

## THE EFFICACY OF HOLMIUM LASER TRANSURETHRAL INCISION OF THE PROSTATE IN PATIENTS UNRESPONSIVE TO MEDICAL TREATMENT: BASED ON PREOPERATIVE URODYNAMIC PARAMETERS

### Hypothesis / aims of study

Transurethral incision of the prostate has been an established treatment for bladder outlet obstruction (BOO) secondary to small-size benign prostate enlargement (BPE).

The aim of this study is to investigate efficacy of Holmium laser transurethral incision of the prostate (Ho-TUIP) in patients unresponsive to medical treatment with preoperative urodynamic parameters.

### Study design, materials and methods

Medical records of 40 consecutive cases of Ho-TUIP in patients unresponsive to medical treatment were retrospectively reviewed. The efficacy of Ho-TUIP was analyzed according to urodynamic parameters. International Prostate Symptom Score (IPSS), Quality of Life (QoL), uroflowmetry and post-void residual were measured pre- and postoperatively. The treatment success was defined if overall efficacy demonstrated an improvement that was 'good or greater' on criteria developed by Homma et al. Predictive factors of treatment success were analyzed using logistic regression analysis with demographics, IPSS, QoL, prostate size and urodynamic parameters. Postoperative complications and Global Response Assessment (GRA) were investigated.

### Results

Mean age was 60.9 yrs (range 37 to 84) and mean follow-up period was 36.6 months (range 6.3 to 114.8). Mean prostate size was 23.5ml (range 12.7 to 39.5). All patients underwent medical treatment before Ho-TUIP and mean medication period was 50.5 months (range 3.4 to 140.0). Clinical parameters of pre- and postoperation are summarized in Table 1. Mean operation time was 17.7 min (range 8.0 to 32.0). Rates of treatment success were 60.0%. Treatment success rates were higher in BOOI $\geq$ 20 group (n=26) than in BOOI<20 group (n=14) (p=0.003). In logistic regression analysis, BOOI $\geq$ 20 was a predictor of treatment success (OR 7.60, 95% CI 1.60-35.90, p=0.010). Total 35.0% (14/40) of patients maintained medical treatment after Ho-TUIP;  $\alpha$ -blocker, antimuscarinics, desmopressin, and cholinergic agonists in 9, 4, 2, and 1 patients, respectively. There were 3 cases (7.5%) of postoperative gross hematuria required endoscopic hematoma evacuation, and 2 cases (5.0%) of acute urinary retention. 77.8% (14/18) of patients who maintained active sex life reported retrograde ejaculation. In GRA, 81.6% (31/38; 2 patients deceased) of patients had improved at last follow-up.

### Interpretation of results

Ho-TUIP is a feasible, minimally invasive procedure in patients with mild to moderate benign prostate enlargement who were unresponsive to medication. BOOI $\geq$ 20 was a predictor of treatment success.

### Concluding message

The Ho-TUIP is an effective procedure with tolerable complications for treatment of symptomatic mild to moderate benign prostate enlargement in patients with BOOI $\geq$ 20 that were unresponsive to medical treatment.

Table 1. Comparison of clinical parameters of preoperation and postoperation (mean $\pm$ SD)

	Preop.	Postop.	p-value
IPSS			
Total	25.6 $\pm$ 6.7	13.4 $\pm$ 9.7	<0.001
Voiding	15.4 $\pm$ 4.4	6.9 $\pm$ 6.2	<0.001
Storage	10.1 $\pm$ 3.0	6.5 $\pm$ 3.8	<0.001
QoL	4.8 $\pm$ 0.7	2.8 $\pm$ 1.5	<0.001
Qmax (mL/s)	8.2 $\pm$ 3.3	17.4 $\pm$ 8.0	<0.001
PVR (mL)	110.8 $\pm$ 140.9	39.8 $\pm$ 51.2	0.001

IPSS, International Prostate Symptom Score; QoL, Quality of Life; Qmax, maximal flow rates; PVR, post-void residual

### Disclosures

**Funding:** None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** SMC IRB Helsinki: Yes **Informed Consent:** Yes