

THE BACKGROUND CHARACTERISTICS OF PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA WHO RECEIVED EARLY TREATMENT WITH ANTI-CHOLINERGICS AFTER UNDERGOING A TRANSURETHRAL RESECTION OF THE PROSTATE

Hypothesis / aims of study

To identify preoperative predictive variables related to the treatment of an overactive bladder by the administration of anti-cholinergics, at an early time (within one year) after a transurethral resection of the prostate (TURP) for symptomatic benign prostatic hyperplasia (BPH).

Study design, materials and methods

A total of 1,397 men who had undergone TURP for lower urinary tract symptoms (LUTS) with BPH, from January 1993 to December 2001, were retrospectively studied. All the patients had a preoperative evaluation in which the International Prostate Symptom Score (IPSS), the quality-of-life (QOL) index, the post-void residual urine volume, and the uroflowmetry data were determined. The urodynamics, including a pressure-flow study, was also performed in all the patients prior to performing the surgery. The patients were included in the analysis if they were not associated with any of the exclusion criteria listed below. In addition, the patients must have completed a postoperative follow-up with a duration of up to 12 months. This resulted in a total enrollment of 777 patients. The exclusion criteria in the preoperative state were as follows: 1) neurogenic bladder dysfunction; 2) disease with a bladder outlet obstruction (BOO) other than BPH; 3) a history of prostatic and/or urethral surgery; 4) a diagnosed or suspected carcinoma of the prostate; 5) a known bladder neoplasm and/or stones; and, 6) an acute or chronic prostatitis. The 777 patients were divided into two groups (treatment group: 119 patients, non-treatment group: 658 patients) according to their history of medical treatment with anti-cholinergics during the 12 months following surgery. A statistical difference between the two groups in terms of the preoperative variables including the patient's age, the prostate volume, the total IPSS, the total storage symptoms (nocturia, urgency, increased frequency) and the total voiding symptoms (straining, intermittency, slow stream), the QOL index and the urodynamic parameters were investigated in order to determine the factors that are associated with the postoperative treatment with anti-cholinergics. The t-test or the Mann-Whitney's U-test for the continuous variables and the chi-square test for the categorical variables were used for univariate analyses. Next, a multiple logistic regression analysis using the forward stepwise regression method was performed to select a set of variables. A p value less than 0.05 was considered the threshold of significance.

Results

The mean age was 70.3 years and the mean estimated prostate volume was 44.3 grams. The preoperative urodynamic abnormalities included BOO in 637 (82%) patients, detrusor underactivity in 190 (24%) patients and detrusor overactivity (DO) in 317 (41%) patients. The maximum cystometric capacity (MCC) was 302 ml. The background variables including the patient's age, the MCC, the DO, the total storage symptoms score, and the urgency score were significantly different between the two groups, based on the univariate analysis (Table 1). The results of the multivariate analysis are summarized in Table 2. A greater magnitude of MCC decreased the chance of treatment with anti-cholinergics after TURP. According to the ROC curve used to predict treatment with anti-cholinergics, the best cut off value of the MCC was 250ml. In comparison, the presence of DO increased the chance of treatment with anti-cholinergics after surgery. The rate of treatment with anti-cholinergics within one year following TURP was significantly higher in the patients with MCC>250ml (11%) in comparison to the patients with MCC<250ml (27%). The treatment with anti-cholinergics was observed in 11% of the patients with DO and in 23% of the patients without DO. Furthermore, treatment with anti-cholinergics was observed in 32% of the patients with MCC<250ml and DO. In contrast, only 9% of the patients with MCC>250ml without DO received treatment with anti-cholinergics following TURP.

Interpretation of results

Anti-cholinergics are one of the most important treatment options for the residual OAB symptoms observed in the patients following surgical treatment. The current analysis showed that DO and MCC were directly related to the rate of treatment with anti-cholinergics during the early period following TURP. This suggests that the objective evaluation of the preoperative bladder function by urodynamics is more useful than by an objective symptoms assessment with respect to predicting the postoperative necessity of drug treatment for OAB symptoms observed in the patients with BPH.

Concluding message

The preoperative urodynamic variables, including MCC and DO, should be considered when selecting patients with LUTS associated with BPH, who receive treatment with anti-cholinergics following TURP. These results support the utility of preoperative urodynamic evaluation for the postoperative drug management of patients with symptomatic BPH.

Table 1 Univariate analysis

	Treatment	No treatment	p
Age (year)	71.9 (7.1)	70.0 (7.4)	0.006
MCC (ml)	269 (101)	308 (96)	< 0.0001
Total storage symptoms	9.1 (3.5)	8.4 (3.4)	0.0175
Urgency score	2.9 (1.6)	2.6 (1.6)	0.0421
Presence of DO (%)	55.5	33.0	< 0.0001
	Mean (s.d.)		

Table 2 Multivariate analysis

	OR	(95% CI)	p
MCC	0.74	(0.58-0.93)	0.0135
DO	2.04	(1.33-3.15)	0.0012

(OR: Odds ratio, CI: Confidential interval)

<i>Specify source of funding or grant</i>	no
<i>Is this a clinical trial?</i>	Yes
<i>Is this study registered in a public clinical trials registry?</i>	No
<i>What were the subjects in the study?</i>	HUMAN
<i>Was this study approved by an ethics committee?</i>	Yes
<i>Specify Name of Ethics Committee</i>	kyushu University
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	Yes