

PROGNOSTIC FACTORS FOR PERSISTENT STORAGE SYMPTOMS FOLLOWING SURGICAL TREATMENT IN PATIENTS WITH BENIGN PROSTATIC OBSTRUCTION

Hypothesis / aims of study

To identify the prognostic factors concerning the persistent storage symptoms following transurethral resection of the prostate (TURP) in patients with benign prostate obstruction (BPO).

Study design, materials and methods

A retrospective study was conducted in 336 males with BPO who had undergone TURP. All patients had completed the preoperative evaluations including 3-day bladder diary, International Prostate Symptom Score (IPSS) questionnaires, transrectal prostate ultrasonography and urodynamic studies as well as postoperative symptomatic assessment. The storage symptoms were defined by IPSS (≥ 3 of IPSS storage symptom score (sum of 2, 4 and 7 stand) with ≥ 2 of urgency score (4 stand)). The patients were divided into two groups according to postoperative IPSS storage symptom score. (Group 1: <3 , group 2: ≥ 3) The changes in IPSS scores and storage symptoms after TURP were observed and the association between the baseline variables and the improvement in storage symptom score was analyzed statistically.

Results

Among 336 patients, 302 patients presented storage symptoms preoperatively. After TURP, 250 patients were cured storage symptoms (group 1) and 52 complaint persistent storage symptoms (group 2). On univariate analysis, age and maximum voided volume were statistically different between two groups ($p < 0.01$) and preoperative IPSS total score and voiding symptom score were statistically different between two groups ($p < 0.01$), but storage symptom score and QoL index were not. ($p > 0.05$) No statistical differences existed in prostate volume and maximum flow rate between two groups. ($p > 0.05$) On multivariate analysis, it was suggested that preoperative detrusor contractility was associated with the improvement of storage symptoms. ($p = 0.01$, Odds ratio: 7.42) Both the patient's age (Odds ratio: 1.83) and the maximum voided volume (Odds ratio: 0.8) influenced the improvement of OAB symptoms.

Interpretation of results

The positive correlation between the preoperative degree of detrusor contractility and the maximum voided volume and the improvement in storage symptoms, suggests that good detrusor contractility and proper bladder capacity are indispensable for the symptomatic benefits after the surgical relief of bladder outlet obstruction

Concluding message

Old age and decreased maximum voided volume are variables that can be used for persistent storage symptoms after surgical treatment of BPO. Moreover patients with weak bladder contractility need more attention to persistent storage symptoms postoperatively, so physicians should decide operation carefully in these patients.

Table 1. Univariate analysis of two groups according to postoperative persistent storage symptoms

| | Persistent storage symptoms group | Non storage symptoms group | P value |
|--------------------------------|-----------------------------------|----------------------------|---------|
| Number of patients | 52 | 250 | |
| Age (years) | 73.2 \pm 5.3 | 66.1 \pm 4.7 | 0.018 |
| Prostate volume (ml) | 43.4 \pm 2.1 | 41.6 \pm 2.3 | 0.156 |
| Preoperative IPSS | | | |
| Voiding symptoms | 15.7 \pm 3.1 | 9.6 \pm 3.0 | 0.012 |
| Storage symptoms | 5.5 \pm 2.9 | 4.9 \pm 1.7 | 0.183 |
| Total score | 22.1 \pm 6.5 | 15.5 \pm 4.8 | 0.008 |
| QOL index | 4.8 \pm 0.6 | 4.5 \pm 0.7 | 0.583 |
| MVV (ml) | 123 \pm 9.8 | 345 \pm 12.5 | 0.001 |
| Free-Q _{max} (ml/sec) | 7.3 \pm 3.6 | 7.0 \pm 2.6 | 0.264 |
| PVR (ml) | 64 \pm 8.9 | 59 \pm 9.3 | 0.107 |
| Preoperative | | | 0.323 |
| Pdet.max (cmH ₂ O) | 78 \pm 21.6 | 76 \pm 18.5 | |
| Pdet.Qmax (cmH ₂ O) | 73 \pm 19.4 | 71 \pm 18.2 | |
| Schafer contractility grade | | | 0.001 |
| Very weak+weak | 23 | 48 | |
| Normal | 27 | 149 | |
| Strong | 2 | 53 | |
| Postoperative | | | |
| Voiding symptoms | 6.7 \pm 2.4 | 5.6 \pm 2.3 | 0.298 |
| Storage symptoms | 4.6 \pm 1.9 | 0.8 \pm 0.12 | 0.001 |
| Total score | 12.4 \pm 3.5 | 6.9 \pm 1.7 | 0.001 |
| QOL index | 3.2 \pm 1.2 | 2.4 \pm 1.1 | 0.028 |

IPSS, international prostate symptom score; MVV, maximum voided volume; Q_{max}, maximum flow rate; PVR, post void residual; QOL, quality of life

Table 2. Logistic regression analysis for persistent storage symptoms following TURP.

| | P value | Odd ratios |
|---------------------------------------|---------|------------|
| Age | 0.003 | 1.83 |
| MVV | 0.001 | 0.8 |
| Preoperative IPSS Voiding symptoms | 0.001 | 5.2 |
| Schafer contractility grade | | |
| Very weak+weak | | |
| Normal | 0.012 | 0.68 |
| Strong | 0.008 | 0.35 |

IPSS, international prostate symptom score; MVV, maximum voided volume

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| <i>Is this a clinical trial?</i> | No |
| <i>What were the subjects in the study?</i> | HUMAN |
| <i>Was this study approved by an ethics committee?</i> | No |
| <i>This study did not require ethics committee approval because</i> | we received informed consent from patients. |
| <i>Was the Declaration of Helsinki followed?</i> | Yes |
| <i>Was informed consent obtained from the patients?</i> | Yes |