Poster Session 7: Voiding Dysfunction
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MP-07.01

Quality of life analyses from NEPTUNE, a phase 3 trial of combination therapy with tamsulosin OCAS and solifenacin in men with lower urinary tract symptoms

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Introduction and Objectives: Lower urinary tract symptoms (LUTS) affect up to 60% of men >40 years and are associated with reduced Health Related Quality of Life (HRQoL). NEPTUNE demonstrated that once-daily fixed dose combination (FDC) tablets containing tamsulosin oral controlled absorption system (TOCAS) plus solifenacin (Soli) was more effective in improving storage symptoms than TOCAS monotherapy in men with LUTS/benign prostatic hyperplasia (BPH) with voiding plus storage symptoms. HRQoL analyses from NEPTUNE are presented.

Methods: Men ≥45 years with total International Prostate Symptom Score (IPSS) ≥13, Qmax 4.0–12.0 mL/s, ≥2 urgency episodes of Patient Perception of Intensity of Urgency Severity grades 3 or 4 and ≥8 micturitions/24h were randomised to 12 weeks' once-daily placebo (Pbo; n=341), TOCAS 0.4 mg (n=327), TOCAS 0.4 mg + Soli 6 mg (n=339) or 9 mg (n=327). HRQoL endpoints included the IPSS QoL index, overactive bladder questionnaire (OAB-q) and patient global impression (PGI) questionnaire. Correlations between the primary endpoint Total Urgency and Frequency Score (TUFS) and HRQoL parameters were assessed via spearman rank correlation coefficients.

Results: TOCAS 0.4 mg + Soli 6 or 9 mg demonstrated significant improvements ($P<0.05$) vs. placebo and TOCAS 0.4 mg alone in IPSS QoL index and coping, concern, and HRQoL total scores measured by OAB-q. Significantly more patients on either FDC reported improvements in overall bladder symptoms vs. Pbo and TOCAS 0.4 mg alone as measured by the PGI questionnaire (both $P<0.001$). Spearman rank correlation coefficients for TUFS vs. HRQoL parameters ranged from 0.34 to 0.43 (all $P<0.001$).

Conclusions: TOCAS 0.4 mg + Soli 6 or 9 mg offered significant improvements in HRQoL measures vs. Pbo and vs. TOCAS 0.4 mg alone in men with LUTS/BPH with both voiding and storage symptoms. Storage symptom improvement correlated with HRQoL improvements.

MP-07.02

Long-term antimuscarinic use: Rates of urinary retention during fixed dose combination therapy with solifenacin + tamsulosin OCAS in men with voiding and storage LUTS in the NEPTUNE studies

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Introduction and Objectives: NEPTUNE was a 12-week, randomised, double-blind, placebo-controlled phase 3 trial evaluating efficacy and safety of once-daily fixed-dose combinations (FDC) of solifenacin (Soli) and tamsulosin oral controlled absorption system (TOCAS). Patients completing NEPTUNE could continue into the 40-week, open-label NEPTUNE II study. This analysis assessed urinary retention (UR) rates in both studies.

Methods: Men ≥45 years with lower urinary tract symptoms (total International Prostate Symptom Score ≥13, ≥2 urgency episodes/24 h [Patient Perception of Intensity of Urgency Scale grade 3 or 4] and ≥8 micturitions/24 h) with a prostate size <75 ml, Qmax 4.0–12.0 ml/s and post-void residual (PVR) volume ≤150 ml were randomised to TOCAS 0.4 mg, FDC Soli 6 mg or 9 mg + TOCAS 0.4 mg, or placebo for 12 weeks. Patients continuing to NEPTUNE II received FDC Soli 6 mg + TOCAS for 4 weeks, then FDC Soli 6 mg or 9 mg + TOCAS. Patients could switch between doses at each subsequent visit. All UR episodes, including in the placebo run-in period, were recorded.

Results: Of 1334 men randomised, 1199 completed the 12-week NEPTUNE study and 1066 received ≥1 dose in the 40-week NEPTUNE II study. Overall, 13 men (1.1%) receiving a FDC developed UR within the 52-week treatment period; 6 UR (3 acute UR [AUR]) on Soli 6 mg + TOCAS and 7 UR (5 AUR) on Soli 9 mg + TOCAS. In total, 8 patients (0.7%) had AUR (defined as UR requiring catheterisation). In addition, 1 man developed AUR on TOCAS alone during the treatment period, and 4 men developed UR (3 AUR) during placebo run-in. Duration of combination therapy until UR occurrence varied from 6–347 days (median 77 days).

Conclusions: The rates of UR and AUR with a FDC Soli + TOCAS during treatment up to 52 weeks in the NEPTUNE studies were low (1.1% and 0.7%), within the range for spontaneous UR in the type of population studied. The majority of UR/AUR occurred during the first 16 treatment weeks.

MP-07.03

Overactive bladder and voiding dysfunction following radical prostatectomy

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Introduction and Objective: Treatment of prostate cancer is associated with a number of genitourinary adverse effects. The rate of overactive bladder (OAB) symptoms has yet to be investigated in a large cohort of patients treated with radical prostatectomy (RP) for clinically localized prostate cancer. In addition, the factors that increase risk of OAB symptoms following RP are not well known. The goal of our study was to investigate the proportion of men who developed OAB symptoms after RP and to determine if adjuvant or salvage radiation therapy increases the risk of OAB post-RP.

Methods: We performed a retrospective cohort study of patients who underwent RP for localized prostate cancer at our institution between January 2006 and May 2011. We followed the health records of all identified patients. OAB was defined as the documentation of symptomatic urinary urgency, frequency, urge incontinence, or nocturia. Descriptive statistics were used to analyze baseline characteristics. A Cox regression analysis treating radiation as a time varying covariable was used to assess the impact of radiation on the outcome of OAB. For all statistical methods, a two-sided p-value of <0.05 was considered significant.

Results: Of the 955 patients reviewed to date, 24.4% of patients developed new symptoms of OAB. The most common post-RP OAB symptom was urgency (31.2%) followed by frequency (19.7%). Rates of OAB treatment with anti-cholinergic medications or beta-3 agonists were 8.4%, which was significantly lower than rates of post-operative OAB symptoms. After

excluding patients with pre-operative OAB symptoms, adjuvant or salvage radiation therapy was associated with an increased risk of OAB after adjusting for age, BMI, presence of post-operative stress urinary incontinence, smoking status, and stage of cancer (Hazard Ratio 6.96, 95% CI 4.96-9.77, p <0.001).
Conclusions: We conclude that men undergoing RP are at risk of developing de novo OAB. Adjuvant or salvage radiation therapy increases the risk of developing OAB post-RP. Our results suggest that OAB may be under treated in men following prostate cancer treatment.

MP-07.04

Natural history of neurogenic bladder in adults with severe cerebral palsy

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Introduction and Objectives: Cerebral palsy (CP) in adulthood remains a poorly understood entity within the congenital neurogenic bladder (NGB) spectrum. The type and severity of bladder dysfunction in these patients is variable. The Gross Motor Function Classification System (GMFCS) provides a clinical classification of the functional abilities with higher levels associated with increased impairment. We sought to describe the clinical characteristics and urologic outcomes in adult CP patients managed in tertiary care specialty clinic dedicated to longitudinal care of adults with congenital NGB.
Materials and Methods: We included adult CP patients seen between 2011-2014 and retrospectively reviewed medical records back to 1999. Since 2011, routine management includes an annual clinic visit and renal bladder ultrasound. To characterize the natural history of NGB we excluded 14 patients who underwent bladder reconstructive surgery prior to 2011. Because patients with severe CP physically resist catheterization, it is avoided unless there is risk of renal deterioration, recurrent infections, of bothersome incontinence. Our outcomes of interest included initiation of catheterization, hydronephrosis, urinary stones, or urologic surgery.
Results: Of the 118 patients, 99 had severe CP (GMFCS 4 or 5; 84%). Median age was 31.6 years for all patients and average follow-up was 65 months. 106 patients (89.8%) were voiding without any catheterization at initial visit. Incontinence at initial visit was reported by 73.5% of patients. During the study period, catheterization was initiated in 23 patients (21.7%). Hydronephrosis was detected in 21 patients (18%). Urinary stones were found in 29 patients (25%) with surgical intervention performed in 5 patients. There were 8 patients who underwent bladder reconstructive surgery which includes appendicovesicostomy, continent cutaneous ileal cecocystoplasty, and simple cystectomy with ileal conduit. There was significant difference in outcomes between patients with GMFCS < 3 compared to GMFCS 4-5 (Table 1).
Conclusion: NGB in adults with severe CP is initially approached with the goal of conservative management without catheterization. Over 75% of the patients in our cohort were able to avoid catheterization throughout the study period. While hydronephrosis and urinary stones were detected in 18 and 25 percent of patients, respectively, most cases did not require major interventions. Major bladder reconstruction was rarely performed and a generalized non-operative approach should be pursued in the absence of compelling indications.

Table 1. MP-07.04. Long-term Outcomes in Adult CP Patients

Outcome	GMFCS≤3	GMFCS 4–5	*p* value
Initiation of catheterization, N (%)	0	23 (23.2)	
Hydronephrosis, N (%)	1 (5.3)	20 (20.2)	
Urinary Stones, N (%)	3 (15.8)	26 (26.2)	
Urologic Surgery			
Nephrolithiasis, N (%)	1 (5.3)	4 (3.4)	
Botulinum Injection, N (%)	0	4 (3.4)	
Bladder Reconstruction, N (%)	0	8 (6.8)	

Initiation of catheterization, N (%)	23 (21.6)
Hydronephrosis, N (%)	21 (17.8)
Urinary Stones, N (%)	29 (24.6)
Surgical Interventions, N (%)	5 (17.2)
Urologic Surgery	
Botulinum Injection	4 (3.4)
Bladder Reconstruction	8 (6.8)

MP-07.05

OnabotulinumtoxinA demonstrates efficacy and safety for the treatment of IDO in a prospective registry

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Introduction: The use of intravesical onabotulinumtoxinA (BTA) to treat refractory idiopathic detrusor overactivity (IDO) is becoming increasingly common; however, its efficacy in "real world" settings has yet to be firmly established. The objective of this study is to report the results from a prospective registry of consecutive patients diagnosed with IDO and injected with BTA.
Methods: All new or existing patients for whom BTA injection was indicated per usual clinical practice were considered for enrollment. Clinical data were abstracted from the electronic health record and collected from patients using quality-of-life surveys (PROs) prior to injection and 3-month post-injection. Outcomes of interest included: 1) use of medications; 2) voiding, urgency, and nocturia events; 3) PROs and 4) safety. Data in this study was collected from May to December 2014.
Results: The analysis included 41 IDO patients with post-injection data. Their mean age was 59.6, 88% were female, and most (73%) had previously received BTA injections to their bladder. Unadjusted models were used to compare outcomes pre- and post-injection. There was a statistically significant reduction in the use of anticholinergics (McNemar's chi2=5.0, p=0.03) and antibiotics (McNemar's chi2=4.0, p=0.05). The number of voids/day (Pearson chi2 = 46.8, p < 0.001) or catheters/day (Pearson chi2=37.5, p<0.001) were significantly reduced, and patients reported having less sense of urgency (McNemar's chi2=9.31, p=0.02). PROs using the UDI-6 (t=2.7, p=0.006) and ICIQ (t=3.1, p=0.002) both significantly improved. Additionally, the number of patients that reported pelvic pain was significantly reduced at 3 month follow-up (McNemar's chi2=5.44, p=0.02). Six patients (15%) who were incontinent at baseline became dry at in the 3 month follow-up period. Two patients (5%) had initiated clean intermittent catheterization (CIC).
Conclusions: Our registry confirms the results of phase III clinical trials and demonstrates that, in real world clinical practice, BTA significantly reduces OAB symptoms, and improves PROs. We also observed a reduction in the use of anticholinergics and antibiotics, and in pelvic pain. Few patients initiated CIC post-treatment. Clinicians may confidently use BTA as an efficacious treatment for IDO.

MP-07.06

Persistence rates with the beta-3 adrenoceptor agonist mirabegron and antimuscarinics in overactive bladder (OAB): Analysis of Canadian retrospective claims data with 1 year of follow-up

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Introduction and Objectives: The beta-3 adrenoceptor agonist mirabegron (MIR) is not associated with commonly seen antimuscarinic (AM)

Table 1. MP-07.06.

Index drug (n=experienced/ naïve cohorts)	Experienced (n=1,595)			Naïve (n=17,890)		
	Median days	1-yr persistence (%)	HR* (95% CI)	Median days	1-yr persistence (%)	HR* (95% CI)
Mirabergron (313/1370)	299	39.3	1.00	196	29.9	1.00
Solifenacin (429/5603)	242	35.4	1.220 (1.013–1.469)	100	21.0	1.344 (1.252–1.444)
Fesoterodine (297/1118)	171	28.6	1.456 (1.196–1.772)	92	19.0	1.446 (1.319–1.585)
Tolterodine ER (254/3485)	162	28.7	1.532 (1.248–1.881)	94	19.0	1.429 (1.326–1.540)
Oxybutynin ER (93/1167)	159	17.2	1.838 (1.409–2.398)	98	19.0	1.423 (1.300–1.558)
Oxybutynin IR (209/5147)	96	13.9	2.160 (1.759–2.652)	70	13.8	1.786 (1.663–1.997)

*Hazard ratios (HR) calculated for MIR vs. AMs by Cox proportional hazards multivariate modelling, controlled for drug choice, age, gender and condomitant medications; $p<0.001$ MIR vs AMs, except $p=0.037$ MIR vs solifenacin n the experienced cohord. ER/IR=extended/immediate release.

adverse events (AEs) in OAB patients. As these AEs may contribute towards discontinuation, persistence with MIR vs AMs over 1 yr was compared.
Methods: Retrospective claims from an IMS Brogan Private Drug Plan database (Canadian National) were obtained for patients aged ≥18 yr with a first claim for MIR or AMs during a 6-month index period (April-Sept 2013). A 6-month look-back identified those with no prior claims for OAB medication ('naïve') or ≥1 prior OAB drug ('experienced'). Time to end of persistence (≥30 day therapy gap or switching to another therapy) was evaluated over 1 yr.
Results: Persistence data from 19,485 patients (74% female, 92% naïve, 78% aged ≥46 yr) showed that median number of days on MIR was 299 vs. 96-242 with AMs (experienced cohort), and 196 vs 70-100 (naïve cohort) (Table 1). Persistence at 1 yr was 39% MIR vs. 14-35% AMs (experienced) and 30% MIR vs. 14-21% AMs (naïve).
Conclusion: MIR-treated patients remained longer on treatment than with AMs and had higher 1-yr persistence rates.

MP-07.07

Implementation of a multidisciplinary model of care for overactive bladder improves health care utilization

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Introduction: Overactive bladder (OAB) is a common condition with high costs to the health care system. While first and second line treatments for OAB can be effectively prescribed and monitored by general practitioners (GPs), many cases are referred to urology early in the management continuum. Not only are these visits more costly, but these patients are more likely to undergo invasive testing such as cystoscopy and urodynamic studies (UDS). The purpose of this study is to report our experience with transitioning OAB care to specially trained GP's within a multidisciplinary clinic.
Methods: A registry of patients diagnosed with OAB and newly referred to a multidisciplinary tertiary care urology clinic was created to prospectively measure their episode of care. GP's received training on management of OAB utilizing an evidence-based standardized algorithm. The registry included data on prescribed management at the time of first assessment by the clinic's GPs. Data in this study was collected from June to December 2014.
Results: Clinic GP's evaluated 94 patients, and offered follow-up care for 70 (74%). Twenty-five patients (27%) were initiated on prescription therapy, while the majority were managed initially with education and conservative measures alone. UDS were recommended for 8 (9%) patients, while 11 (12%) were referred to a clinic urologist for a consult and cystoscopy. Of these 11, 4 patients (4% overall) were considering a third line of treatment with onabotulinumtoxinA and 3 (3% overall) were considered at risk for bladder cancer.
Conclusions: These results reflect a streamlined process for treating OAB, which optimizes resource utilization while maintaining standard of care. GPs at the clinic are able to assess the severity of symptoms and control how many patients require follow-up with a urologist. This multidisciplinary model is promising in providing a more efficient process for treating and managing chronic conditions such as OAB.

MP-07.08

Surgical outcomes between Greenlight 180W-XPS photo-vaporization and vapor resection techniques in prostate volumes >80g: Multi-center experience

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Introduction and Objectives: Treatment of men with large prostates is challenging with greater risk of complication and retreatment. While photo-vaporization (PVP) has been well described for Greenlight 180W-XPS, vapor-resection techniques have been described to help improve tissue resection, including vapour-incision techniques (VIT). We sought to evaluate the efficiency, safety and outcome parameters between GreenLight PVP and VIT specifically for men with prostate volumes >80.
Methods: Among 955 XPS cases retrospectively collected from 5 experienced surgeons at high-volume Greenlight XPS centers, 271 had large prostates. Preoperative, operative and post-operative parameters were collected and compared between groups.
Results: As summarized in Table 1, men undergoing VIT(n=100) had comparable preoperative parameters to those undergoing PVP(n=171). While VIT allowed greater delivery of energy (4.2vs3.2 kJ/g), operative time was longer and there was greater need for >2fibres. There were no differences

Table 1. MP-07.08.

Preoperative Patient characteristics	PVP (0=171)	VIT (0=100)	*p* value
Mean Age (years)	70.2	70.3	0.81
Previous BPH surgery (%)	18.8%	15.2%	0.44
Anticoagulation (%)	5.9%	7.0%	0.73
Mean IPSS	20.4	23.1	0.05
Mean QOL	4.1	4.3	0.66
Mean Qmax (mL/s)	7.8	7.4	0.28
Mean PVR (mL)	207	284	0.02
Mean PSA (ng/mL)	6.6	6.9	0.67
Mean Prostate Volume (g)	129.2	122.2	0.92
Urinary Retention (%)	30.9%	43.2%	0.04

Table 2. MP-07.08.

Operative Outcomes	PVP (0=171)	VIT (0=100)	*p* value
ASA> 2 (%)	28%	43%	0.02
Mean Operative Time (min)	69.6	1015	<0.001
Mean Laser Time (min)	45.5	54.9	<0.001
Mean Energy (kJ)	388.2	489.4	<0.001
Mean kJ/Prostate Volume (kJ/g)	3.2	4.2	<0.001
# Fibres Used (%)			
1	88%	68%	<0.001
2+	12%	32%	
Mean Length of Stay (days)	0.4	2.7	<0.001
Mean Foley Duration (days)	1.6	1.2	<0.001
Adverse Outcomes			
Intraoperative Bleeding (%)	1.8%	0%	0.53
Postoperative Bleeding/ Clot Retention (%)	1.2%	0%	0.53
Urinary Retention (%)	5.8%	1.0%	0.06
Incontinence, de novo (%)			
Stress	2.3%	1.0%	0.65
Urge	1.8%	0%	0.30
Bladder Neck Stricture (%)	0%	1.0%	0.37
6-Month Outcomes			
Mean IPSS	6.2	5.I	0.99
Mean QOL	1.2	1.1	0.87
Mean Qmax (mL/s)	17.1	19.8	0.008
Mean PVR (mL)	73.2	31.9	0.002
Mean PSA Drop (ng/mL)	-2.9	-3.3	0.016
PSA Percent Reduction (%)	39.8%	38.3%	0.019
Surgical Retreatment Total (n,(%))			
SPH Regrowth/ Obstruction	5 (2.9%)	1 (1%)	0.25
Stricture (BN/Urethra)	1 (0 .6%)	2 (1.8%)	0.61

in intra- and 90-day post-operative adverse events (Table 2). Both VIT and PVP demonstrated comparable marked improvements in IPSS/QOL at 6 months post-operatively. However, despite greater urinary retention and PVR preoperatively, men with VIT demonstrated significantly lower post-operative PVR and greater QMax at 6 moths. No significant difference in retreatment rates were noted between VIT and PVP followup.

Conclusions: Both Greenlight PVP and VIT techniques can be safely used to treat men with large prostates. Both techniques offer significant and durable relief of symptom relief with comparable complication rates at 3 years. Longer followup is necessary to assess durability.

MP-07.09

Photoselective laser vaporization of the prostate with GreenLight XPS is safe and effective in high risk men with symptomatic benign prostatic hypertrophy

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Introduction and Objectives: As men age, there is an increase in comorbidities, the need for anticoagulation, and BPH. However, the decision to surgically treat high risk men with symptomatic BPH can be challenging to make. The American Society of Anesthesia (ASA) classification system is a marker for perioperative risk based on degree of systemic disease. The purpose of this study is to evaluate the safety and efficacy of PVP with GreenLight XPS in treating high risk (HR) men defined by ASA Class 3 or higher compared to healthier men undergoing the same operation.

Methods: A multi-center retrospective analysis of 955 men who underwent PVP with GreenLight XPS for symptomatic BPH from 2010 to 2013 was performed. Perioperative, operative, and postoperative parameters like complication rates were collected and compared between HR (i.e. ≥ASA 3) and healthy men (i.e. ASA <3).

Results: HR men were older, had larger prostates, and more likely on active anticoagulation (Table 1). HR men were as likely to be treated as outpatients as the healthier cohort (94.2% v 93.7%, p=0.28); however, more were treated in a hospital rather than surgery centers. There were no differences in intraoperative adverse events. Postoperatively, men experienced an improvement in flow rate, international prostate symptom score (IPSS) and post void residual (PVR), independent of risk category. HR men were not more likely to have an unplanned surgical intervention at any postoperative time point. However, in the first year postoperatively, HR men are more likely to develop a UTI (6.4% v 2%). While hospital readmissions were similar the first postoperative month (1.6% v 1.4%), they were more likely for HR men cumulatively in the first year postoperatively (3.7% v 1.5%). Clot retention was more common in the HR group (1.9% v 0.8%), possibly due to the higher number of men on anticoagulants. Death was more likely in the HR men group for reasons not related to surgery (1.2% v 0.5%).

Conclusions: Despite older age and higher use of anticoagulants, HR men who undergo PVP benefit from symptom improvement similar to healthier

Table 1. MP-07.09. Baseline characteristics and perioperative measures.

Variable	ASA I or II (n=664)	ASA III or IV (n=259)	*p* value
Age (years)	**67.1 ± 9.1**	**72.5 ± 8.2**	**<0.001**
Current anticoagulant use	**4.3% (27/627)**	**14% (35/250)**	**<0.001**
Current aspirin use	**33.8% (213/631)**	**49.6% (123/248)**	**<0.001**
Current antiplatelet use	**4.2% (26/624)**	**12.2% (30/246)**	**<0.001**
IPSS	19.5 ± 8.5	20± 9	0.423
IPSS-QoL	**3.8 ± 1.4**	**4.1 ± 1.3**	**0.033**
Qmax (mL/sec)	8.6 ± 5.6	8.8 ± 6.3	0.832
Post Void Residual	204.6 ± 222.7	208.2 ± 219.1	0.260
PSA (ng/mL)	4.7 ± 7.3	5.6 ± 9.7	0.260
Prostate Volume (mL)	**74.4 ± 50.7**	**83 ± 48.3**	**0.006**
Preoperative Urinary Retention	**19.1 % (123/645)**	**30.6% (77/252)**	**<0.001**
Operative Time (min)	**53.6 ± 24.9**	**64.4 ± 35.4**	**<0.001**
Surgery in Ambulatory Surgery Center	**24.7% (164/664)**	**10.4% (27/259)**	**<0.001**
Surgery in Hospital	**69.7% (436/664)**	**88.4% (229/259)**	**<0.001**
Catheterization Time (days)	1.1±1	1.3 ± 1.2	0.127

Results are presented as percentage (count/n) or mean ± standard deviation. *p* value is from statistical test of difference between groups. Statistical significance of $p < 0.05$ is in bold.

men. Postoperative complications are low despite greater comorbidities. In high-volume GreenLight XPS centers, PVP is a safe and effective treatment for HR men with symptomatic BPH.

MP-07.10

Changing patients' profile presenting for surgical management of lower urinary tract symptoms secondary to benign prostatic hyperplasia: A single center perspective over the past 16-years

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Purpose: To assess the change of patients' profile presenting for surgical management for lower urinary tract symptoms (LUTS) secondary to benign prostatic hyperplasia (BPH) in the last 16-years.

Methods: A prospectively maintained database was reviewed for patients presenting with symptomatic BPH since March 1998. Patients were divided into 3 groups; GI included patients who were operated before April 2004, GII included patients who were operated between April 2004 and March 2009 while GIII included patients who were operated thereafter until August 2014. Demographic and preoperative data were reviewed including prostate volume, international prostate symptoms score (IPSS), Quality of Life (QoL), peak flow rate (Qmax), residual urine (PVR) and prostatic specific antigen (PSA).

Results: A total of 1835 patients were operated till August 2014 including 542 (29.5%), 614 (33.5%), and 679 (37%) patients in GI, GII and GIII, respectively. Patients in GIII were significantly older (75.28±8.47 vs. 71.11±8.9 vs. 65.3±9.04 years, p<0.001), more coagulopathic (18.7% vs. 12.3% vs. 5.9%, p<0.001), and significantly with more comorbidities (higher mean ASA score ≥3). Use of preoperative prostatic medications significantly increased in GIII (72.6% vs. 85.5%, vs. 87.4%, p<0.001) compared to GI to GIII, respectively. Significantly higher number of GIII and GII patients were presented with indwelling urethral catheters secondary to urine retention (33.7% vs. 34.4% vs. 27.7, p=0.028). Mean prostate volume was significantly higher in GIII patients (87.96±49.80 vs. 78.44±50.84 vs. 74.50±46.53, p<0.001). IPSS, QoL and Qmax were significantly abnormal in GIII patients than other groups (p<0.001). Need for perioperative blood transfusion was significantly higher in GI. After a mean follow-up of 12.8±5.9 years in GI, 8.2±4.7 years in GII and 3.1±9.3 years in GIII, 93.1%, 94.1% and 98.3% were free of reoperation, respectively.

Conclusions: Patients presenting for surgery due to symptomatic BPH over the last 16 years became significantly older, more morbid, and have larger prostates and more abnormal voiding parameters. Consecutive time groups used prostatic medications more frequently. However, the comparable postoperative outcome was maintained secondary to advancement in the laser technology and techniques.

MP-07.11

Post-operative lower urinary tract storage symptoms: Does prostate enucleation differ from prostate vaporization for treatment of symptomatic benign prostatic hyperplasia?

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Objectives: To assess the degree of postoperative storage symptoms after photoselective vaporization (PVP) and Holmium laser enucleation of the prostate (HoLEP) and its predictors.

Methods: A retrospective review for patients who underwent HoLEP or PVP for non-catheter dependent symptomatic BPH since March 1998 was performed. Patients with urethral stricture, previous prostate surgery, prostate cancer or history of neurogenic voiding dysfunction were excluded. Patients were followed-up at 1, 3, 6, and 12-months and then annually by international prostate symptoms score (IPSS), quality of life (QoL), peak flow rate (Qmax), residual urine (PVR) and prostatic specific antigen (PSA). Moderate or severe storage symptoms were defined as IPSS storage subscore ≥9 and logistic regression model was used to identify its predictors.

Results: Out of 1673 laser procedures, a total of 1100 procedures met the inclusion criteria including 809 HoLEPs and 291 PVPs. HoLEP group had significantly preoperative larger prostates and longer operative time. In HoLEP group postoperative IPSS was significantly better than in PVP group at all follow up points (P<0.05). Storage subscore was significantly higher after PVP and did not improve until 6-months postoperatively where it became comparable with that of HoLEP group. Number of patients with IPSS-storage score≥9 were significantly higher in PVP group at 1 and 3-months follow-up; (37.3% vs. 15.1%, p<0.001) and (26.4% vs. 17.5%, p=0.004), respectively. XPS-180W was associated with the lowest storage symptoms among the three Greenlight laser generations at all follow-up visits. In multivariate analysis, baseline IPSS-storage subscore ≥9, prolonged operative time >100 minutes and lower percent of postoperative PSA reduction significantly predicted less improvement of postoperative storage symptoms regardless of the laser procedure.

Conclusion: Storage urinary symptoms significantly improved more after HoLEP compared to PVP, irrespective of the generation of Greenlight laser used. Recovery from storage urinary symptoms after prostate vaporization is time-dependent and baseline degree of storage symptoms, prolonged operative time and lower percent of postoperative PSA reduction negatively predicts postoperative improvement regardless of the laser procedure.

MP-07.12

Surgical wait times as a quality indicator of transurethral resection of the prostate

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Introduction: Surgical wait times have become a contentious quality of care indicator in universal health care systems. Here we describe and evaluate the effect of surgical wait times on early outcomes, late outcomes and perioperative complications after transurethral resection of the prostate (TURP).

Methods: This was a retrospective study including consecutive patients undergoing TURP for benign disease. Wait times were determined using a prospectively collected administrative database. Clinical data, including age, ASA score and indication for surgery, were supplied by chart review. Primary outcomes included initial successful postoperative trial of void, complications within three months of surgery and the ability to void independently at the initial follow-up visit. Secondary outcomes investigated included additional hospitalization or urgent care visits while on the wait list.

Results: Eighty four patients underwent TURP for benign disease. Mean surgical wait time was 59 days +/-48 and there was no significant association between wait times and age or ASA score (p=0.07, p=0.547 respectively). Longer wait times were associated with successful postoperative trial of void (p= 0.005) and decreased postoperative complications (p=0.033) however this group did have increased health care visits while waiting for surgery (p=0.038). Shorter wait times were associated with early failures of trial of void and early postoperative complications (p=0.02, p=0.03 respectively). Subset analysis demonstrated that these results appeared to be driven mostly by those with a presentation of urinary retention. The ability to void independently at the initial follow-up was not significantly associated with difference in wait times (p=0.18).

Conclusions: This retrospective study suggests the delays to TURP did not negatively affect post-operative complications or functional outcomes after surgery, although prolonged wait times were associated with more preoperative health care contact.

UP-07.01

Patient satisfaction with the safety and efficacy of fixed-dose combinations of solifenacin and tamsulosin OCAS™: Results from the NEPTUNE II study

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Introduction and Objectives: NEPTUNE II was a 40-week, open-label, flexible-dosing phase 3 extension of the 12-week phase 3 NEPTUNE study, and investigated long-term safety and efficacy of fixed-dose combinations (FDC) of solifenacin (Soli) and tamsulosin oral controlled absorption system (TOCAS) in men with lower urinary tract symptoms (LUTS)/benign prostatic hyperplasia (BPH) with storage and voiding symptoms. In the NEPTUNE II study, patients received FDC Soli 6 mg + TOCAS 0.4 mg (FDC 6 mg) for 4 weeks, then had the option to increase the dose to Soli 9 mg + TOCAS (FDC 9 mg). Switching between doses was permitted at subsequent 3-month intervals. This analysis evaluated total International Prostate Symptom Score (IPSS), micturition frequency and patient satisfaction in NEPTUNE II.

Methods: Total IPSS, micturition frequency and patient satisfaction with treatment were assessed at each visit. Post hoc analyses included the proportions of patients achieving total IPSS <8 (no/minor bother) and <8 micturitions/24 h (normal levels).

Results: Of 1199 patients completing NEPTUNE, 1066 received ≥1 dose of open-label FDC in NEPTUNE II. Overall, mean total IPSS and micturition frequency were reduced by 9.0 points and 2.5 episodes/24h, respectively, from baseline (NEPTUNE) to end of treatment (NEPTUNE II). At baseline, 99.9% of patients had a total IPSS ≥13 and 100% had ≥8 micturitions/24 h. At end of treatment, 42.6% had a total IPSS <8 and 37.2% had <8 micturitions/24 h. Overall, 78.3% of all patients were satisfied with both safety and efficacy of the dose taken in the previous treatment period vs 81.5% of patients ending the study on the FDC 6 mg.

Conclusions: Clinically relevant reductions in storage/voiding symptoms were obtained with long-term FDC Soli + TOCAS. A great proportion of patients had a clinically meaningful reduction of total IPSS and micturition frequency, which was reflected by a high rate of patient satisfaction with efficacy and safety of FDC Soli + TOCAS.

UP-07.02

OnabotulinumtoxinA demonstrates efficacy for the treatment of neurogenic detrusor overactivity: Results from a prospective registry

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Introduction: Injecting intravesical onabotulinumtoxinA (BTA) to treat neurogenic detrusor overactivity (NDO) has become common practice. While controlled studies have demonstrated its efficacy, questions remain regarding its performance in a "real world" setting. The objective of this study is to report the results from a prospective registry of consecutive patients diagnosed with NDO and injected with BTA.

Methods: All new or existing patients for whom BTA injection was indicated per usual clinical practice were considered for enrollment. Clinical data were abstracted from the electronic health record and collected from patients using quality-of-life surveys (PROs) prior to injection and 3-month post-injection. Outcomes of interest included: 1) use of medications; 2) voiding, urgency, and nocturia events; and 3) PROs. Data in this study was collected from May to December 2014.

Results: Of 178 patients currently in the registry, 54 have NDO with post-injection data. Their mean age was 51.2, 69% were female, 65% had Multiple Sclerosis, 30% had a spinal cord injury. Most patients (78%) had previously received BTA injections to their bladder. Unadjusted models were used to compare outcomes pre- and post-injection. There was a statistically significant reduction in the use of anticholinergics (McNemar's chi2=6.23, p=0.01). The number of voids/day (Pearson chi2=52.4, p<0.001) or catheters/day (Pearson chi2=46.4, p<0.001) were significantly reduced, and less urgency was reported (McNemar's chi2=4.76, p=0.03). PROs using the UDI-6 (t=4.3, p<0.001), ICIQ (t=3.2, p<0.001), and PPBC (Pearson chi2 = 43.2, p=0.01) all significantly improved.

Conclusions: Our registry confirms the results of phase III clinical trials and demonstrates that, in real world clinical practice, BTA significantly reduces voiding or catheterization frequency, urgency, and improves PROs. Clinicians may confidently use BTA as an efficacious treatment for NDO.

UP-07.03

What do interstitial cystitis/bladder pain syndrome patients want?

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Introduction and Objectives: To improve quality of care for the IC/BPS population, our project identified what patients truly value, and distinguished what frontline urology healthcare team (HCT) members value in delivery of care, and to assess if operations are optimally aligned to deliver the best quality of care.

Methods: Our research methodologies in quality improvement intervention included in-depth interviews, focus groups and individual surveys, conducted in Kingston and Toronto. Purposive sampling methodology was used and sample size was determined on the basis of theoretical saturation. The objective was deemed successful once a consensus was reached by the focus group and individual surveys.

Results: 34 HCT members across Canada completed a non-validated survey asking for a list, which was then ranked, of the most important values associated with providing urologic care in IC/BPS. Multidisciplinary support (pain specialist and psychologist) is highly valued. The HCT feel ill equipped to manage this complex disease process, and desire further education and algorithms to assist with diagnosis and treatment. Current diagnostic and follow-up questionnaires were not valued as effective.
Patient focus groups were conducted at 2 universities (N=15 patients). All agreed that there was a lack of physician awareness, which led to frustration and a delay in diagnosis. They expressed the desire for acknowledgement that they had a real disease. All stressed the importance of a compassionate and supportive "intake person;" not necessarily a nurse. They appreciate a positive attitude from the urologist; alternative-care approaches for stress management/coping strategies, and clinical trials, rather than being told to "live with it." An ideal model of care would be a holistic and multidisciplinary model with better communication between the HCT. There was consensus that current questionnaires lacked emphasis on evaluating anxiety/stress level, affect on social life, fatigue level, sexual functioning.

Conclusions: Discrepancies between what patients value and what other stakeholders value have been identified. Urologists must realign delivery of care to optimize what IC/BPS patients desire, in order to provide the best care possible. Our next goal will be to design a patient focused questionnaire.

UP-07.04

Intravesical lidocaine anaesthesia for intravesical botox injections

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Introduction: Intravesical lidocaine therapy has been studied previously as a method of local anesthesia prior to onabotulinumtoxinA injection. The protocol at our institution calls for a much higher dose then typically described in the literature. We believe this provides superior anaesthesia. This initial study was designed to prove the safety of this protocol.

Methods: All patients were identified retrospectively since the institution of the local anesthetic protocol at Hamilton Health Sciences. Patients without lidocaine levels were excluded from the study. Foley catheter insertion and anaesthetic solution was instilled for 20-30min. The anaesthetic solution consisted of 100cc 4% lidocaine and 2cc of 1:1000 epinephrine. Intravenous lidocaine level was drawn at the end of the instillation. Bladder was then drained and catheter removed. Rigid cystoscopy and Cook injection needle was then used to inject intradetrusor Botox (onabotulinumtoxinA, Allergan). Dosing was 100u for overactive bladder and 150u-200u for neurogenic bladder. Another intravenous lidocaine level was drawn at the end of the injection. Possible adverse effects were monitored while patients recovered.
Results: 13 patients (all female) underwent intravesical lidocaine and epinephrine installation prior to Botox injections. The lidocaine levels in all patients were undetectable. There were no reported adverse effects. All of these patients tolerated the procedure well with minimal discomfort.
Conclusion: Intravesical lidocaine therapy prior to onabotulinumtoxinA injection was very well tolerated in a chart review of 13 patients. Efficacy was excellent. There were no adverse events and undetectable lidocaine levels in all cases. Further studies are ongoing to prove the efficacy of this protocol.

UP-07.05

Nocturnal enuresis in older people: Where's the evidence and what are the gaps?

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Introduction and Objectives: While there is extensive literature regarding nocturnal enuresis in children and young adults, there is relatively little research into this problem in older persons. The 5th International Consultation on Incontinence was unable to make any recommendations for the management of this condition. The aim of this study was to conduct a scoping review to identify knowledge gaps and provide research direction specifically for older institutionalised adults.
Materials and Methods: A comprehensive search of six electronic databases (PubMed, CINAHL, Scopus, Web of Science, EMBASE, and Psychinfo) and the grey literature (standard method using GoogleTM) was perfomed. Studies involving the causes, symptoms, and treatment of nocturnal enuresis in older people were sought. We used a broad search strategy to include all adults to capture relevant publications. Papers were then excluded by title and abstract such that only those relevant to the older adult and institutionalized populations remained. Relevant articles were identified by title, language, abstract information, and then a final review of the papers, which were then searched for recurring themes.
Results: We identified nine published papers that met our inclusion criteria. After duplicates and non-relevant papers were eliminated we were left with 8 articles on nursing home residents and 2 involving older persons living in psychiatric institutions. Published literature focused on causes and treatment with either desmopressin or aversive behavioural therapy. No study included a comprehensive continence assessment or controlled for comorbid conditions. Identified grey literature focused on general continence information for the public and non-specialist clinicians.
Conclusion: There is a dearth of evidence relevant to this troublesome condition. Gaps in the research include standardised terminology, such as incontinence without arousal from sleep, incontinence with awakening, and failure to gain assistance; epidemiology, pathophysiology and characterisation; alternative treatment options and a lack of robust intervention trials.

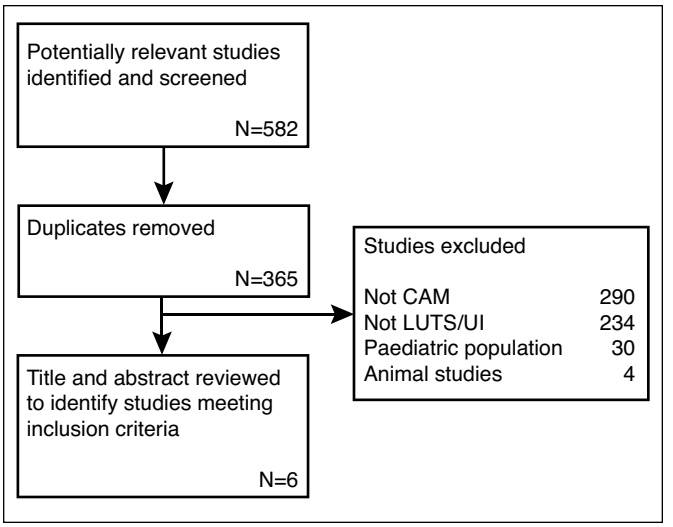

Fig. 1. UP-07.06.

UP-07.06

Homeopathy, chiropractic, massage, aromatherapy, osteopathy, and reflexology for urinary incontinence and lower urinary tract symptoms in adults: A scoping review

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Introduction and Objectives: Urinary incontinence (UI) and lower urinary tract symptoms (LUTS) are highly prevalent amongst the general population and are associated with significant stigma and reduction in quality of life. Complementary and alternative medicine, the medical and health care systems, therapies, and products that are not presently considered to be part of conventional medicine, are commonly used by patients to cure or improve urinary incontinence and lower urinary tract symptoms.
Methods: A scoping review of the literature supporting six common forms of CAM for UI/LUTS; Homeopathy, Chiropractic, Massage, Aromatherapy, Osteopathy, and Reflexology was undertaken and the resulting evidence synthesized and summarized. Of the 582 studies identified by our initial search, six met our inclusion criteria (Fig. 1).
Results: We identified no convincing evidence to support the use of these therapies for urinary incontinence or lower urinary tract symptoms.
Conclusions: Where there is a plausible mechanism for effect, there is a clear need for robustly designed therapeutic trials to enable clinicians to at least guide their patients interested in such treatment modalities.

UP-07.07

Factors impacting patient tolerability and procedure time for intravesical onabotulinumtoxinA injection

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Introduction: OnabotulinumtoxinA (BTA) injection has become a common procedure for patients diagnosed with neurogenic and idiopathic detrusor overactivity (NDO and IDO). However, concerns regarding patient acceptance and resource utilization may limit their uptake. This study evaluates procedural time and tolerability of patients receiving intravesical BTA injection.
Methods: A longitudinal registry was developed to specifically track patients receiving intravesical BTA injections. Surgeons recorded data at the time of injection. Other information was extracted from the electronic medical record and from quality-of-life surveys from the patient. The primary outcomes for this study were: 1) the duration of the procedure, measured in minutes; and 2) participants' self-reported pain, measured

Table 1. UP-07.07. Injection data for patients with NDO and IDO receiving intravesical BTA

	NDO (n=90)			IDO (n=80)	Difference
	Total (%)	SCI (n=29)	MS (n=48)		
Gender					*Pearson chi²=10.22 *p*=0.001
Female	60 (67)	12 (41)	41 (85)	70 (88)	
Male	30 (33)	17 (5)	7 (15)	10 (12)	
Mean age	50.3	42.8	54.9	59.1	*t=4.02 *p*=0.0001
Anesthesia					Pearson chi²=0.003 *p*=0.956
Local anesthesia only	79 (88)	23 (79(	47 (98)	70 (88)	
GA/SA/Sedation	11 (12)	6 (21)	1 (2)	10 (12)	
Flexible cystoscope	22 (25)	12 (41)	8 (17)	14 (18)	Pearson chi²=1.22 *p*=0.269
Volume					
100	2 (2)	21 (72)	2 (4)	34 (43)	
150	0	0	0	6 (7)	*Fisher's exact <0.0001
200	73 (81)	8 (28)	44 (92)	39 (49)	
300	15 (17)	0	2 (4)	1 (1)	
Mean injection sites	18.2	19.1	17.2	15.0	*t=-4.03 *p*=0.0001
Pain score (VAS)^					
0	25 (32)	13 (57)	9 (19)	10 (14)	
1–3	37 (47)	6 (26)	26 (55)	28 (40)	*Fisher's exact=0.01
4–6	12 (15)	3 (13)	8 (17)	20 (29)	
7–9	5 (6)	1 (4)	4 (9)	11 (16)	
10	0	0	0	1 (1)	

*Patients injected under local anasthesia only.

using a visual analogue scale (VAS) immediately after being injected.
Results: Data was available for 170 patients from 3 surgeons. Ninety (53%) of those were diagnosed with NDO, and of these 48 (53%) had multiple sclerosis (MS) and 29 (32%) had spinal cord injury (SCI). Over 70% had previously received BTA injections to their bladder. Eighty-eight percent of injections were performed using local anesthetic only, and 74% utilized a rigid cystoscope and Cook Williams needle versus 21% with a flexible scope and Olympus SmoothShot needle. Injection data for NDO and IDO patients is summarized in Table 1. More than 50% in every group had a VAS of 0-3. There were no procedural complications. Independent variables impacting pain scores included diagnosis (for NDO, OR=.44, p=.031) and physician (OR=.23, p=.006). In patients with IDO, the cystoscope/needle combination did not impact pain scores.
Conclusion: Intravesical BTA is well tolerated by patients with NDO and IDO, and the majority can be performed under local anesthesia only. Pain scores are impacted by surgeon variables and diagnosis. Reducing injection volume has no impact on pain scores. Selective use of flexible cystoscopes may improve cost-effectiveness without compromising tolerability for patients with IDO.

UP-07.08

Risk factors of long-term reoperation after holmium laser enucleation of the prostate for management of symptomatic benign prostate hyperplasia: Time to event analysis

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Objectives: To determine risk factors of reoperation after holmium laser enucleation of the prostate (HoLEP) for management of lower urinary tract symptoms (LUTS) secondary to benign prostate hyperplasia (BPH) with time to event analysis.
Methods: A prospectively maintained database was reviewed for patients undergoing HoLEP for management of LUTS secondary to BPH. Baseline and follow-up data were compared in terms of International Prostate Symptoms Score (IPSS), Quality of Life (QoL), peak flow rate (Qmax), residual urine (PVR) and prostatic specific antigen (PSA) at 1, 6, and 12 months and then annually. Perioperative and late adverse events were recorded. Reoperation was defined as the need for any surgical intervention to relieve bothering LUTS after HoLEP. A multivariate logistic regression model was used to determine possible covariates associated with reoperation and a Kaplan-Meier curve assessed the time to reoperation.
Results: A total of 1216 HoLEP procedures were operated between March 1998 and October 2013, including 37.2% who presented with indwelling urethral catheter. Mean prostate volume was 94.8±52.7cc. Catheter time and hospital stay were 1.4± 1.9 and 1.3 ± 1.6 days, respectively. After a mean follow-up of 7.3 years (1- 14 years), 52 (4.3%) patients needed reoperation for recurrent LUTS, including 13 (1.07%) for residual/recurrent adenoma, 14 (1.15%) for bladder neck contracture and 25 (2.05%) for de novo urethral stricture. In multivariate regression, smaller prostate size (<62 cc) and history of previous prostate surgery predicted recurrence of adenoma. BNC was significantly associated with smaller glands (<54 cc) while longer operative time and postoperative catheterization were significantly associated with postoperative urethral stricture. A Kaplan-Meier curve demonstrates freedom from post-HoLEP reoperation to be 96.9% at 5-years and 95.1% at 10- years.
Conclusions: HoLEP has a long-term safety profile with low long-term complications, including reoperation rate. Survival analysis demonstrates a freedom from post- HoLEP reoperation to be higher than 95% at 10 years. However, small-size prostate may have an impact on recurrence of adenoma and bladder neck contracture.

Table 1. UP-07.09. Operative and follow-up characteristics in 150 patients

	Group 1 n=50	Group 2 n=50	Group 3 n=50	*p* value
Energy delivered (kJ/cc)	2.57 (1.6–3.5)	3.27 (2.6–4.2)	4.26 (3.2–5.1)	<0.001
PSA reduction at 6 months (5)	53.2 (8.3–69.2)	49.4 (27.7–69.1)	70.6 (61.7–81.7)	<0.001
Laster time/OR time	0.53	0.50	0.51	0.462
Energy deliverred per prostate volume per minute of operative time (kJ/cc/min)	0.064	0.067	0.076	0.027

UP-07.09

180W LBO laser vaporization of the prostate for benign prostatic hyperplasia: Assessing the learning curve

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Introduction and Objective: The aim was to evaluate intraoperative parameters to assess the learning curve of the Greenlight XPS-180W laser system.

Methods: A retrospective study was conducted on 150 patients treated by one surgeon with Greenlight laser XPS-180W photoselective vaporization of the prostate for the treatment of LUTS associated with BPH. Preoperative data along with operative parameters were collected prospectively. The population was divided into three consecutive groups of 50 patients. Operative parameters used to assess learning curve of surgical technique included energy delivered per prostate volume (kj/cc), PSA reduction at 6 months (%), laser time/operative time ratio and energy delivered per prostate volume per minute of operative time (kj/cc/min).

Results: Median prostate volume was above 60 cc in every group. Energy delivered per prostate volume and PSA drop percentage significantly increased over time (p<0.001). There was no significant change in laser time/operative time ratio over the study period. When assessing energy delivered per prostate volume per minute of operative time, a statistically significant increase was observed over time (p=0.027) (Table 1).

Conclusions: Operative parameters and PSA reduction assessed over time can be helpful to monitor progress during XPS Greenlight laser system learning curve. Even when already familiar with photoselective vaporization of the prostate techniques, continued improvement in efficiency can be observed with greater case volumes.

UP-07.10

Assessment of energy density usage during 180W LBO laser photo-selective vaporization of the prostate for benign prostatic hyperplasia: Is there an optimal amount of kilo-Joules per gram of prostate?

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Introduction and Objective: The ideal amount of energy usage during photo-selective vaporization of the prostate (PVP) for optimal treatment of benign prostate hyperplasia (BPH) has not been established. The aim of this study is to assess the effect of energy density (kJ/cc) applied on adenoma during treatment on functional outcomes, PSA reduction and complications.

Methods: A total of 440 patients that underwent Greenlight laser XPS 180W LBO PVP for the treatment of BPH were retrospectively reviewed. Data was collected from seven different international centers (Canada, the United States, the United Kingdom and France). Patients were stratified into four energy density groups (kJ/cc) according to intraoperative energy delivered and prostate volume as determined by pre-operative trans-rectal ultrasound (TRUS): group 1: <3 kJ/cc, group 2: 3 to 5 kJ/cc, group 3: 5 to 7 kJ/cc and group 4: ≥7kJ/cc. Energy density groups were chosen arbitrarily. PSA reduction and functional outcomes (IPSS, QoL, PVR, Qmax) were compared at 6, 12 and 24 months. Moreover, perioperative complications and retreatment rates were also compared between groups.

Results: PSA reduction at 12 months post procedure was 50%, 50%, 64% and 79% for an energy density of <3, 4-5, 5-7 and ≥7 kJ/g respectively (p≤0.01). Energy usage was not associated with increased complication rates, including hematuria, stricture formation, incontinence, refractory urinary retention, urinary tract infection and conversion to TURP. Functional outcomes at 2 years of follow-up were equivalent between groups (p>0.05 for all) and comparable re-treatment rates were observed (p=0.36) (Table 1, Table 2).

Conclusions: Increased energy usage per cc of prostate is associated with a more significant PSA reduction (>50%) at 24 months suggesting increased vaporization of adenoma tissue. However this effect did not translate into better functional outcomes at two years of follow-up.

Table 1. UP-07.10. PSA drop and functional outcomes after XPS 180 LBO PVP for BPH at 24 months according to energy usage per gram of prostate.

Variables at 24 months	<3 kJ/g	3 to 5 kJ/g	5 to 7 kJ/g	>7 kJ/g	*p* value*
Median PSA drop (%)	51	61	78.8	83.1	**0.002**
Median IPSS drop (%)	81.8	80.5	81.7	79.1	0.73
Median QoL change (%)	83.3	80	83	75	0.73
Median Qmax change (%)	309.1	233.3	300	425	0.48
Median PVR drop (%)	96.2	95.1	95.5	94	0.86

PSA: prostate specific antigen; IPSS: international prostate symptoms score; QoL: quality of life score; Qmax: maximal urine flow; PVR: post-voiding residue.
*Kuskal-Wallis analysis of variance

Table 2. UP-07.10. Complications after XPS 180 LBO PVP for BPH stratified by energy usage per gram of prostate.

Complications	<3 kJ/g	3 to 5 kJ/g	5 to 7 kJ/g	>7 kJ/g	*p* value*
Bleeding/ hematuria	12 (11) n=110	12 (11) n=114	10 (15) n=65	4 (8) n= 51	0.62
Stricture	6 (4) n=177	5 (4) n= 142	5 (7) n=70	2 (4) n=51	0.57
Incontinence	9 (8) n=111	6 (5) n= 117	2 (3) n= 68	3 (6) n=51	0.53
Refractory retention	9 (5) n=177	7 (5) n=142	4 (6) n=70	3 (6) n=51	0.99
Conversion to TURP	2 (1) n=177	6 (4) n=142	2 (3) n=70	3 (6) n=51	0.22
UTI	7 (6) n=110	3 (3) n=114	1 (2) n=65	1 (2) n=51	0.26
Retreatment at 24 months	3 (4) n=73	1 (1) n=82	0 n= 54	1 (4) n=28	0.36

TURP: Transurethral resection of the prostate~ UTI: urinary tract infection

UP-07.11

Photoselective vaporization of the prostate with GreenLight 180watt-XPS is effective in patients with urinary retention

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Introduction and Objectives: Men with BPH can present with urinary retention. The use of GreenLight 180W- XPS, a minimally invasive procedure has not been evaluated for its effectiveness in men presenting with urinary retention. We interrogated a large retrospective database to compare outcomes for men in urinary retention to those for men not presenting in retention.
Methods: Data on 928 patients with clinical BPH treated with GreenLight 180W-XPS was collected retrospectively from 5 centers. 204 men presented in urinary retention with indwelling urethral catheters. Several clinical factors were ascertained to document efficacy and safety including: procedure time, energy applied in joules, postoperative catheterization time, IPSS, QOL, PVR and reoperation rates. Mean follow up was 394 days.
Results: The total procedure time and amount of energy used were greater in the retention group. However, postoperative IPSS, QOL, length of catheterization, reoperation rate, and proportion with adverse events were similar between the two groups. There was a statistically significantly greater PVR in the urinary retention group but this difference (24 cc's) is not clinically meaningful (Table 1, Table 2).
Conclusions: PVP with GreenLight 180W-XPS is a safe, effective method of treating patients with BPH who present with catheter dependent urinary retention. There was a low reoperation rate and very few adverse events. The results show excellent outcomes with PVP in patients with advanced BPH who present with urinary retention.

Table 1. UP-07.11. Perioperative and Postoperative measures

Variable	Retention (n=204)	No (n=724)	Total (n=928)	*p* value
Total procedure time, min	70.2±32.2	52.6±26.1	56.5±28.5	< 0.001
	(12.0,64.0, 193.0)	(15.0,46.0,210.0)	(12.0,50.0,210.0)	
	N=192	N=671	N=863	
Energy delivered, kJ	344.5±208.0	250.4±160.9	271.2±176.6	<0.001
	(20.0,303.5, 1103.6)	(14.5,205.2, 1006.2)	(14.5,225.0, 1103.6)	
	N=204	N=721	N=925	
Length of catheterization, days	1.4±1.4	1.1±0.9	1.2± 1.1	0.286
	(0.3, 1.0, 14.0)	(0.1, 1.0, 10.0)	(0.1, 1.0, 14.0)	
	N=180	N=501	N=681	
IPSS, Post-op	5.3±4.1	6.1±5.2 5.9± 5.0	5.9± 5.0	0.509
	(0.0,5.0,27.0)	(0.0,5.0,29.0)	(0.0,5.0,29.0)	
	N=112	N=375	N=487	
IPSS, Post-op				
≤8	83.2% (94)	77.2% (295)	78.6% (389)	
9 to 21	15.0% (17)	20.4% (78)	19.2% (95)	
≥22	1.8% (2)	2.4% (9)	2.2% (11)	
	N=113	N=382	N=495	
IPSS-QoL, Post-op	1.0±0.9	1.3±1.2	1.2±1.2	0.105
	(0.0, 1.0, 4.0)	(0.0, 1.0, 6.0)	(0.0, 1.0, 6.0)	
	N=107	N=352	N=459	
Post void residual, Post-op	65.4±120.1	41.7±88.4	46.6±96.2	< 0.001
	(0.0,26.5,999.0)	(0.0, 14.5,954.0)	(0.0, 15.0,999.0)	
	N=118	N=450	N=568	

*Results are presented as percentage (count) or mean±standard deviation (min, median, max). p-value is from statistical test of difference between groups.

Table 2. UP-07.11. Complications post-procedure

Event	Time point (days)	Retention	No	Total	Total Group difference **
Urinary Tract Infection	90	5.0% (10)	2.4% (17)	3.0% (27)	2.6%
		[2.7% to 9.0%]	[1.5% to 3.8%]	[2.0% to 4.3%]	[-0.6% to 5.8%]
Stricture or BNC	365	1.0% (2)	1.9% (12)	1.7% (14)	-0.9%
		[0.3% to 4.1 %]	[1.1% to 3.3%]	[1.0% to 2.9%]	[-2.6% to 0.9%]
Retention	90	6.9% (14)	4.2% (30)	4.8% (44)	2.7%
		[4.1%to 11.4%]	[3.0% to 6.0%]	[3.6% to 6.4%]	[-1.1 % to 6.5%]
Surgical retreatment	365	2.8% (5)	2.1%(14)	2.3% (19)	0.6%
		[1.2% to 6.5%]	[1.3% to 3.6%]	[1.5% to 3.6%]	[-2.0% to 3.2%]

*Results presented are Kaplan-Meier estimate for proportion of subjects with event (number of subjects) [95% confidence interval]. Complementary log-log confidence interval presented.
** Linear confidence interval presented.

UP-07.12

180W LBO laser vaporization of the prostate for benign prostatic hyperplasia in high-risk patients

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Introduction and Objectives: The aim of this study is to evaluate the surgical performance, complication rates and outcomes at 2 years of the Greenlight XPS-180W laser system (AMS, Minnetonka, MI, USA) for the treatment of BPH in high-risk patients, The current analysis focuses on the subgroups of patients of a large international multicenter cohort. Anticoagulant (ACO) therapy, of older age≥80 (Age80), very large prostate ≥120cc (PV120) or with indwelling catheter for urinar retention.
Methods: A total of 1194 patients underwent Greenlight laser photoselective vaporization of the prostate for the treatment of BPH performed at 6 international centers. Preoperative data including the use of anticoagulant were recorded. Operative parameters, complications as well as outcomes at 3, 6 12, 18 and 24 months postoperatively were analyzed according to the various sub-groups. ACO was defined as taking Clopidogrel or Warfarin. Prostate size ≥120cc subgroup was defined by preoperative TRUS assessment (Table 1).
Results: Out of the total of 1194 patients treated in the study, n=127 patients were included in ACO group, n=176 in the Age80 group, n=143 in PV120 group and n=222 patients in the retention group respectively. No differences were observed in terms of bleeding, transfusion, hematuria or clot retention including for patient on ACO (p>0.05). Similarly capsular perforation observed in 1-2% of cases was equivalent between groups. Conversion rate to TURP was significantly increased in PV120 group (11%). In terms of outcomes, IPSS, QoL score, Qmax and PVR were all significantly improved and sustained including at 24 months compared to baseline (p<0.001) for all subgroups (Table 2).
Conclusions: These results confirm the attractive safety profile of greenlight PVP. Nevertheless for patients with very large prostate the higher conversion to TURP reflects the increased difficulty and thus warrants established greenlight laser experience by the surgeon. Durability at 2 years of symptoms improvements confirm the efficacy of PVP using the XPS-180W system and support its the use for the treatment of BPH in high risk patients.

UP-07.13

Initial Canadian experience with robotic simple prostatectomy: Case series and literature review

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Objectives: With the advent of robotic surgery, robotic assisted simple prostatectomy (RASP) has been touted as alternative to the current gold standard- open simple prostatectomy (OSP). Our study aimed to review our institution's initial experience with RASP for treatment of benign prostatic hyperplasia (BPH) and review the literature.
Methods: We performed a retrospective chart review from Jan. 2011- Nov. 2013 of all patients undergoing RASP and OSP. Operative and 90-day outcomes, including length of operation, intraoperative blood loss, length of hospital stay, transfusion requirements, and complication rates, were assessed.
Results: Thirty-two patients were identified- 4 undergoing RASP and 28 undergoing OSP. There was no difference in mean age at surgery (69.3 vs. 75.2 years; p=0.43), mean CCI (2.5 vs. 3.5; p=0.19), pre-operative anticoagulation (33.3 vs. 27.3%; p=1.00), or mean prostate volume on TRUS (239 vs. 180 cc; p=0.09) in the robotic and open groups, respectively. There was a significant difference in the mean length of operation, with RASP exceeding OSP (161.3 min vs. 79 min; p=0.0002). Mean intraoperative blood loss was significantly higher in the open group (835.7 ml vs. 218.8 ml;p=0.0001). Mean length of hospital stay was shorter in the

Table 1. UP-07.12.

Parameters baselines	Total (n=1196) Median (min–max)	PV> 120cc (n=143)	*p* value	Age>80 cc (n=176)	*p* value	ACO (n=127)	*p* value	Retention/ cath. (n=222)	*p* value
Age	70 (35–96)	72.9 (44–96)	0.06	84 (80–96)	**<0.01**	77 (54–90)	**<0.01**	70 (49–88)	0.11
IPSS	22 (1–35)	25 (1–35)	0.11	24 (2–35)	**0.026**	22 (3–35)	0.77	21 (2–35)	**<0.01**
QOL	5 (0–6)	5 (0–6)	0.054	5 (0–6)	**0.012**	5 (0–6)	0.58	5 (1–6)	**<0.01**
Qmax	6 (0–27)	4.7 (0–24)	**<0.01**	5.0 (0–27)	**<0.01**	6 (0–21)	0.72	7 (0–27)	**<0.01**
PVR	151 (0–1350)	220 (0–912)	0.017	198 (0–1000)	**0.05**	150 (0–1350)	0.91	375 (0–1350)	**<0.01**
PSA	3.3 (1–10)	4.7 (1–9.6)	**<0.01**	3.9 (1.1–9.4)	**<0.01**	3.8 (1.1–9.6)	0.137	3.5 (1–10)	0.17
pre–op TRUS	61.4 (10–300)	154 (120–300)	**<0.01**	66 (16–288)	0.29	60 (10–218)	0.46	69.5 (20–300)	<0.01

Table 2. UP-07.12.

Subgroups Complications	Total (n=1196) % (n/total)	PV> 120cc (n=143)	*p* value	Age>80 cc (n=176)	*p* value	ACO (n=127)	*p* value	Retention/ cath. (n=222)	*p* value
Capsular perforation	0.8 (5/637)	0(0/70)	0.62	1.2 (1/85)	0.44	1.7 (1/59)	0.386	1.1 (2/184)	0.63
Bleeding obscuring vision	3.1 (20/638)	1.4 (1/71)	0.35	4.8 (4/83)	0.29	3.4 (2/58)	0.702	2.2 (4/185)	0.459
Conversion to TURP	3.1 (23/742)	11 (8/73)	<0.01	4% (4/101)	0.54	3.2 (3/93)	1	3.3 (6/184)	0.884
Bleeding hematuria	9.7 (60/618)	12.1 (7/58)	0.32	4.7 (4/85)	0.11	12.6 (11/87)	0.292	15.8 (22/139)	0.006
Blood transfusion	0.0 (0/723)	0.0 (0/123)	—	0.0 (0/140)	—	0.0 (0/90)	—	0.0 (0/180)	—
Dysuria-Urgency-Frequency (LUTS)	13.5 (114/842)	5.7 (7/123)	<0.01	10.5 (12/114)	0.37	13.6 (11/81)	0.994	23.8 (41/172)	<0.001
UTI	4.9 (34/688)	9.8 (6/61)	0.07	5.1 (5/99)	1	2.2 (2/91)	0.297	5.7 (9/157)	0.603
Stricture (BNS/urethral)	4.2 (31/746)	4.1 (3/73)	0.64	2.0 (2/101)	0.18	5.4 (5/93)	0.575	2.2 (4/184)	0.14
Refractory retention	7.4 (79/1065)	4.5 (6/134)	0.1	11.2 (17/152)	0.07	7.4 (9/121)	0.995	6.2 (12/195)	0.456
Incontinence (1 pad/day)	4.5 (43/961)	4.2 (5/120)	0.4	4.3 (6/140)	1	5.1 (6/118)	0.734	10.3 (16/155)	<0.001
Mean hospital stay (h)	28.28±32.53	32±24	0.73	40±45	<0.01	42±37	<0.001	23±33	0.021
Mean cathether time removal time (h)	28.82±28.82	41±39	0.02	37±36	<0.01	31±22	0.392	31±44	0.548

RASP group (2.3 vs. 5.5 days;p=0.0002). No significant differences were noted in the 90-day transfusion rate (0 vs. 46.4%; p=0.13), or number of packed red blood cell units transfused (0 vs. 1.5 units; p=0.17). Overall 90-day complications were statistically similar at 0% with RASP vs. 57.1% with OSP (p=0.10). When stratified by severity, a higher proportion of the OSP complications were Clavien II (0 vs. 68.8%; p=0.03).

Conclusions: Our data suggests RASP has a shorter hospital stay and a lower intraoperative volume of blood loss, as compared to OSP, with the disadvantage of a significantly longer operating time. It is a feasible technique and deserves further investigation and consideration in Canadian centres performing robotic prostatectomies.

UP-07.14

Clinico-epidemiology of prostatitis: A hospital based study

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Introduction and Objective: Prostatitis is a multi-factorial problem affecting men of all ages and demographics. This study was undertaken to determine the frequency of prostatitis, its impact on the quality of life, the microbiological etiology and the sensitivity pattern of the isolated microbes in the male patient presenting to urology outpatients of B P Koirala Institute of Health Sciences, Dharan Nepal.

Methods: All patients presenting with symptoms suggestive of prostatitis and not explained by other causes were included in this cross sectional study.

Results: The frequency of prostatitis was 7.43%, most commonly seen in the age group of 31-45 years. Majority of the patients were farmer (21.3%). Patients suffering from Chronic Prostatitis (CP) / Chronic Pelvic Pain Syndrome (CPPS), Chronic Bacterial Prostatitis and Acute Bacterial Prostatitis were 60%, 38.8% and 1.3% respectively. The National Institutes of Health Chronic Prostatitis Symptom Index scoring at presentation for CP/CPPS patients was 13, 3.70 and 8.58 for pain, urinary and quality of life domains respectively. Most common organism isolated in bacterial prostatitis patients was Escherichia coli and sensitive to aminoglycosides followed by fluoroquinolones group of antimicrobials. Semen culture was more sensitive than post prostatic massage urine culture for bacterial isolation.

Conclusions: Prostatitis is an important and frequent disease. Majority of them presented with features of CPPS. Its impact on quality of life is significant. Escherichia coli were the commonest organism isolated in bacterial prostatitis and are most commonly sensitive to aminoglycosides. Semen culture can be used on a routine basis for bacterial isolation.

UP-07.15

Outcome of onabotulinumtoxinA in different concentrations for idiopathic detrusor over activity: A prospective study

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Introduction and Objectives: To analyze the efficacy and safety of injecting different concentrations of onabotulinumtoxinA in cases with idiopathic detrusor overactivity.

Material and Methods: Between May 2012 and April 2014, all patients diagnosed as idiopathic overactive bladder refractory to anticholinergics were enrolled in this study. Patients with evident neurogenic bladder element, urinary tract infection, or high post voiding residual urine volume (>100 ml) were excluded from the study. Forty-five patients were eligible and subsequently randomized into 3 groups, 15 patients each. In all patients onabotulinumtoxinA was injected intra-detrusorly with concentration 100U, 150U and 200U in group I, II and III respectively. The ultimate goal was to detect symptoms improvement, if any, at 3 and 6 months post-treatment compared to baseline findings using voiding diary, voiding cystometery and IIQ-7 questionnaire. Kaplan-meier curve for the time of worsening of symptoms was done and analyzed using Log Rank test with $P < 0.05$ considered significant.

Results: There were no statistically significant differences noted among the three groups in concern to patient demographics, voiding diary, IIQ-7 questionnaire parameters and urodynamic variables. Urine retention occurred in 1(6.7%) and 2(13.3%) patients of group II and III respectively and was managed by self-catheterization. Urodynamic as well as questionnaire parameters at the end of the third month showed significant improvement in all groups. Mean maximal cystometric capacity as a sole urodynamic individual variable was 352 ± 35, 381 ± 46 and 378 ± 51 ml in group I, II and III at 3 months respectively. Mean detrusor pressure was 19 ± 6, 22 ± 7 and 18 ± 5 cm H2o in group I, II and III at 3 months respectively. Kaplan-Meier analysis of the time to experience recurrence of symptoms revealed no statistically difference among the 3 group with P<0.05.Six months after treatment all patients experienced recurrence of their symptoms except 1(6.7%) and 3(20%) cases of groups II and III respectively.

Conclusions: OnabotulinumtoxinA at different concentrations appears to equally improve patient symptoms, urodynamic variables and quality of life. No substantial adverse effects occur with increase of the dose from 100 to 150 and 200 U.

UP-07.16

Current practices in the surgical management of female stress urinary incontinence (SUI): A survey of Canadian urologists and gynecologists

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Introduction and Objectives: Midurethral mesh slings are considered the 'gold standard' for the treatment of female SUI. Complications such as chronic pain and mesh erosion have lead to Health Canada issued warnings regarding the use of pelvic floor mesh for the treatment of SUI. The goals of this paper were to assess the current practices of Canadian urologists and gynecologists when surgically managing SUI and to assess the impact of the Health Canada warnings on the use of midurethral mesh slings.

Methods: A 31 question online survey was created using Opinio software. The survey was distributed to members of the Canadian Urological Association and Society of Obstetricians and Gynecologists of Canada who are actively practicing urologists and gynecologists in Canada, respectively. One reminder survey was distributed.

Results: The survey was sent to 523 urologists and 595 gynecologists with a response rate of 19% (n=207). Of respondents, 72% treated SUI. Midurethral mesh slings were the most commonly used technique, performed by 91% of those who treated SUI. Of respondents, 87% were aware of Health Canada statements regarding the use of mesh for SUI and 86% reported that patients had voiced concerns with the use of mesh slings. Sixty-six percent of those using mesh slings had changed the way they counsel patients prior to surgery. Many respondents had changed the way they surgically manage SUI including: 14% because of Health Canada statements (16% urologists vs. 13% gynecologist, p=0.60), 34% because of patient concerns (31% urologists vs. 36% gynecologists, p=0.57) and 14% because of fear of litigation (13% urologists vs. 15% gynecologists, p=0.80). Overall, 6% had stopped using mesh slings (0% of urologists vs. 9% of gynecologists, p=0.004).

Conclusion: Midurethral mesh slings remain the most commonly performed surgery for SUI. Most respondents have changed the way they counsel patients prior to undergoing mesh placement but have not changed the way they surgically manage SUI. There were minimal differences between urologists and gynecologists but more gynecologists than urologists have stopped using mesh for the treatment of SUI.

UP-07.17

Heating of the InterStim sacral neuromodulation device in a simulated phantom model during lumbar and pelvic magnetic resonance imaging

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Introduction and Objectives: All MRI studies other than a 1.5–Tesla MRI of the head are currently contraindicated in patients implanted with InterStim sacral neuromodulation devices. This contraindication exists primarily due to concerns over possible heating of the device during scanning.

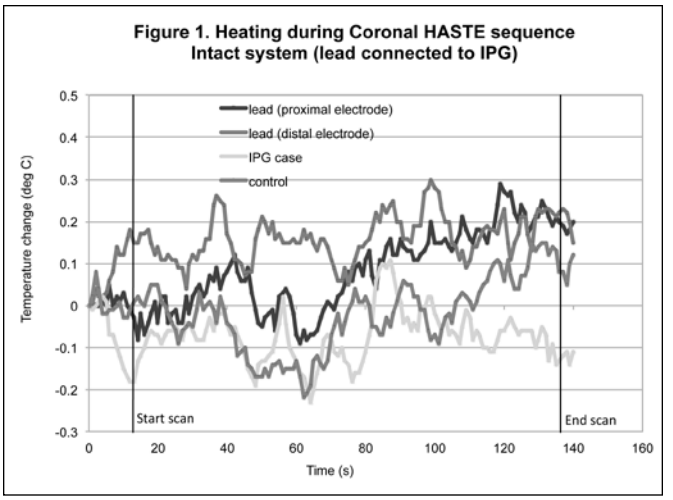

Fig. 1. UP-07.17.

The objective of the study was to perform simulations to assess whether heating of the device would occur during lumbar and pelvic MR scanning under various scenarios.

Methods: Testing was conducted using a phantom model consisting of a polyacrylic gel–filled container that approximates a patient's head and torso. A tined lead connected to an InterStim II implantable pulse generator (IPG) was set up in the phantom positioned as it would be in a human. Four fluoroptic sensors were used to record temperature changes, one each on the IPG case, the "proximal" lead contact, the "distal lead contact", and one as a control in the gel. The phantom was then placed in a 1.5–Tesla MRI scanner. A standard lumbar and pelvic MRI protocol was performed which included six lumbar and eleven pelvic MRI sequences. The sequence that had the highest specific absorption rate (SAR) was then repeated, first with variations in the position of the phantom relative to the coil and then after disconnection and removal of the IPG.

Results: When the lead was connected to the IPG no significant temperature increases (greater than 1 degree Celcius) were detected for any of the lumbar or pelvic sequences. Figure 1 shows the temperature changes for the sequence with the greatest SAR. Similarly, none of the variations in the position resulted in significant heating. In contrast, when the IPG was disconnected and removed, heating of up to 5 degrees Celcius was observed in the lead.

Conclusions: These simulations provide preliminary evidence that the risk of heating is low for lumbar and pelvic MRI in the setting of an intact InterStim system (lead connected to an IPG). However, when the lead is disconnected from the IPG there appears to be potential for heating. Further studies should evaluate the safety of MRI in patients with intact InterStim devices.