

## EFFICACY OF HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP) IN MEN WITH BLADDER OUTLET OBSTRUCTION (BOO) AND NON-NEUROGENIC BLADDER DYSFUNCTION: RESULTS OF PROSPECTIVE TRIAL.

### Hypothesis / aims of study

BOO not only causes lower urinary tract symptoms but also induces secondary bladder dysfunction resulted in either overactive bladder or impaired bladder contractility. This study aim to compare the outcomes of men with detrusor underactivity or overactivity as well as BOO undergoing HoLEP.

### Study design, materials and methods

A prospective databases of 227 patients were analyzed to compare short-term outcomes of men with urodynamical evidence of detrusor hypocontractility or overactivity of non-neurogenic etiology as well as BOO, undergoing HoLEP. Patients were classified into two groups according to the results of urodynamic study (UDS); one with BOO and those with either detrusor hypocontractility or overactivity. Postoperative parameters such as International Prostate Symptom Score (IPSS), IPSS grade, patient satisfaction, and uroflowmetry were compared with those of preoperative data at the period of postoperative 3-5 months. IPSS grade were categorized as mild (1-7), moderate (8-19) and severe (20-35) according to the degree of total IPSS.

### Results

One hundred and thirty eight (138) patients with BOO, eighty nine patients with detrusor overactivity or hypocontractility in preoperative UDS underwent HoLEP during the study period. Mean age was 70 and 71.7 years, respectively. There were no significant differences in demographic data except for the total prostate volume (59.3g vs 50.9g  $p < 0.05$ ). Postoperatively both groups showed significant improvements in the degree of total IPSS (10.7 and 7.8), maximum flow rate (9.6 and 7.4ml/s), postvoid residual urine volume (60.9 and 61.3ml) and IPSS grade.

The degree of the improvements in the total IPSS and maximum flow rate were significantly greater in BOO than in detrusor dysfunction group ( $p < 0.05$ ). Also significant number of the BOO group were better in improvements in IPSS grades (71% vs 56%,  $p < 0.05$ ).

### Interpretation of results

This study showed that patients who had secondary change of detrusor function due to prolonged BOO resulted in lower rates of treatment efficacy than those with only BOO after HoLEP.

### Concluding message

Conclusively, early surgical management for severe LUTS men associated BPH may be recommended in order to preserve detrusor function as well as for better treatment outcomes.

Table 1. Patient characteristics

Parameters	Urodynamic study finding (mean $\pm$ SD)		P-value
	BOO group (n=138)	<sup>†</sup> Detrusor dysfunction group (n=89)	
Age (y)	70 $\pm$ 6.9	71.7 $\pm$ 7.5	0.089*
Serum PSA (ng/ml)	5.0 $\pm$ 5.2	4.3 $\pm$ 5.2	0.341*
Prostate vol.(g)	59.3 $\pm$ 27.1	50.9 $\pm$ 24.9	0.019*
Underlying conditions			
DM (n)	40 (29%)	23 (26%)	0.606**
Stroke (n).	10 (7.2%)	9 (10.1%)	0.447**
Preoperative IPSS			
IPSS-V (voiding)	11.4 $\pm$ 5	11.6 $\pm$ 5.8	0.795*
IPSS-S (storage)	8.3 $\pm$ 4.1	8.6 $\pm$ 4.3	0.705*
IPSS total	19.8 $\pm$ 7.6	20.3 $\pm$ 8.4	0.592*
Pre-op IPSS grade (n%)			0.112**
Mild ( $\leq$ 7)	5 (3.6%)	7 (7.9%)	
Moderate (8-19)	68 (49.3%)	33 (37.1%)	
Severe (20-35)	65 (47.1%)	49 (55.1%)	
Pre-op uroflowmetry			
Qmax (ml/s)	8.3 $\pm$ 4	7.8 $\pm$ 4.2	0.361*
PVR (ml)	75.8 $\pm$ 89.5	80.6 $\pm$ 107.2	0.717*

BOO, bladder outlet obstruction; <sup>†</sup> detrusor underactivity or overactivity in UDS; Qmax, Maximum flow rate; PVR, Postvoid residual urine volume; \* Independent-T test, \*\* Chi-square test

Table 2. Perioperative data and postoperative outcomes

Parameters	Urodynamic study finding (mean $\pm$ SD)		P-value
	BOO group (n=138)	<sup>†</sup> Detrusor dysfunction group (n=89)	
Enucleation rate (%)	59.3 $\pm$ 22.1	56.4 $\pm$ 23.4	0.347*
<sup>a</sup> IPSS improvement			
$\Delta$ IPSS-V (voiding)	6.8 $\pm$ 5.6	5.1 $\pm$ 5.7	0.027*
$\Delta$ IPSS-S (storage)	3.6 $\pm$ 4.4	2.7 $\pm$ 4.1	0.097*
$\Delta$ IPSS total	10.7 $\pm$ 8.1	7.8 $\pm$ 7.6	0.007*
<sup>††</sup> Post-op IPSS grade (n%)			0.001**
Mild ( $\leq$ 7)	76 (55.1%)	26 (29.2%)	
Moderate (8-19)	51 (37%)	45 (50.6%)	
Severe (20-35)	11 (8.0%)	18 (20.2%)	
IPSS grade improvement (n%)	98 (71%)	45 (50.6%)	0.002**
Uroflowmetry improvement			
$\Delta$ Qmax (ml/s)	9.6 $\pm$ 8.4	7.4 $\pm$ 7.1	0.035*
$\Delta$ PVR decreased (ml)	60.9 $\pm$ 87.7	61.3 $\pm$ 107.9	0.973*

BOO, bladder outlet obstruction; <sup>†</sup>detrusor underactivity or overactivity in UDS; Qmax. Maximum flow rate; PVR, Postvoid residual urine volume; \* Independent-T test, \*\* Chi-square test; <sup>a</sup> Preoperative IPSS - Postoperative IPSS

#### Disclosures

**Funding:** NONE **Clinical Trial:** Yes **Public Registry:** No **RCT:** No **Subjects:** HUMAN **Ethics Committee:** INSTITUTIONAL REVIEW BOARD (IRB) **Helsinki:** Yes **Informed Consent:** Yes