MP3-14
CHANGES OF THE URINARY NERVE GROWTH FACTOR (NGF) LEVELS AFTER RELIEF OF OBSTRUCTION IN THE PATIENTS WITH SYMPTOMATIC BENIGN PROSTATIC OBSTRUCTION (BPO) USING HOLMIUM LASER ENucleATION OF THE PROSTATE (HOLEP)

Jeongyun Jeong*, Tae Heon Kim, Hyun Hwan Sung, Myung-Soo Choo, Kyu-Sung Lee, Seoul, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Urinary NGF levels are increased in the patients with overactive bladder (OAB) and bladder outlet obstruction (BOO). However, the changes of the urinary NGF levels after relief of BOO have been rarely reported. We investigated the changes of urinary NGF levels following HoLEP procedures in the patients with symptomatic BPO.

METHODS: We measured urinary NGF levels from the voided urine samples of the patients preoperatively, and rechecked urinary NGF levels at 6-month follow-up period postoperatively. We analyzed the clinical features of the 97 patients with more than 6-mo follow-up data using the prospectively collected database. All patients were evaluated with International Prostate Symptom Score (IPSS), International Continence Society male questionnaire short form (ICS-SF), 3-day voiding diary, transrectal ultrasonography, and uroflowmetry with postvoid residual. Urinary NGF level was measured using the enzyme-linked immunosorbent assay (ELISA), and total urinary NGF levels were further normalized to the concentration of urinary creatinine.

RESULTS: Preoperatively, the urinary NGF and NGF/Cr levels were measured as 93.6±116.3 pg/ml and 1.28±1.95, respectively. Patients with more severe storage symptoms showed higher NGF and NGF/Cr levels at the baseline period. However, there was no correlation between these levels and the urodynamic parameters including BOOI, bladder contractility index (BCI), maximum cystometric capacity (MCC), and detrusor overactivity (DO). The mean volume of the prostate was 71.9±41.0cc and the mean resected weight was 28.9±27.0g. A significantly after successful relief of obstruction using HoLEP.

CONCLUSIONS: In the present study, the urinary NGF and NGF/Cr levels were not affected by the preoperative urodynamics, but were significantly associated with the urodynamic parameters of the patients with more severe storage symptoms. Changes of urinary NGF levels following HoLEP procedures in the patients with symptomatic BPO were elevated in the patients with BPO, and decreased significantly after successful relief of obstruction using HoLEP.

Table Surgical outcomes after HoLEP procedures including changes of the urinary NGF levels

<table>
<thead>
<tr>
<th></th>
<th>Baseline (n=97)</th>
<th>Postop. 6 mo. (n=97)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGF (pg/ml)</td>
<td>93.6±116.3</td>
<td>37.2±53.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>NGF/Cr</td>
<td>1.28±1.95</td>
<td>0.76±1.41</td>
<td>0.007</td>
</tr>
<tr>
<td>IPSS total</td>
<td>22.4±6.7</td>
<td>7.7±6.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Voiding symptoms</td>
<td>13.2±4.9</td>
<td>2.9±3.8</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Storage symptoms</td>
<td>9.1±3.1</td>
<td>4.7±3.0</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>QoL index</td>
<td>4.6±3.2</td>
<td>1.9±1.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Voided volume</td>
<td>175.9±83.7</td>
<td>201.3±117.9</td>
<td>0.132</td>
</tr>
<tr>
<td>Qmax (ml/sec)</td>
<td>8.9±9.0</td>
<td>21.4±16.3</td>
<td>0.003</td>
</tr>
<tr>
<td>PVR (ml)</td>
<td>110.0±117.5</td>
<td>26.5±22.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>PSA level (ng/ml)</td>
<td>4.81±6.17</td>
<td>1.16±2.46</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Source of Funding: None

MP3-15
PREDICTORS OF ENucleATION AND MORCELLATION TIME DURING HOLMIUM LASER ENucleATION OF THE PROSTATE (HoLEP)

Marawan El Tayeb*, M. Francesca Monn, Naeem Bhojani, Matthew J. Mellon, James C. Sloan, Ronald S. Boris, James E. Lingeman, Indianapolis, IN

INTRODUCTION AND OBJECTIVES: Holmium laser enucleation of the prostate (HoLEP) involves both enucleation and morcellation of prostatic tissue. Enucleation and morcellation times are dependent on a number of factors, including prostate volume, vascularity, and tissue quality. The purpose of this article is to examine predictors of enucleation and morcellation time within a large cohort of HoLEP patients.

METHODS: Pre-operative, peri-operative and post-operative clinical characteristics were available from men treated with HoLEP between 1998 and 2013 at Indiana University health, Methodist hospital. Stepwise linear regression analysis was performed to determine which clinical variables are associated with enucleation and morcellation time.

RESULTS: We identified 960 patients who underwent HoLEP. Average (range) enucleation time was 65.7 (11–245) minutes and morcellation time was 19.7 (3–260) minutes. History of anticoagulation was associated with a small decrease in enucleation time (p=0.013) while increasing HoLEP specimen weight was associated with increasing enucleation time (p<0.001). History of intermittent catheterization, UTIs, presence of dense prostatic tissue (colloquially referred to as "beach balls") and increasing specimen weight were associated with increasing morcellation time (p<0.05 each). Having HoLEP performed by a less experienced urologist was associated with longer enucleation and morcellation times.

CONCLUSIONS: Prostate volume is significantly associated with increased enucleation and morcellation times. History of UTI and CIC were associated with modest increases in enucleation and morcellation time. Additionally, surgeon experience will significantly improve both enucleation and morcellation efficiency.

Source of Funding: None

MP3-16
DETAILED ASSESSMENT OF LOWER URINARY TRACT SYMPTOMS AND ERECTILE FUNCTION AFTER HoLEP: A PROSPECTIVE STUDY

Sascha Ahyati*, Irina Marik, Armin Soave, Andreas Becker, Marianne Schmid, Derya Tilki, Luis Kluth, Felix Chun, Margit Fisch, Hamburg, Germany

INTRODUCTION AND OBJECTIVES: To prospectively investigate the detailed changes of Lower Urinary Tract Symptoms (LUTS) and Erectile Function (EF) after Holmium Laser Enucleation of the Prostate (HoLEP).

METHODS: Prospectively, patients referred for HoLEP were asked to fill out the International Prostatic Symptom Score (IPSS) the day before HoLEP, at discharge and 1, 2, 3, 4, 6, 8, 12, 16, 20, 24 and 52 weeks after HoLEP, respectively. Similarly, the International Index of Erectile Function (IIEF) was administered before and 8, 12, 16, 20, 24 and 52 weeks after HoLEP. For analyses, the preoperative IPSS was stratified into categories of mild (score 0–7), moderate (score 8–19) and severe (score 20–35) symptoms. Changes in IPSS and IIEF were compared. A mixed linear model was calculated, in which the patient was as a random variable and time was adjusted for the cluster structure within the data. Outcome variables were postoperative IPSS and IIEF.

RESULTS: Between Dec. 2010 and Dec. 2012, 144 HoLEP patients were included in the study, all invariably performed by three senior surgeons. All postoperative IPSS measurements were statistically significantly lower than at baseline - before HoLEP. Time demonstrates
to have a statistically significant impact on postoperative IPSS. Interestingly, there was a statistically significant new increase in symptoms ("rebound") in week 6 and 8 (figure 1). Patients with preoperative severe symptoms (score 20–35) had postoperatively in the mean 3.8 and 2.3 higher postoperative scores when compared to patients with preoperatively mild or moderate symptoms respectively (figure 2).

There was a significant decrease in IIEF at week 8, 12, 16, 20, 24 after HoLEP when compared to baseline. Higher age at baseline was significantly associated with deterioration of postoperative IIEF. However, at week 52 there was no longer a significant difference of the IIEF when compared to before HoLEP (p = 0.102) (figure 3).

CONCLUSIONS: Immediately after HoLEP patients experience a significant decrease of LUTS. Continuous improvement of LUTS over time seems to be hampered in patients with preoperative severe symptoms and overall during postoperative week 6–8. Complete recovery of EF after HoLEP seems to take one year.

Groups stratified according to preoperative IPSS

MP3-17
ENUCLEATION TIME-ENERGY-EFFICACY (ETEE, ENUCLEATED WEIGHT/ENUCLEATION TIME/CONSUMED ENERGY): A MORE APPROPRIATE PARAMETER FOR ESTIMATING THE OPERATIVE LEARNING CURVE FOR HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP)
Tae Beom Kim*, Jin Hyu Oh, Han Jung, Kyung Jin Chung, Incheon, Korea, Republic of; Sung Tae Cho, , Korea, Republic of; Khae Hawn Kim, Kwang Taek Kim, Sang Jin Yoon, Incheon, Korea, Republic of

INTRODUCTION AND OBJECTIVES: Holmium laser enucleation of the prostate (HoLEP) is known to have a steep learning curve. To date, enucleation efficacy or enucleation ratio efficacy were known as one of the parameters for estimating the learning curve. But these parameters are only focused on time not considering energy, even though operators consume time and energy simultaneously during HoLEP. Therefore, this study was to evaluate a new proper method to assess the learning curve considering consumed energy.

METHODS: One hundred (n = 100) consecutive patients who underwent HoLEP from April 2012 to April 2014 by a single surgeon (Tae Beom Kim) were enrolled. Perioperative clinical variables, including enucleation time, morcellation time, consumed energy, enucleation ratio (ER, enucleated weight/transitional zone volume), enucleation time-efficacy (ETE, enucleated weight/enucleation time), enucleation energy-efficacy (EEE, enucleated weight/consumed energy), enucleation ratio efficacy (ERE, enucleation ratio/enucleation time), and enucleation time-energy-efficacy (ETEE, enucleated weight/enucleation time/consumed energy) were analyzed.

RESULTS: Mean age and prostate volume were 68.8 years (range 56–80) and 61.3 mL (range 25.1-184.4), respectively. Mean enucleation time, morcellation time, consumed energy, and enucleation ratio (ER) were 41.3 ± 19.2 (S.D.) min, 14.3 ± 16.1 min, 66.2 ± 36.0 kJ, and 0.753 ± 0.238 g/mL, respectively. In terms of efficiency, enucleation time-efficacy (ETE), and enucleation energy-efficacy (EEE) were 0.616 ± 0.366 g/min and 0.397 ± 0.217 g/kJ, respectively. Mean enucleation ratio efficacy (ERE) and enucleation time-energy-efficacy (ETEE) were 0.021 ± 0.009 g/mL/min and 0.011 ± 0.007 g/min/kJ, respectively. Concerning the learning curve, the plateau of enucleation ratio efficacy (ERE) was reached after 30 cases. However, considering time and consumed energy simultaneously, enucleation time-energy-efficacy (ETEE) has an increasing trend even after 30 cases and was stationary after 80 cases.

CONCLUSIONS: Our results demonstrated that even after 30 cases, operator’s enucleation skill is still growing. We propose that a more appropriate parameter for estimating the operative learning curve is enucleation time-energy-efficacy (ETEE) rather than enucleation ratio efficacy (ERE).

Source of Funding: none

MP3-18
URINARY INCONTINENCE AFTER LASER PROSTATECTOMY FOR BPH — CONTEMPORARY EXPERIENCE
Abdulrahman Alruwaily*, Rabia Siddiqui, Maggie Bierlein, Sara Lenherr, John Wei, Ann Arbor, MI

INTRODUCTION AND OBJECTIVES: Over the past decade, there has been a dramatic shift in endoscopic treatment of lower urinary tract symptoms (LUTS) favoring laser technologies. Urinary incontinence (UI) after photo vaporization prostate (PVP) has not been well described using validated measures.

METHODS: Retrospectively, we examined a cohort of 156 men (mean age 68) who underwent Greenlight laser prostatectomy for BPH (2006–2013) at University of Michigan Health System. We administered American Urological Association Symptoms Score (AUA-SS) and Michigan Incontinence Symptom Index (M-ISI) at baseline (preoperatively) and after the surgery. We estimated the incidence, severity, and bother, of incontinence using the M-ISI at early (1–3 months) and intermediate (6–9 months) period after surgery. We then fitted multivariable regression model to examine the factors associated with the change in UI.

RESULTS: Patients were followed up for a median of 7 months (range of 1 to 85 months). M-ISI scores demonstrates slight increase in UI at early (1–3 months) period and then an average UI that is lower than baseline at 6–9 months. Urge urinary incontinence (MISI-UUI) was not uncommon prior to surgery (11.5%). The proportion of patients who had incontinence that exceeded the minimally importance difference (MID) at 6–9 months after surgery were 7.1 %, 3.9%, 7.7%, and 3% for the total severity, UII, SUI, and bother domains, respectively. Adjusted regression found higher age and baseline (AUA-SS) obstructive domain (r=0.4, p=0.008) to be predictive of a change in UI.

CONCLUSIONS: UI was present at baseline but improved by 6 months. Although 7.1% of the patients had the MID of urinary incontinence, only 3% were bothered by their symptoms. Baseline obstructive symptoms and greater age at baseline were both associated with smaller changes in UI after surgery.