures remain the most commonly used treatment for urethral stricture. Repeat endoscopic procedures, however, do not typically offer cure and may increase stricture complexity, threatening urethroplasty outcomes. Our objective was to examine the association between the number of endoscopic procedures

with stricture length, urethroplasty complexity and urethroplasty outcomes.
Methods: A retrospective review of 840 consecutive urethroplasties performed by a single surgeon between Aug 2003 and May 2014 was completed. Exclusion criteria were prior urethroplasty, penile/panurethral strictures, posterior stenosis, staged repair or incomplete datasets. Number of endoscopic treatments were analysed as an ordinal variable by dividing the number of endoscopic treatments into 4 groups (group 1 = 0 treatments, group 2= 1-2, group 3 = 3-5, group 4 = greater than 5) and as a continuous variable. Patient demographics and postoperative outcomes were first compared using univariate binary regression, followed by multivariate binary regression. Outcomes measures were stricture length, complexity of urethroplasty (either an anastomotic technique or a more complex tissue substitution), urethroplasty success (defined as the easy passage of a 16Fr cystoscope), and Clavien complications.
Results: Of the 430 patients with bulbar urethral strictures eligible for analysis, 49 were in group 1, 182 were group 2, 141 in group 3, and 58 were group 4. Using linear regression as both an ordinal and continuous variable, an increase in the number of endoscopic manipulations was strongly associated with increased stricture length ($p<0.001$ and $p=0.01$) and urethroplasty complexity ($p<0.001$ and $p=0.02$). Using multivariate binary regression, no association of urethroplasty success or complications were found with number of endoscopic treatments ($p=0.85$ and $p=0.56$, respectively). Urethroplasty failed in 2% of group 0 (1/50), 6.6% of group 1 (12/182), 9.0% of group 3 (13/143), and 8.6% of group 4 (5/65).
Conclusions: Temporizing patients with repeat endoscopic procedures is associated with increasing stricture length and urethroplasty complexity. Despite this, no association was found between the rate of stricture recurrence or accompanying urethroplasty complications.

UP-02.05

Patient age rather than urethral transection influences erectile function after urethroplasty: A prospective analysis

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Introduction and Objective: Urethroplasty is the most efficacious treatment for urethral stricture, however, urethroplasty involves dissection near neurovascular structures that are responsible for normal erectile function. This study aims to prospectively assess potential pre-operative risk factors for erectile dysfunction following anterior urethroplasty.
Methods: From Feb 2011-Dec 2014 patients were offered enrolment in a prospective study assessing erectile function after anterior urethroplasty. Participants completed the International Index of Erectile Function (IIEF) questionnaire pre-operatively and 6 months post-operatively. Outcome measures were incidence of adverse change in erectile function defined by ≥5 point change in the erectile function domain as well as mean overall change in the erectile function domain. Factors examined were urethra transection, stricture location, patient age and general patient pre-operative comorbidities. Fisher's exact test was used to compare the proportion of patients with adverse change in EF and change in IIEF was compared with an unpaired t-test. Multivariable regression was used to assess univariate associations further.
Results: 136 patients were enrolled with 91 complete sets of data available for analysis. Mean patient age was 46.6 years. Stricture location was penile in 21 patients and bulbar in the remaining 70. Twenty-eight patients had urethral transection while 63 had various non-transecting techniques. 14 patients (15.4%) developed a significant (≥5 point) decrease in post-operative erectile function. For the entire cohort IIEF scores were unchanged (mean change +0.20;$p=0.91$). Analysis of mean change in EF scores showed no association with urethral transection ($p=0.75$), stricture location ($p=0.66$), or other medical comorbidities. Patient age ≥50 was found to be associated with a decrease in mean postoperative EF ($p=0.04$). On regression analysis patient age was the sole factor associated with adverse change in erectile function($p=0.02$).
Conclusions: Urethroplasty can result in a decline in erectile function in some patients but overall is associated with minimal change in erectile function. Urethral transection and stricture location are not associated with adverse change in erectile function but increasing patient age is.

UP-02.06

Management of urethral injuries associated with pelvic fractures: A survey of Canadian urologists

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Introduction and Objective: Management of pelvic fracture-associated urethral injuries (PFUI) is not standardized. Additionally, conflict may arise between urologists and orthopedic surgeons regarding the possibility of orthopedic hardware infections resulting from the presence of suprapubic (SP) tubes. We surveyed Canadian urologists about their experiences, perceptions and opinions regarding PFUI management.
Methods: Active Canadian urologists were surveyed via an anonymous bilingual web-based 12-item questionnaire. All 735 Canadian urologists and residents were invited to participate via email distributed by the Canadian Urological Association.
Results: In total, 153 Canadian urologists from 9 provinces responded to the survey (20.8% response rate). The majority practice in a trauma centre (53.2%) and see 1-5 PFUI per year (70.2%). Most urologists (83.3%) favor primary realignment (PR) for management of PFUI, while 14.8% and 1.9% favor delayed and immediate repair respectively. Compared to delayed repair with SP diversion, the majority believe PR has lower stricture rates (73.0%) and equivocal incontinence (61.2%) and erectile dysfunction rates (75.8%). Among urologists who perform PR, 44.8% concurrently place a SP tube. While only 9% believe SP tubes increase the risk of pelvic hardware infections, 31.6% report that orthopedic surgeons alter their management of pelvic fractures in the presence of a SP tube.
Conclusions: Most Canadian urologist respondents – even those practicing in trauma centres – manage very few PFUIs per year. There is reasonable consensus among respondents that PR is favorable to delayed or immediate repair, but discordance whether or not to use of SP tubes during PR. The urologic and orthopedic consequences of SP tubes in the management of traumatic urologic injuries warrant further study.

UP-02.07

Artificial urinary sphincter outcomes in the "fragile" urethra

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Introduction and Objectives: The management of post-prostatectomy incontinence (PPI) in patients with a fragile urethra remains a challenge. Radiation, previous failed AUS, and previous urethroplasty have been demonstrated to cause urethral atrophy and predispose to subsequent artificial urinary sphincter erosion. Techniques, such as the transcorporal AUS (TCAUS), have been introduced to treat these high-risk patients. This study aims to review our outcomes with the AUS for PPI in fragile urethra patients.
Methods: We performed a retrospective chart review of all the AUS implants at our institution between August 2004 and March 2014. We identified 30 high-risk patients, defined as a history of pelvic radiation, previous failed AUS, and/or previous urethroplasty, or cystoscopic findings of urethral atrophy. Our primary outcome was continence, defined as requiring 1 or less pads per day. Secondary outcomes included complications, need for further treatment/surgery, change in continence pads required, and patient satisfaction.
Results: Thirteen of the patients were transcorporal AUS (TCAUS) and 17 had a standard AUS cuff placement. Seventeen patients had radiation therapy, 8 had a previous eroded AUS, and 10 had a prior urethroplasty (5 patients had multiple risk factors). Continence was achieved in 76.7% (23/30), 96.7% (29/30) improved, and the mean change in pads was 6.0±2.8. Only 6.7% (2/30) required explantation, both for erosion. When the TCAUS and standard AUS groups were compared, no differences were noted in continence rates (84.6% vs. 70.6%; $p=0.43$), improve-

ment (100% vs. 94.1%; p=1.00), satisfaction (84.6% vs. 94.1%; p=0.56), explantation rates (15.4% vs. 0%; p=0.18), or erosion rates (15.4% vs. 0%; p=0.18), despite TCAUS having a higher proportion of previous urethroplasties (58.3% vs. 7.7%; p=0.007).
Conclusions: The AUS is a viable treatment option for the management of post-prostatectomy incontinence even in the high-risk "fragile" urethra in the setting of radiation, previous urethroplasty, or previously failed AUS. TCAUS may be utilized in patients with a very high risk for atrophy with similar continence and complication rates compared to standard AUS.

UP-02.08

Transperineal approach to complex rectourethral fistulae: Case series and literature review

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Objective: To present our experience and outcomes in patients with complex rectourethral fistulae (RUF) treated using the transperineal approach with gracilis muscle flap interposition. Complex RUF was defined as those with prior radiation, failed repair attempts and large size (>2cm).
Methods: This was a retrospective review of all patients presenting with complex RUF between July 2009 and November 2013. Ten patients presenting with complex RUF were identified. Three were excluded due to very large fistula defects managed with urinary diversion. Seven patients met the criteria for complex RUF classification and underwent reconstruction. All patients were evaluated preoperatively with cystoscopy and proctoscopy. All patients were repaired via transperineal approach with gracilis muscle flap interposition.
Results: Six of 7 patients had prostate cancer, and 1 patient had colon cancer treated with low anterior resection with salvage adjuvant radiation. The primary modality of cancer therapy was brachytherapy (3), external beam radiotherapy (3) and radical retropubic prostatectomy (1). Three patients had salvage cancer therapy including radical retropubic prostatectomy (2) and cryotherapy (1). Two patients had transurethral resection of outlet contracture following prostate cancer therapy. 1 patient developed RUF post-primary RRP without radiation and had a large defect. Mean fistula size was 2.8cm (range: 2-4cm). Average length of stay in hospital was 3.4 days. There were no fistula recurrences at mean follow-up 11.4 months (range: 6-20 months). Three patients have had colostomy reversal, 1 is pending reversal and 3 have permanent colostomies. Five patients have stress urinary incontinence with 2 managed with 1-4 pads/day, 1 managed with a condom catheter, and 2 waiting for an artificial urinary sphincter (AUS). One patient developed a perineal wound infection, and one patient developed a postoperative pulmonary embolus which responded to medical management.
Conclusion: In our experience, complex RUF defects are effectively treated with transperineal repair using gracilis muscle interposition. The procedure has low morbidity, and high success even in patients with complicating features including radiation, large defects and prior failed repairs. Concomitant stress incontinence and bladder outlet contracture are relatively prevalent in this population and can require ongoing management after fistula repair.

UP-02.09

Out come of microscopic versus dye assisted lymphatic sparing varicocelectomy: A prospective study

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Objective: To analyze efficacy and safety of microscopic dye-assisted lymphatic sparing varicocelectomy compared to the traditional microscopic technique via subinguinal approach.
Patient and Method: Between January 2012 and June 2014, a prospective study including all subfertile (having impaired semen parameters) patients with any degree of varicocele diagnosed by color doppler ultrasound was conducted. Azoospermic patients and those with previous inguinal surgery, hernia or hydrocele were excluded. Patients were randomly stratified into two groups 37 patients each. Group I underwent microscopic subinguinal varicocelectomy. Group II was managed via the same approach with dye-assisted lymphatic sparing. All patients were evaluated by local examination, semen analysis, testosterone level and color doppler ultrasound before and 6 months after treatment. Incidence of pregnancy was reported during follow up periods between 6 and 30 months.
Results: The mean (± SD) age of patients was 28.6 ± 4.7, 29.2 ± 4.5 in groups I and II respectively. Most of patients (91.9% in group I and 86.5% in group II) had 1ry infertility. Semen parameters and total testosterone level showed statistically significant improvement 6 months postoperatively than preoperatively in both groups. Group II had significantly less postoperative hydrocele, while there were no statistically significant differences in concern of postoperative testicular size and incidence of pregnancy between both groups.
Conclusion: Dye-assisted lymphatic sparing varicocelectomy have nearby good impact on semen parameters with lower incidence of hydrocele compared to the traditional microscopic varicocelectomy.

UP-02.10

Predictors of improvement of semen parameters after varicocelectomy for male subfertility

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Introduction: To predict results of varicocelectomy using preoperative clinical, laboratory and radiological parameters and to propose cut off values for significant parameters.
Patient and Methods: Between September 2011 and June 2013 patients diagnosed as primary infertility and scheduled for varicocelectomy were enrolled in this study. Patients with suspected female factor of infertility were excluded from the study. Varicocele was diagnosed and graded by physical examination as well as color Doppler ultrasound. semen analysis were done preoperatively and 3,6and 12 month postoperatively. Patients were classified as responder if improvement occurs of at least one of semen parameters. Patient demographics, preoperative semen parameters and operative data were tested and statesticaly analyzed. The unpaired student -t- test was used for univariate analysis. Multivariate logistic regression analysis and receiverOperator Characteristic (ROC) curves were plotted to outline the suggested cutoff values for significant parameters.
Results: Patients met eligibility criteria were 123. Varicocele Grades I, II and III were diagnosed in 46, 51 and26 patients respectively. Improvement of semen analysis parameters (responders) were noted in 67 patients(54%). sperm count was significantly increase postoperative (from 15.85 ± 6.65 × 10(6) to 29.27 ± 8.21 × 10(6)mL; P<0.05). Age, preoperative sperm motility and sperm density are significant predictors of successful varicocelectomy in multivariate logistic regression.
Conclusion: Preoperative sperm density, motility and age are reliable predictors for successful varicocelectomy.

UP-02.11

Erectile function recovery after robotic-assisted radical prostatectomy: Long term exhaustive analysis across all preoperative potency categories

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Objective: To evaluate erectile function recovery following robotic-assisted radical prostatectomy according to preoperative SHIM score stratification.
Materials and Methods: We prospectively collected data on 250 consecutive patients who underwent RARP by a single fellowship-trained Robotic urologist (AEH) between October 2006 and October 2012. We excluded

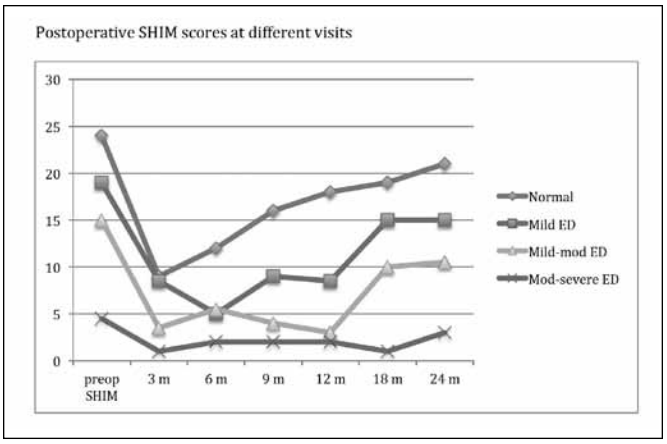

Fig. 1. UP-02.11.

36 patients because of lack of preoperative SHIM score. All patients had a minimum follow up of 2 years. Patients were divided into 4 groups according to their preoperative SHIM score: group one with normal potency (SHIM 22-25), group two with mild ED (SHIM 17-21), group three with mild-moderate ED (SHIM 12-16) and group four with moderate-severe ED (SHIM 1-11) (Fig. 1). Patients were followed at 3,6,9,12,18,24 months intervals and twice yearly thereafter. SHIM questionnaire and EHS score were collected at each visit. Potency was defined as successful penetration during intercourse with or without PDE5-I (EHS score 3-4).

Results: After exclusions, 214 patients were evaluated. The number of patients in Group 1, 2,3 and 4 were 95, 59, 26 and 34, respectively. At 3, 6, 9, 12, 18, 24 months, SHIM scores and potency rates were statistically higher for those with better preoperative SHIM score ($p<0.05$ Table 1), Potency rates at 24 months for groups 1 to 4 were 95.5%, 55%, 50%, and 28%, respectively ($p<0.001$, Table 2).

Conclusion: For proper patient counseling and better prediction of erectile function recovery after RARP, it is important to stratify patients according preoperative SHIM scores.

Table 1. UP-02.11. Postoperative SHIM scores for all groups in each visit

Potency group	Preop SHIM (median)	Postop SHIM (median)						*p* value
		3 m	6 m	9 m	12 m	18 m	24 m	
Normal SHIM (22–25)	24 (n=95)	9	12	16	18	19	21	0.100
Mild ED (17–21)	19 (n=59)	8.5	5	9	8.5	15	15	0.078
Mild-mod ED (12–16)	15 (n=26)	3.5	5.5	4	3	10	10.5	0.722
Moderate-serere ED (1–11)	4.5 (n=34)	1	2	2	2	1	3	
P value		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	

SHIM, sexual health inventory for men

Table 2. UP-02.11. Postoperative potency rates according to SHIM score

Potency group	Postoperative potency rates (EHS ≥3)							*p* value
	1 m	3 m	6 m	9 m	12 m	18 m	24 m	
Normal (SHIM 22–25) N=95	26.5% (21/79)	47.3% (26/55)	51.5% (35/68)	67.2% (43/64)	81.8% (45/55)	84.6% (33/39)	96.5% (28/29)	<0.001
Mild ED (SHIM 17–21) N=59	18% (9/50)	31.6% (12/38)	35.9% (14/39(	44.4% (16/36)	51.5% (17/33)	54.2% (13/24)	55% (11/20)	<0.001
Mild-mod (SHIM 12–16) N=26	16.7% (3/18)	27.7% (5/18)	38.9% (7/18)	36.5% (4/11)	40% (4/10)	55.5% (5/9(	50% (2/4)	0.136
Moderate-severe (SHIM 1–11) N=34	8.3% (2/24)	9.1% (2/22)	9.5% (2/21)	17.6% (3/17)	20% (3/15)	20% (3/15)	28% (4/14)	0.238
P value	0.230	0.013	0.007	0.001	<0.001	0.004	<0.001	

UP-02.12

Uroflow stop test and potency recovery: A surrogate for pelvic floor integrity post robotic-assisted radical prostatectomy

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Introduction and Objectives: We recently showed that the ability to completely stop urine flow during voiding, measured objectively by uroflowmetry at the time of catheter removal (uroflow Stop Test) can predict early urinary continence recovery following RARP. Our objective is to evaluate the relation between uroflow stop test and early potency recovery after RARP.

Methods: In this prospective observational cohort, data was collected on 108 patients operated by a single surgeon (AEH). Eighty patients had a positive uroflow Stop Test (group one) and 28 had a negative Stop Test (group two). Patients were followed for a minimum of 2 years. Covariates included age, BMI, IPSS and SHIM scores, PSA, tumor stage, prostate volume, nerve sparing status and EBL.

Results: Preoperative characteristics were comparable between both groups except nerve sparing and PSA which were statistically higher in group one ($p<0.05$). Early 3- and 6-months recovery of erectile function was significantly higher in group one. Potency rates in group one and two at 1, 3, 6, 9, 12, 18 and 24 months were 25% vs. 14.3% (p 0.241), 54.5% vs. 18.5% (p 0.001), 55.4% vs. 18.5% (p 0.001), 56.4% vs. 36% (p 0.084), 66.6% vs. 50% (p 0.141), 65.5% vs. 56% (p 0.404) and 73.2% vs. 57.7% (p 0.160) respectively. Uroflow Stop Test was independent predictor of early potency recovery on multivariate regression analysis at 3 and 6 months [OR 6.70 (95%CI: 1.36-32.97, p0.019) and OR 5.46 (95%CI: 1.84-16.20, p0.025), respectively].

Conclusion: Uroflow Stop Test is a simple, yet strong predictor of early potency recovery following RARP.