Moderated Posters 3: Sexual Health and Infertility
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MP-03.01
Anticipated versus Actual Pain From Office Vasectomy - "Not Half as Bad"

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Introduction and Objectives: Vasectomy is a safe method of male contraception, with low failure and low complication rates, still it is used by only 5.7% of all US men aged 15 to 44. 45% of men report finding the decision to undergo a vasectomy difficult, with anxiety and anticipation of pain being the main deterrents. This study was undertaken to compare the pre-vasectomy anticipated pain scores with immediate post-vasectomy patient actual reported pain scores, in a cohort of 55 consecutive men undergoing office based No-Needle No-Scalpel vasectomy (NNNSV).

Method: Retrospective chart review was done. Data was collected in real time by asking all patients their anticipation of pain using FACES™ visual analog pain scale. Using 1% Lidocaine in a Madajet™ device, local anesthesia was administered and NNSV was done through single midline puncture by single surgeon (PS). Vas was occluded with titanium clips, 1 cm segment was cut, lumen was cauterized and fascia interposed. Immediately after completing the procedure the patient-reported actual pain was recorded on the above mentioned pain scale. The collection of data, recording and analysis was done independent of the operating surgeon.

Results: Complete data was available for 51/55 men. Average age of the cohort was 36.4 yrs (range 25-52), Average pre-vasectomy pain score was 5.2 (moderate) while post-vasectomy scores averaged 1.7 (mild) ($p<0.005$). When stratified to patient age, patients >35 years (n=23) had higher pre-vasectomy expected pain scores at 5.1 compared to 4.6 for patients <35 years (n=28, $p=0.26$). Both populations had low post-procedure pain scores of 1.70 and 1.57, respectively ($p=0.29$). No patient had actual reported pain worse than anticipated pain.

Conclusions: Most men undergoing vasectomy feared much greater pain (3X) than they reported actually experiencing. With the NNNSV technique, most of our patient population reported only minimal pain. This data may be used to counsel patient, relieve anxieties, and minimize anticipation of pain for NNSV.

MP-03.02
Eulerian Video Magnification: A Novel Technique for Improved Sperm Selection in Men with Severe Oligoasthenospermia

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Introduction and Objectives: The absence of sufficient motile sperm in samples used for assisted reproductive technologies (ART) can sometimes present a clinical problem for infertility specialists who wish to select optimal sperm. Embryologists can sometimes be left choosing among non-motile sperm. Eulerian Video Magnification (EVM) is a previously described technique that provides an opportunity to detect subtle movements in video feeds not appreciable to the unaided human eye. In patients whose semen samples lack apparent motility by traditional light microscopy, EVM could be used to select optimal sperm that would have been otherwise been identified as non-motile using traditional light microscopy visualization.

Methods: Men with semen analysis (SA) showing oligoasthenospermia (density <10 million/mL and motility <20%) were identified using traditional light microscopy with 400x magnification. A high definition (HD) video camera was used to record three high-powered fields (HPF) per SA. Each video recording was scored twice for motility, first using the raw HD footage, and again after the video was processed using EVM previously developed (http://people.csail.mit.edu/mrub/vidmag). Counts of motile sperm in each video recording were compared between the raw and EVM enhanced footage.

Results: Video from 13 SA samples with three recordings each were analyzed. A total of 467 sperm were recorded across all samples. After processing with EVM, the number of additionally recognized motile/viable sperm was 13% ($p<0.05$).

Conclusions: EVM is a novel technique to identify sperm with sub-clinical motility that would not have been identified using traditional light microscopy. This technique can be used to enhance selection of sperm for ART in what would otherwise be deemed non-motile SA samples.

MP-03.03
Scrotal Surgical Hair Removal: Results from a 120 Patient Randomized Prospective Series Utilizing Smooth versus Serrated Razors

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Introduction and Objectives: Grober et al. published a prospective randomized trial supporting scrotal preoperative hair removal using a razor; less skin trauma and improved overall shave quality was observed with no apparent increased risk of surgical site infections. Based on these findings, institutional support was obtained for use of razors (versus clippers) for preoperative preparation of the male genitalia for Peyronie's repair and penile prosthesis surgeries. Two single blade razor types were available - serrated (SER) and smooth (SM). Initial observations suggested use of SER resulted in greater degrees of skin trauma, therefore we proceeded to objectively evaluate shave quality and the degree of skin trauma as a quality control initiative.

Methods: Patients undergoing Peyronie's or penile implant surgery were randomized to hair removal using SM or SER. Grober's experimental design was followed. Primary outcomes were blinded global ratings of preoperative hair removal completeness within the surgical field and degree of skin trauma following hair removal. Immediately following hair removal, a standardized digital photograph was taken of the male genitalia. All digital photos were evaluated in a blinded fashion. Skin trauma was scored on a five point scale, and the incidence of SSI was monitored for three months after surgery.

Results: 120 consecutive patients (n=30 each group) were evaluated. SER resulted in significantly more skin trauma ($p<0.05$), and there were 7 SSI versus 1 for SM.

Conclusions: Given the physical characteristics of the scrotum, and previously published findings, evidence-based surgical site preparation of the scrotum for surgery should include the use of a razor for hair removal, not clippers. It appears to be in the patient's best interest to utilize a straight-edge single razor, in comparison to a single serrated blade. Intra-institutional quality control studies such as these benefit patient care as they influence practice based on accurate data accrual.

MP-03.04

Treatment with Penile Prostheses Improves Mental Health Status in Men with Refractory Erectile Dysfunction after Prostate Cancer Surgery

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Introduction and Objectives: Reconstruction following mastectomy may be seen as the final step of the breast cancer care continuum; initiatives exist to promote education, awareness and access for women. For men with treatment-resistant erectile dysfunction (ED) after radical prostatectomy (RP), a similar organized approach does not exist, and with health policy reforms on national and state levels ongoing, insurance coverage and access to inflatable penile prosthesis (IPP) treatment may become limited or unavailable. We sought to identify mental health benefits that are related to definitive management of ED with an IPP at 2 years or more post-RP.

Methods: Twenty consecutive patients (pts) at an academic centre undergoing RP, enrolled in a standardized post-RP rehabilitation program, and with refractory ED treated by IPP with one year postoperative follow comprise this highly selected cohort. Metrics included pre-RP measures of mental health including Beck depression inventory II and patient-reported anxiety,as well as antidepressant and other psychiatric medication use, with data collected to 1-year post IPP. RPs were performed in 2008 and 2009, with IPPs in 2010 and 2011, for follow-up through 2012. Qualitative interview-based patient and partner feedback was also obtained at final visits (discharge from on-site follow-up).

Results: Following IPP surgery, depression and anxiety scores improved in statistically and clinically significant manners across Beck's and The Hospital Anxiety and Depression Scale (HADS), compared at timepoints of RP, pre-IPP and post- IPP for 14/20 men. The Zung Self-Rating Depression Scale was administered pre-IPP and at one-year post-IPP only and was consistent with Beck's results. Seven out of the 20 men had significant clinical depression requiring selective serotonin reuptake inhibitor use, four of whom stopped any medication use by 1-year after IPP surgery. Functional improvements were captured by the non-IPP specific Expanded Prostate Cancer Index Composite, IIEF5 and EHS scores.

Conclusions: The psychological impact of treatment for refractory ED following RP with an IPP may be underestimated. Improvement in mental health parameters at 2 years or more after RP, with the sole change in health status being IPP placement, corresponds to the debilitating impact of ED on these men. In an era of healthcare policy flux, evidence-based evaluation for treatment benefit is mandatory given that for procedures to remain insurable, they must demonstrate "value." Further multi-institutional study of these observations may be warranted.

MP-03.05

Prospective Registry of Outcomes with Penile Prosthesis for Erectile Restoration (PROPPER) Infection Rates for First-time (Virgin) Penile Implantation

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Introduction and Objectives: The PROPPER study (ClinicalTrials.gov Identifier: NCT01383018) is a multi-centre clinical registry collecting real-world outcomes for patients with penile implants. This study is designed to document outcomes for American Medical Systems (AMS) 700 and Ambicor inflatable penile prostheses (IPPs), as well as Spectra malleable penile implants. We evaluate primary infection rates in patients receiving AMS 700 series rifampin and minocycline (R/M) impregnated IPPs.

Methods: 416 patients with primary AMS 700 R/M IPPs placed between 09/06 2011 and 13/09 2013 at a total of 12 sites were analyzed. Standardized patient questionnaires and electronic data collection are used to record baseline patient characteristics and surgical implantation details, and to prospectively measure response to treatment annually to five years post-implantation including durability, complications, and effectiveness outcomes. Patients are prospectively followed for significant adverse events including infections. All patients enrolled and consecutively implanted with 3-piece AMS 700 R/M IPPs with completed surgical implantation records were analyzed to quantify device infections in primary (virgin) implants.

Results: 484 IPPs (89%) were placed by investigators implanting an average of 2 or more patients per month. A penoscrotal approach was utilized for 373 men versus infrapubic for 92 (and one with 'other'). No infections were reported at time of analysis, after a mean of 14.9 (range: 1.0-28.0) months of post-implant follow-up.

Conclusions: For this large multicentre prospective registry with short-term followup data indicates infection rates of less than 1% for virgin IPPs. Factors may include advances in patient preparation, "centre of excellence" influences, antibiotic-coated IPPs, resulting in a lower infection rate then traditionally reported.

MP-03.06

Can It Wait? A Systematic Review of Immediate versus Delayed Surgical Repair of Penile Fracture

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Introduction and Objectives: Penile fractures have classically been thought to require immediate surgical intervention, but recent series have described acceptable outcomes with delayed repair. Optimal time to surgical management of penile fractures is unclear and is examined in this systematic review.

Methods: A systematic search of MEDLINE, Embase, CENTRAL as well as conference abstracts via Web of Science was performed with predefined search terms. Eligibility criteria included: i) diagnosis of penile fracture, ii) comparative study design with immediate and delayed repair groups (defined as <24 hours and >24 hours to repair respectively), iii) measurable outcomes (erectile dysfunction (ED), penile curvature and plaques), and iv) 2 or more patients in each group. Titles and abstracts were screened prior to full text review by two independent authors, and discrepancies were arbitrated by a third author. A random effects Mantel-Haenszel odds ratio method and 0.5 zero-cell correction was used.

Results: A total of 669 citations were retrieved, of which 13 met inclusion criteria (533 patients). All series were retrospective observational studies. Of the patients, 398 underwent immediate and 135 underwent delayed repair. The mean age among studies ranged from 27.0-41.6 years. Delayed groups had a mean time to repair ranging from 29.3 hours-16 days. In the immediate group, the number of patients with ED, curvature, and plaque were 26, 9 and 22 respectively. In the delayed group, ED, curvature and plaque were reported in 8, 11 and 6 patients respectively. Ten studies were eligible for meta-analysis (Fig. 1). The rate of ED following immediate repair compared to delayed repair did not differ significantly (OR 0.645, 95% CI 0.261-1.592, p=0.341).

Conclusions: Rates of ED or other complications did not differ between delayed and immediate repair of penile fractures. Delayed repair of penile fractures may be a reasonable alternative to immediate surgery.

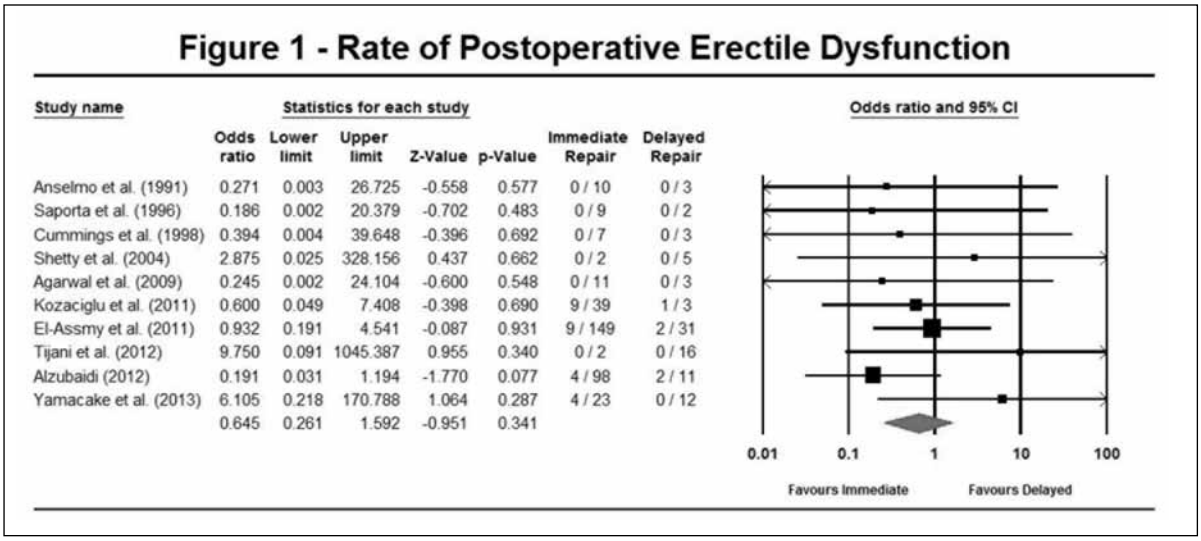

Fig. 1. MP-03.06.

MP-03.07

Quality of Life and Survivorship Post-prostate Cancer Treatment: Patient Reported Awareness, Expectations and Options for Physical and Emotional Side-effects in 502 Canadian Men

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Introduction and Objectives: Outside of academic or trial settings, limited data is available assessing "real-life" pre-treatment preparation (PTP), comprehension and recall of PTP, impact of prostate cancer (CaP) treatment on QoL, and awareness/access of treatment (tx) options for physical and emotional side effects (SEs). Our objective was to establish baseline data for pt-reported expectations for CaP management, identify emotional and physical impacts, and assess awareness of tx options.

Methods: Between 1/25 and 2/4 2013, a national online survey of 502 Canadian men treated for CaP and part of the Angus Reid Forum cohort was conducted.

Results: Key expectation and educational domain data included 45% of men responding that they did not have clear idea of SEs to be expected; 17% and 27% of men, respectively, reported emotional and physical SEs worse than expected. This group included compromised intimacy (54%) but also variables previously not or under-reported such as ability to partake in favorite hobbies (11%), and workplace productivity (4%). Pt reported erectile compromise was over 80%, PDE-5 inhibitors were trialed by 241 men with 48% satisfied with oral therapy, but 2nd and 3rd line therapy awareness was poor as 1/3 of men were not even aware of surgical options. This was in the context of 9/10 and 44% of men discussing post-CaP tx options with a physician or other prostate cancer survivors, respectively.

Conclusions: This nationwide survey provides striking evidence that in an era of information superhighways and seemingly limitless access points to CaP tx information, barriers remain in transferring this knowledge in usable form. Patient care continuum gaps can be addressed in a patient-friendly manner with already available contemporary information.

MP-03.08

Retail Pricing for Phosphodiesterase 5 Inhibitor is Significantly Variable: Results from a Cross-Canada Analysis of Cost-to-patient and Potential Impact on Patient Care

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Introduction and Objectives: Treatment of erectile dysfunction most commonly consists of lifestyle modification, optimization of risk factors, and the use of phosphodiesterase type-5 inhibitors (PDE5is) in patients without contraindications. The cost of these medications is not insubstantial to the patient. For urosurgeons utilizing these agents as part of a post-radical prostatectomy rehabilitation program, patient financial burden reaches hundreds of dollars per year. No studies have been reported previously regarding cost variance at the local, provincial or national levels. We report PDE-5 inhibitor cost differentials, and significant patient cost savings that can be easily facilitated.

Methods: Price quotes were obtained in Ottawa, Halifax, Toronto, Calgary and Vancouver, representing a broad geographic picture of the Canadian pharmacy landscape. Pricing was obtained for tadalafil (Td) daily dosing (5 mg) 28 days supply and tadalafil (T) 20 mg on demand 8 tablets. Similar information was obtained for generic (gS) versus Pfizer supplied sildenafil (pS) 100 mg × 8 tables. In each city, 5-6 major chain pharmacies, and two independent or regional pharmacies were surveyed. A total of 160 data points were compared.

Results: Local cost differentials approach $20, 27, 45, and 36 for Td, T, pS and gS in Ottawa, compared to $20, 30, 27, and 34 for Halifax, $44, 30, 50 and 42 for Toronto, $7, 13, 9, and 7 for Calgary, and $25, 31, 12, and 27 for Vancouver. Dispensing fees vary from $3.99 through $11.99 on these prescriptions. National and regional discrepancies are of appreciable magnitude, and represent a significant extra cost burden to the patient.

Conclusions: Patient cost savings can approach $500 to $600 annually for PDE5is, dependent on location and type of agent utilized. Identifying these savings is straightforward, and may particularly impact financial burden of treatment for post-radical prostatectomy patients undergoing penile-rehabilitation regimens using these agents.

MP-03.09

Prospective Evaluation of Glove Perforation for 120 Consecutive Cases Supports Double-gloving for Inflatable Penile Prosthesis Surgery as Standard Operating Procedure

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Introduction and Objectives: A review of 100 low- to medium- volume inflatable penile prosthesis (IPP) urosurgeons identified only 56% doubleglove. Lack of evidence and decreased tactile dexterity were cited as barriers; Fry et al did not demonstrate a substantial impact on dexterity or sensitivity for double gloving when compared with no gloves or singlegloving, but no IPP data defines risk of glove compromise. Long-term outcomes of IPP for treatment of ED have improved over time as device and antimicrobial (device and patient) management has evolved. We prospectively evaluated 120 consecutive cases for inner and outer glove perforation, providing evidence for change-of-practice behaviour.

Methods: For 120 consecutive IPP cases over 18 months starting Sept 2012 at a single academic institution, frequency of glove perforation for the primary surgeon (PS) and first assistant (AS-resident or fellow) gloves was assessed using the hydrosufflation technique at end of surgery. If perforation was suspected intraoperatively, gloves were removed, and these sets were evaluated as well. Patient outcomes are prospectively followed as part of a formal IPP registry.

Results: Outer glove perforation occurred in 19/120 cases. 127 primary surgeon (PS) and 146 assistant sets (AS) of gloves were evaluable. All inner and outer sets comprised the study cohort. Identified outer glove perforations occurred for PS 2 and AS 8 known (10/120 cases). The end of surgery evaluation yielded unknown outer perforations in 3 PS and 6 AS gloves (further 9/120 cases). Three cases of unidentified inner glove perforation were identified (1 PS, 2 AS). There were no device infections requiring secondary surgical intervention.

Conclusions: Outer glove perforation rate approached 10%. Rates compared favorably to non-IP procedures. Glove perforation is not well identified intraoperatively; double gloving should be standard operating procedure for all IPP procedures.

MP-03.10

Predictors for Increase in Serum Testosterone after Varicocele Embolization

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Introduction and Objectives: Both surgical and radiological varicocele (VX) repair have been shown to increase serum testosterone (T). We sought to identify factors to predict which men would have an improvement in T after VX embolization.

Methods: 78 men presenting for fertility evaluation from 2003 to 2013 undergoing VX embolization, and having semen and hormonal data available pre and post embolization, were identified. Data were analyzed for age, VX grade and location, and semen and hormonal parameters before and after VX embolization. A true increase in T was defined >1 nmol/L. We sought to determine pre-repair factors predictive of increase in T after embolization.

Results: Twenty-three men (30%) had an increase in serum T after embolization. The mean increase was from 11.3±5.1 nmol/L at baseline to 16.3±6.3 nmol/L. The median time of T measurement was 17 weeks (range 4-240 weeks) after embolization. Baseline FSH, LH, VX grade, VX bilaterality, semen parameters, and testicular volumes were not predictive of an increase in T post-embolization. Predictors for increase in T after VX embolization were: baseline T (p=0.039) and baseline free androgen index (FAI) (p=0.031). Baseline T ≤6 nmol/L was associated with improved T after embolization (p=0.001). Likewise, FAI ≤0.3 was associated with improved T after embolization (p=0.04). Of men with increased T post-embolization, 70% had also an increase in total motile sperm count (TMC), versus 43% of men without increased T (p=0.09).

Conclusions: Approximately 1/3 of men had an increase in serum T after VX embolization. Significant predictors for increase in serum T included baseline T and FAI. These data suggest that infertile men who were hypogonadal prior to varicocelectomy have a better chance of improved T levels after having VX embolization. The utility of using post-embolization serum T change to predict improvement in sperm count warrants further investigation.

MP-03.11

Electron Microscopy of Sperm Provides Important Clinical Information for Infertile Men with Severe Asthenospermia

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Introduction and Objectives: Sperm ciliary defects identified by electron microscopy (EM) have been described in semen samples with severe asthenospermia and normal sperm viability. However, the frequency of these individual ciliary defects are not well studied. We sought to

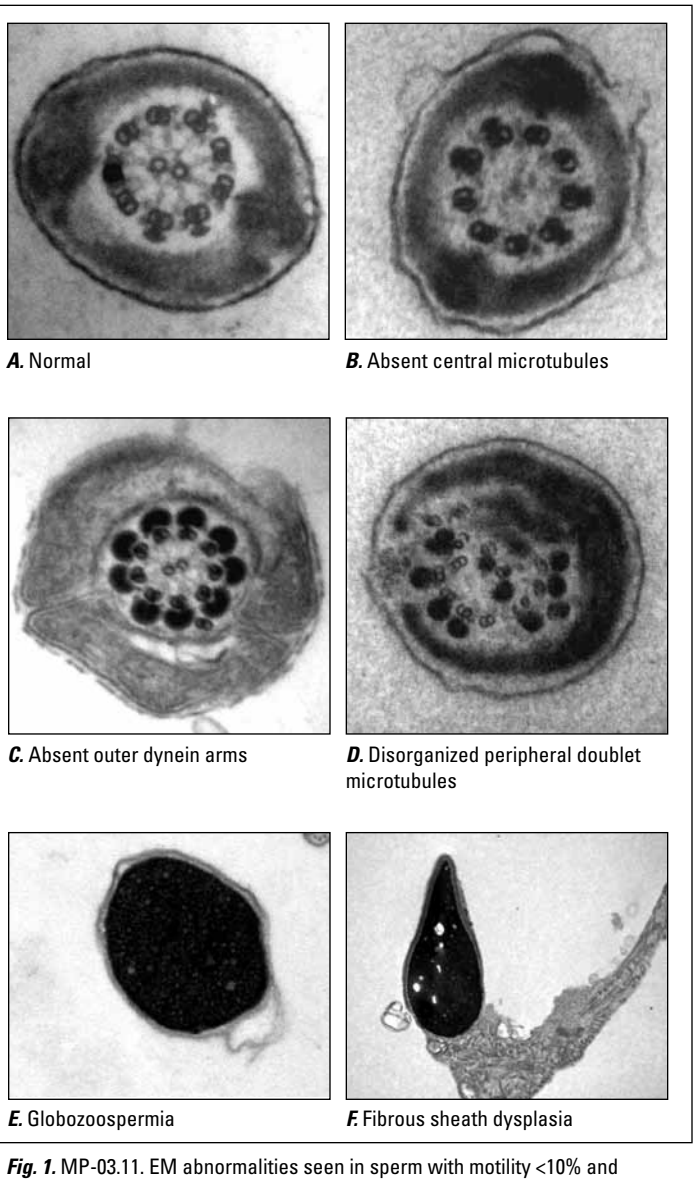

Fig. 1. MP-03.11. EM abnormalities seen in sperm with motility <10% and >40% viability from a population of infertile men.

evaluate sperm ciliary abnormalities found in infertile men with severe asthenospermia.
Methods: Semen analyses and sperm EM performed from 2000 to 2011 at a single, hospital-based andrology laboratory were analyzed. EM was performed on any sample with severe asthenospermia (sperm motility <10%) and viability >40%.
Results: Of 26810 semen analyses, 1816 (6.8%) had motility <10%. Of these, 1010/1816 (%56) had sperm viability >40%. Of these, 498/1010 (49%) were studied with EM. 88/498 were incomplete due to technical issues and 113 (27.6% of those completed) were abnormal. Abnormalities included (Fig. 1): absent central microtubules (46, 40.7%, Fig. 1B), variable changes (39, 34.5%), absent outer dynein arms (9, 8.0%, Fig. 1C), disorganized peripheral doublet microtubules (7, 6.2%, Fig. 1D), globozoospermia (5, 4.4%, Fig. 1E), fibrous sheath dysplasia (3, 2.7%, Fig. 1F), loss of the nine doublet microtubules (2, 1.8%), and absence of the acrosome and mid-piece structure (2, 1.8%). The average motility for sperm with normal EM studies was 5.15%, versus 2.81% for sperm with abnormal EM studies (p=0.01).
Conclusions: Sperm structural abnormalities may be found in men with severe asthenospermia and normal viability. We suggest sperm EM to be done for men with severe asthenospermia and sperm viability >40%. This may provide clinical information to potentially guide couples fertility therapy.

MP-03.12
Erectile Dysfunction is a Predictor of Undiagnosed Diabetes: Results from a Nationally Representative Survey

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Introduction and Objectives: With erectile dysfunction (ED) being a marker for future cardiovascular disease, it has been promoted as a potential trigger for screening of cardio-metabolic risk factors such as diabetes. Over 50% of male diabetics are affected by ED, and as a marker of endothelial dysfunction it has been suggested that it may be predictive of undiagnosed diabetes. The objective of this study was to investigate whether ED is associated with undiagnosed diabetes in a nationally representative sample.
Methods: The 2001-2004 National Health and Nutrition Examination Survey (NHANES), an annual survey of a nationally representative sample of adults and children in the United States, was used to study men aged ≥20 years without a history of diabetes. NHANES consists of questionnaires and a standardized physical examination involving physiologic and laboratory assessments. ED was assessed using a previously validated, single, self-reported question. Undiagnosed diabetes was considered to be present in men meeting diagnostic criteria (fasting glucose (≥126 mg/dL) but not reporting a previous physician diagnosis for diabetes. Logistic regression analysis was used to investigate the relationship between erectile dysfunction and undiagnosed diabetes while adjusting for potential confounders.
Results: Among 1417 men without a known history of diabetes, 4.2% were found to have undiagnosed diabetes. Men with ED were found to have 4-fold higher odds (OR 4.58 95%CI 2.54-8.24) of undiagnosed diabetes. Older age, hypertension, family history of diabetes and obesity were also significantly associated with undiagnosed diabetes. In multivariate analysis, the association was diminished but ED was still associated with 2-fold higher odds (OR 2.19 95%CI 1.10-4.39) of undiagnosed diabetes.
Conclusions: ED can be a marker of undiagnosed diabetes risk in men and can be a trigger for both patients and physicians to initiate screening.

MP-03.13
Single Incision Vasectomy Reversal (SIVR)

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Introduction and Objectives: With the goal to reduce surgical morbidity following vasectomy reversal (VR), the current report highlights the Single Incision Vasectomy Reversal (SIVR) - An innovative approach to VR by which the entire procedure is performed through a single midline mini-incision.
Methods: A SIVR was considered in the absence of significant vasal gaps, large sperm granulomas, and/or limited mobility of the scrotal contents. As in the no-scalpel vasectomy (NSV), the SIVR begins by stabilizing the vas directly under the scrotal skin at the midline raphae. The NSV ring clamp is used to capture the vas in the midline at the vasectomy occlusion site. A single small (<1 cm) opening in the scrotal skin is created and vas is gently exposed and delivered through the midline incision. The mobile and compliant the scrotal skin allows the midline incision to be shifted and brought to the vas, as opposed to the vas being mobilized to the anatomical midline. Once both ends of the vas have been delivered and stabilized in a vas approximator, the surgical microscope is used to complete the anastamosis according to surgeon preference. The contralateral vas is approached via the same incision but through separate opening in the dartos muscle. This fosters a tension-free anastamosis with each vas remaining in its respective hemi-scrotal space separated by the dartos muscle in the midline. If necessary, the small opening in the skin closed with a single dissolvable suture (Fig. 1).
Results: Of 104 consecutive vasovasostomy VR, a SIVR was attempted in 24 patients (23%). Mean patient age was 39 years (range: 29-48) with a mean vasal obstructive interval of 5.2 years (range: 3 months-11 years). Postoperative semen parameters and/or a confirmed pregnancy was available in 15 men. Patency (motile sperm) was established in all patients. Mean sperm concentrations and % motile sperm were 27 million/mL and 56%, respectively. Operative time is reduced due to efficiency of wound closure. In one patient, a superficial hematoma was identified that resolved with conservative management.
Conclusions: A SIVR is feasible in well-selected men undergoing vasovasostomy without compromising patency rates or semen parameters. Minimizing the number and size of the incisions and the degree of surgical dissection involving the spermatic cord and testis may translate into less postoperative discomfort and quicker functional recovery.

Fig. 1. MP-03.13.