Endourology
Wednesday, June 23, 2021

Cite as: *Can Urol Assoc J* 2021;15(6S2):S55-7. http://dx.doi.org/10.5489/cuaj.7397

POD-3

The association of new-onset diabetes and medical therapy for benign prostatic hyperplasia

Jeannette Johnstone[1], Avril J. Lusty[3], D. Robert Siemens[1,2], J. Curtis Nickel[1], Mina Tohidi[1], Marlo Whitehead[2], Joan Tranmer[1]
[1]Department of Urology, Queen's University, Kingston, ON, Canada; [2]Department of Oncology, Queen's University, Kingston, ON, Canada; [3]Department of Urology, University of Ottawa, Ottawa, ON, Canada

Introduction: Long-term medical management of benign prostatic hyperplasia (BPH) includes use of 5-alpha reductase inhibitors (5ARI) and alpha-blockers (AB). Studies have demonstrated an increased risk of comorbidities, including cardiac failure and diabetes mellitus, with use of these medications, raising safety concerns. This study aims to determine the risk of developing diabetes with the use of AB and 5ARI in combination, as well as monotherapy.

Methods: This population-based study used administrative databases to look at men over the age of 66 with a diagnosis of BPH between 2005 and 2015. Men were categorized based on exposure to 5ARI or AB. Primary outcome was new cardiac failure and new diagnosis of diabetes. Variables examined included exposure time to medication, age, and comorbidities and logistic regression was used for statistical analysis.

Results: There was a total 129 223 men with a BPH diagnosis and no prior history of diabetes mellitus. Of these, 6390 were exposed to 5ARI, 39 592 exposed to AB, and 30 545 exposed to combination therapy. There was a statistically significant association with new onset of diabetes mellitus with these medication regimens compared to no medication use. Men treated with combination therapy of 5ARI and AB (odds ratio [OR] 1.276, 95% confidence interval [CI] 1.226–1.329), 5ARI monotherapy (OR 1.254, 95% CI 1.168–1.345), or AB monotherapy (OR 1.171, 95% CI 1.127–1.217) all showed increased association. When calculating risk of new diagnosis of diabetes measured from start of therapy, AB had a decreased risk in comparison to 5ARI monotherapy (OR 0.887, 95% CI 0.816–0.966).

Conclusions: In this study, men with a BPH diagnosis and exposed to both 5ARI and AB therapy had an increased association of developing new-onset diabetes mellitus when compared to no medication use. In a direct comparison of those that initiated monotherapy, 5ARI was shown to have an increased risk compared to AB.

MP-11

Large, multicenter, prospective registry of Rezüm water vapor therapy for benign prostatic enlargement

Dean S. Elterman[1], Naeem Bhojani[2], Bilal Chughtai[3], Kevin C. Zorn[2]
[1]University Health Network, Toronto, ON, Canada; [2]University of Montreal Hospital Centre, Montreal, QC, Canada; [3]Weill Cornell Medical College, New York Presbyterian, New York, NY, United States

Introduction: Rezüm convective water vapor ablation is a minimally invasive procedure to treat benign prostatic tissue. Herein, we report the prospective, multicenter results of the largest cohort of prostates treated with Rezum in Canada.

Methods: A prospective registry was established for Rezüm therapy in Canada (2019) at two high-volume centers. All patients had baseline medical and benign prostatic hyperplasia (BPH) history documented along with uroflowmetry (maximal flow rate [Qmax] and post-void residual [PVR]), and validated questionnaires (IPSS, IPSS QoL, BPHII, IIEF-15, MSHQ-EjD function and bother).

Results: A total of 229 patients (mean age 67.3 years), including 83 with prostate volumes ≥80 ml, were treated with Rezüm from April 2019 to December 2020. The mean prostate volume was 71.5 ml (range 20–160) and 55% had a median lobe. Thirty-nine patients had prior episode of urinary retention. Mean number of injections was 11 (range 4–28). Mean duration of procedure was 4.8 minutes (range 1.5–14). Mean duration of post-procedure catheterization was 9.8 days. IPSS reduced from a baseline score of 22 by 29% (15.8), 53% (10.3), 59% (9.3) at one, three, and 12 months respectively. IPSS QoL score improved from a baseline of 4.4 to 2.2 (-50%) at three months and 1.5 (-66%) at 12 months. Qmax improved from a baseline of 8.7 ml/s up to 13.9 ml/s (60%) at three months. BPHII improved from a baseline of 7.1 to 3.9 (-45%) at three months and 2.8 (-63%) at 12 months. IIEF showed no significant change from 51 at baseline to 52 at 12 months. Similarly, no changes in MSHQ function (9.4 to 9.4 at 12 months) or bother (1.7 to 1.6 at 12 months). No Clavien-Dindo events ≥ Grade III occurred.

Conclusions: Rezum therapy is safe, effective, quick, out-patient procedure for prostate glands over a wide range of volumes.

MP-12

Incidence and treatment trends for kidney stones in Canada: A population-based cohort study

Michael Ordon[1], Andrea Lantz Powers[2], Ben H. Chew[3], Jason Y. Lee[1], Michael D. Kogon[1], Sri Sivalingam[4], Shubhadip (Shubha) K. De[5], Naeem Bhojani[6], Sero Andonian[7]
[1]Surgery, University of Toronto, Toronto, ON, Canada; [2]Urology, Dalhousie University, Halifax, NS, Canada; [3]Urologic Sciences, University of British Columbia, Vancouver, BC, Canada; [4]Urology, Cleveland Clinic, Cleveland, OH, United States; [5]Surgery, University of Alberta, Edmonton, AB, Canada; [6]Surgery, University of Montreal, Montreal, QC, Canada; [7]Surgery, McGill University, Montreal, QC, Canada; Canadian Endourology Group

Introduction: The aim of this study was to assess the incidence of kidney stones, demographics of stone formers, and treatment trends in Canada, as no such data exists. This data is important for prevention and resource planning.

Methods: We conducted a population-based, retrospective cohort study using administrative data from the Canadian Institute for Health Information. We included Canadian residents age ≥18, outside of Quebec, who presented between January 1, 2013 and December 31, 2018 with an acute care kidney stone event. This was defined as a stone resulting in hospital admission, an emergency department visit (in select provinces), or stone intervention, specifically shockwave lithotripsy (SWL), ureteroscopy (URS), percutaneous nephrolithotomy (PCNL), stent insertion, or nephrostomy tube insertion. Demographics and treatment use were reported by year and province.

Results: There were 132 339 acute care kidney stone events, increasing from 20 053 in 2013 to 24 191 in 2018. The median age was 57 (interquartile range [IQR] 46–66) and 59.5% were male. Across Canada, the crude rate of hospital admission and stone intervention was 328/100 000 and 539/100 000, respectively. The age and gender standardized rate for intervention was highest in NS and lowest in PEI. The most common intervention across Canada was URS (86.3%), followed by SWL (9.6%) and PCNL (9.1%). The use of SWL was highest in MB, NL, and BC and lowest in PEI and AB. The utilization of URS was highest across the Maritimes (PEI, NB, and NS) and lowest in BC, NL, and MB (Table 1).

MP-12. Table 1. Hospital admission rate, intervention rate, and treatment use from 2013–2018

Region	Hospital admission		Kidney stone intervention		Kidney stone intervention		
	Crude[1] (per 100 000)	Standardized[2] (per 100 000)	Crude[1] (per 100 000)	Standardized[2] (per 100 000)	URS use	SWL use	PCNL use
Canada[3]	328.2		539.2		86.3%	9.6%	9.1%
British Columbia	696.9	686.1	684.3	673.6	79.7%	18.1%	9.3%
Alberta	474.4	500.8	748.4	793.2	90.5%	3.8%	9.9%
Saskatchewan	607.1	620.1	585.4	597.8	87.2%	13.3%	5.1%
Manitoba	740.9	761.7	703.7	723.4	53.4%	49.4%	8.1%
Ontario	216.7	218.1	631.0	635.6	89.5%	4.7%	9.1%
New Brunswick	886.7	844.3	823.1	783.7	91.8%	5.4%	10.7%
Nova Scotia	229.0	216.5	1234.1	1181.9	91.5%	8.0%	8.0%
PEI	301.4	292.2	467.6	449.9	98.8%	1.4%	1.4%
Newfoundland and Labrador	1386.0	1289.4	1169.5	1088.5	78.7%	18.9%	12.7%

[1]2016 provincial population (age 18+) used as denominator. [2]2016 Canadian population (age 18+) used as standard population. [3]2016 Canadian population (age 18+) used as denominator.

Conclusions: Our study provides data on the demographics of stone formers and treatment trends. There has been a 21% increase in acute care kidney stone events over five years. Across Canada, those presenting to hospital or requiring intervention for a kidney stone are more likely to be male, between the age of 46 and 66, and undergo URS.

MP-13

GreenLight laser prostatectomy: Are outcomes sustainable after a decade of surgery? A single-center experience with up to 15 years' followup

Ahmed Ibrahim[1], Nawar Touma[1], Ahmad M. AlShammari[1], Serge Carrier[1], Mélanie Aube-Peterkin[1]

[1]Division of Urology, Department of Surgery, McGill University Health Centre, McGill University, Montreal, QC, Canada

Introduction: Since its introduction in 2005, GreenLight laser has been widely adopted as a convenient source of energy for surgical treatment of benign prostatic hyperplasia (BPH). However, there is paucity in the literature quantifying long-term outcomes (>10 years) of GreenLight laser prostatectomy. Herein, we report our single-center experience with long-term outcomes over a period of 15 years.

Methods: Between 2005 and 2020, a prospectively maintained database for patients undergoing GreenLight photovaporization of the prostate (PVP) for symptomatic BPH was reviewed. Three generations of GreenLight laser were used over this time period. Patients with ≥10 years' followup were included. Demographic and perioperative data were collected, together with the International Prostate Symptoms Score (IPSS), quality of life (QoL), peak flow rate (Qmax), post-void residual urine (PVR), and prostate-specific antigen (PSA) changes. In addition, perioperative and late adverse events were recorded.

Results: After a mean followup of 12.1 years (10–15), 124 patients were included, with a mean age of 73.9 years (range 54–85) and a mean preoperative prostate size of 72.4±15.3 mL. Demographic and perioperative data are presented in Table 1. The blood transfusion rate was 2.4%. Development of bladder neck contracture and urethral stricture were encountered in nine (7.3%) and seven (5.6%) of patients. Six (4.8%) patients required repeat surgery for adenoma regrowth. Additionally, there were significant reductions in mean IPSS, QoL, and PVR (% reductions were 60.4%, 65%, and 72.6%, respectively; $p<0.001$) at the most recent followup (Table 2). Likewise, there was a significant increase in Qmax (8.2 to 17.7 ml/sec, $p<0.001$), with PSA reduction by 64.2 % compared to its baseline value (Table 2).

Conclusions: Our long-term functional outcomes support the durability of the GreenLight laser prostatectomy with acceptable long-term adverse events after a decade of surgery.

MP-13. Table 1. Demographic and perioperative data with long-term complications

Variables		Mean ± SD	N (%)
Age at time of surgery (years)		73.9±7.8	
Patients with diabetes mellitus		5 (4)	
Preoperative medications for LUTS		118 (95.2)	
Patients with indwelling urethral catheters		32 (25.8)	
Preoperative PSA (ng/dl)		5.3±4.2	
Preoperative IPSS		19.9±5.5	
Preoperative QoL		2.8±1.5	
Preoperative Qmax		8.2±4.2	
Preoperative PVR		162±128	
Preoperative prostate size by TRUS		72.4±15.3	
Perioperative data	Energy used (KJ)	322.3±132	
	Operating time (min)	92.4±41	
	Catheterization time (days)	1.1±0.6	
	Hospital stay (days)	1.3±0.96	
Long-term complications	Blood transfusion		3 (2.4)
	Redo for regrowth adenoma		6 (4.8)
	Persistent LUTS		6 (4.8)
	Stress urinary incontinence		2 (2.2)
	Bladder neck contracture (BNC)		9 (7.3)
	Urethral stricture		7 (5.6)
	Bladder stone		3 (2.4)

MP-13. Table 2. Long-term functional outcome after 10–15 years' followup

Variable	Baseline Mean ± SD	Most recent followup Mean ± SD	% change	p
PSA (ng/ml)	5.7±4.8	2.0±1.6	64.2	<0.001
IPSS	19.9±5.5	7.8±3.4	60.4	<0.001
QoL	2.8±1.5	1.1±1.2	65	<0.001
Qmax (mL/sec)	8.2±4.2	17.7±10.4	59	<0.001
PVR (mL)	162±128	44±2	72.6	<0.001

MP-14

Antibiotic use and microbial resistance patterns in patients with ureteric stents

Runhan Ren[1], Zoe Hsu[2], Erik Youngson[2], Shubhadip (Shubha) K. De[1]
[1]Urology, University of Alberta, Edmonton, AB, Canada; [2]Data Integration, Management and Reporting Group, University of Alberta, Edmonton, AB, Canada

Introduction: Ureteric stents can cause irritative voiding symptoms, with urinalyses appearing to indicate infection. Consequently, this population is thought to be at high risk of inappropriate antibiotic exposure. Our object was to assess local trends in the antibiotic prescribing patterns and resistance patterns in patients with ureteric stents.

Methods: Retrospective review of claims data for ureteric stenting using inpatient, ambulatory, and primary care data, through provincial Data Integration, Management and Reporting unit in Alberta (April 2013–2018). Those with concurrent extirpative and reconstructive surgeries were excluded. Data one year pre- and post-stent insertion (SI) were collected, and descriptive analyses based on demographics, prescribing patterns, and cultured organisms were performed. Additional analyses include subgroup analysis and logistic regression to identify predictors of antimicrobial resistance.

Results: Over the study period, 13 820 patients were identified, with mean age of 57; 55.9% were male and 21.7% from rural areas. Most (78%) had a single stent placement, with the rest undergoing at least one stent exchange; 58% were placed for stones and 18% for hydronephrosis. A total of 7436 urine cultures (UC) were completed the year post-SI, and 35.4% were positive. Resistant organisms increased from 16% pre-SI to 23.6% post-SI. *E. coli*, the most common cultured organism, decreased from 31.8% of positive UC to 21.1% post-SI. Ciprofloxacin resistance for *E. coli* significantly increased from 35% to 50% ($p<0.05$) after SI. Eight-six percent of patients filling antibiotic prescriptions on the day of SI received ciprofloxacin. Of those who had repeat antibiotic prescriptions within a year, 34% received additional courses of ciprofloxacin.

Conclusions: Understanding practice patterns surrounding SI, antibiotic usage, and microbial resistance patterns will allow us to better care for this population through counselling of patients and healthcare providers alike.

MP-15

Analgesic use after endourological surgery: A provincial analysis of 13 000 patients

Vardhil Gandhi[1], Runhan Ren[2], Zoe Hsu[3], Erik Youngson[3], Shubhadip (Shubha) K. De[2]
[1]Faculty of Medicine and Dentistry, University of Alberta, Edmonton, AB, Canada; [2]Division of Urology, University of Alberta, Edmonton, AB, Canada; [3]NACTRC, University of Alberta, Edmonton, AB, Canada

Introduction: Endourology procedures are typically categorized as minor surgery, and postoperative analgesic requirements are considered minimal. As several studies have recently shown narcotic prescribing patterns after minor surgery may put patients at risk of dependence, we sought to assess our local patient population. The objective of this study was to assess the use of postoperative analgesia and long-term implications of these practice patterns in patients undergoing endourology procedures.

Methods: A retrospective cohort was created, through the provincial Data Integration, Management and Reporting (DIMR) unit (April 2013 to 2018). Patients were identified using claims data for a stent insertion (SI) ± endoscopic procedure. Pharmaceutical Information Network (PIN) data one year pre- and post-intervention were collected. Descriptive statistics were used to present demographics, prescribing patterns, and health care use.

Results: A total of 13 820 SI patients were identified in Alberta over five years. Average dwell time was 45 days, 78% had one SI, and 63% underwent simultaneous endoscopy (53% flexible ureterorenoscopy [fURS], 5.5% percutaneous nephrolithotomy, 0.2% shock wave lithotripsy, 2.6% semi-rigid URS). Eighty-four percent were placed as day surgery/ambulatory setting; 6% had an unplanned visit within 48 hours. In the year preceding SI, 28% had one or more prescriptions for oral analgesia (72% narcotics, 28% non-steroidal anti-inflammatory drugs [NSAIDs]). An additional 5.5% received a prescription 1–7 days prior to their index stent. After SI, 4.3% filled an analgesic prescription within one day and 9.6% within the first week. Of those patients who were dispensed analgesia on the day of SI, 71% received NSAIDS and 20% Tramacet®. Overall, a 5.3% (n=743) increase in dispensed narcotics was observed in the year following SI (excluding the postoperative period).

Conclusions: Preliminary analyses of a provincial cohort show that even with a reliance on NSAIDs after endourology procedures, there is still a large exposure to rescue narcotics. Here, we suggest a 5.3% increased rate of long-term opiate use after endourology procedures in Alberta.