880

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EARLY TREATMENT WITH ANTICHOLINERGIC MEDICATION DUE TO PERSISTENT STORAGE SYMPTOMS FOLLOWING LASER PROSTATECTOMY: COMPARISON BETWEEN POTASSIUM-TITANYL-PHOSPHATE PHOTOSELECTIVE VAPORIZATION OF THE PROSTATE (PVP) AND HOLMIUM LASER ENUCLEATION OF THE PROSTATE (HOLEP)

Hypothesis / aims of study
The endpoint of all forms of surgical treatment for benign prostatic hyperplasia (BPH) remains the relief of micturition symptom and the subsequent improvement in the patients' quality of life. However, not all patients get a benefit from the surgeries. Some patients often received anticholinergic mediations for persistent storage symptoms after the surgery for BPH. The purpose of this study was 1) to identify the frequencies of use of anticholinergic medications for the treatment of persistent storage symptom in the early postoperative period following laser prostatectomy (potassium-titanyl-phosphate photoselective vaporization of the prostate <PVP> or holmium laser enucleation of the prostate <HoLEP>), 2) to evaluate preoperative or intraoperative factors influencing on the early treatment with anticholinergic medications and 3) to compare them between PVP and HoLEP.

Study design, materials and methods
This retrospective study included 356 who underwent PVP (251) or HoLEP (204) procedure for symptomatic BPH and completed ≥ 6-month follow-up. All patients underwent a baseline evaluation with transrectal ultrasonography (TRUS) and multichannel video urodynamic study in addition to a general standard evaluation for LUTS/BPH including: history, physical examination including digital rectal examination, International Prostate Symptom Score (IPSS), urinalysis, frequency-volume chart (FVC) over 3 days, serum creatinine (Cr), and serum prostate-specific antigen (PSA). The exclusion criteria were as follows: previous prostate surgery, urethral stricture, prostate carcinoma, and neurogenic bladder disease. No patient was excluded because of these conditions. The efficacy of the surgery was assessed at 1-, 3-, 6- and 12-months postoperatively using the International Prostate Symptom Score (IPSS), uroflowmetry and post-void residual urine volume (PVR). 'Early treatment with anticholinergic medications' was defined as the administration of it within 6-months following the surgery.

Results
For the PVP and HoLEP group, mean (±SD) preoperative total prostate and transition zone volume were 49.1 ± 20.7 ml and 53.3 ± 21.4 ml, and 23.7 ± 17.2 ml and 27.2 ± 17.5 ml, respectively, which which was all significantly different between the two groups ($p < 0.05$). In the PVP and HoLEP group, the percentage of patients with detrusor overactivity (DO) and bladder outlet obstruction (BOO) was 27.9% vs. 47.4% and 34.7% vs. 48.5%, respectively, which was all significantly different between the two groups ($p < 0.05$). The other baseline parameters such as patient's age, body mass index (BMI), serum PSA level, maximum cystometric capacity (MCC), all parameters by IPSS were not significantly different between the two. The operation time, duration of catheterization and hospital stay in the PVP group were significantly shorter than those in the HoLEP group ($p < 0.01$). As for PVP group, subtotal storage symptom score of IPSS was significantly reduced compared to the baseline starting from 3-month after the surgery, while significantly reduced starting from 1-month after the HoLEP. The frequency (27.5%) of use of early treatment with anticholinergic medications in PVP group was higher than that (14.1%) in HoLEP with a significant difference ($p=0.001$). For overall patients (PVP group plus HoLEP group), on multivariate analysis to identify predictors of the early treatment with anticholinergic medication after the laser prostatectomy, type of procedure (PVP vs. HoLEP), subtotal storage symptoms score and maximum cystometric capacity were the independent predictors (OR 0.343; $p = 0.001$, OR 1.125; $p = 0.019$, OR 0.997; $p = 0.016$, respectively). For PVP group, the MCC on baseline urodynamics was the only independent predictor of the early treatment (OR 0.996; $p = 0.005$). As for HoLEP group, the presence of DO on baseline urodynamics was the only independent risk factor of the early treatment (OR 3.136; $p = 0.030$). No intraoperative factors including capsular perforation and bladder mucosal injury were determined to be significant in this regard.

Interpretation of results
The results of previous studies on PVP showed that storage symptoms may remain in up to 25~30% of patients after the surgery, which was generally higher than that after standard TURP (1). On the other hand, because HoLEP was equivalent urodynamically to open prostatectomy in terms of relief of obstruction, postoperative storage symptoms were generally mild after the surgery (1). In the present study, the significant improvement of storage symptoms after the PVP was slower than that after the HoLEP. Also, our results showed the frequency of use of early treatment with anticholinergic medications in PVP group was significantly higher than that in HoLEP group. Our study indicates that the patients with smaller MCC before the PVP have a higher likelihood to receive the early treatment with anticholinergic medications after the surgery and the patients with DO on baseline urodynamics are at a 3.1-times higher risk of undergoing the early treatment with anticholinergic medications after the HoLEP.

Concluding message
Our data suggest that some patients may undergo the early treatment for residual storage symptoms after PVP or HoLEP and the percentage of patients with the treatment after PVP may be higher than that after HoLEP. The present study indicates that the patients with smaller MCC and those with DO on baseline urodynamics have a high likelyhood to receive the early treatment with anticholinergic medications after PVP and HoLEP, respectively.

References

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