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COMPARISON OF THE OUTCOMES OF HOLMIUM LASER ENUCLEATION OF THE PROSTATE ACCORDING TO BASELINE PROSTATE SIZE

Hypothesis / aims of study

Holmium laser enucleation of the prostate (HoLEP) is a useful surgical treatment option to enable a true anatomical enucleation of a prostate of every size. Thus, a prostate of any size can be removed by HoLEP, once the initial learning curve was overcome. Since the baseline prostate size is considered as an important factor for efficacy and safety after surgery for lower urinary tract sympotms (LUTS)/benign prostatic hyperplasia (BPH), it is of great importance to determine whether the outcomes of HoLEP depend on the baseline prostate size in men with LUTS/BPH. The aim of this study was to compare the outcomes of HoLEP according to baseline prostate size in men with LUTS/BPH.

Study design, materials and methods

Between July 2008 and March 2009, a total of 204 men who underwent HoLEP for LUTS/BPH refractory to medical therapy with an alpha-blocker were included in this study. All patients were evaluated by a medical history, a physical examination, International Prostate Symptom Score (IPSS), urinalysis, serum creatinine (Cr), serum prostate-specific antigen (PSA), transrectal ultrasonography (TRUS) and multichannel video urodynamic study (UDS) preoperatively. The outcomes of HoLEP were assessed at 1-, 3-, 6-, and 12-months postoperatively using the IPSS, uroflowmetry and PVR. The postoperative complications were evaluated either on the basis of the history at the follow-up visit or through a telephone interview. According to the total prostate volume on baseline TRUS, the patients were stratified into group 1 (< 40 ml; n = 68), group 2 (40 – 60 ml; n = 68) and group 3 (≥ 60 ml; n = 68).

Results

The mean preoperative serum PSA level, total prostate and transitional volumes were 1.6 ± 1.7 ng/ml vs. 2.5 ± 2.2 ng/ml vs. 6.3 ± 6.8 ng/ml, 32.9 ± 5.0 ml vs. 50.0 ± 5.4 ml vs. 76.5 ± 18.8 ml and 12.5 ± 5.1 ml vs. 23.7 ± 7.1 ml vs. 44.8 ± 17.3 ml, in the groups 1, 2 and 3, respectively. Detrusor pressure at maximum flow (PdetQmax), bladder outlet obstruction index (BOO index; PdetQmax – 2 x Qmax) and bladder contractility index (BCI) on the baseline UDS were significantly higher in group 3, followed by group 2, compare to those in group 1. There was no significant difference between the two groups regarding the other baseline parameters including age, total IPSS, quality-of-life (QOL) index on IPSS, Qmax, PVR, maximum cystometric capacity (MCC), presence of detrusor overactivity (DO). The enucleated weight, enucleation ratio (enucleated weight/baseline transitional volume) and enucleation efficiency (enucleated weight/enucleation time) were 12.1 ± 7.2 g vs. 18.9 ± 8.1 g vs. 32.6 ± 14.7, 0.93 ± 0.42 vs. 0.75 ± 0.28 vs. 0.73 ± 0.25 and 0.24 ± 0.15 g/min vs. 0.36 ± 0.16 vs. 0.56 ± 0.22 in the groups 1, 2 and 3, respectively, which was significantly different among the groups. The applied energy and morcellation time were significantly higher in group 3, followed by group 2, than group 1. There was no difference in duration of catheterization or hospital stay among the groups. According to the IPSS and uroflowmetry, the subtotal voiding symptom score, total IPSS, QOL index, Qmax and PVR improved significantly starting from 1-month after HoLEP in all groups. Also, the subtotal storage symptom score reduced significantly starting from 3-months after HoLEP in groups 1 and 2, while reduced significantly starting from 1-months after HoLEP in groups 3. Furthermore, there was no significant difference in change of parameters on IPSS, uroflowmetry and PVR after HoLEP among the groups. There was no difference in the incidence of complications such as transient urinary incontinence (18.2% vs. 16.2% vs. 16.2%), bladder mucosal injury during morcellation (13.6% vs. 13.2% vs. 7.4%), capsular perforation (3.0% vs. 10.3% vs. 2.9%) and urethral stricture (1.5% vs. 1.5% vs. 1.5%) among the groups.

Interpretation of results

Prostate size is a major factor to consider when various treatments for BOO are evaluated [1]. There is a controversy about the impact of prostate size on the outcome of HoLEP [1,2,3]. The present study indicates that the improvement of voiding and storage symptoms does not depend on the prostate size and perioperative complications were evenly distributed among the groups. Thus, the ability of HoLEP to treat a prostate of any size makes it more attractive.

Concluding message

Our result indicates that the micturition symptoms can improve significantly starting from the early postoperative period after HoLEP and HoLEP is a safe procedure, irrespective of the prostate size.

References

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