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ASSOCIATION BETWEEN THE SYMPTOMS AND QUALITY OF LIFE (QOL) WITH OBJECTIVE PARAMETERS IN PATIENTS WITH LOWER URINARY TRACT SYMPTOMS (LTUS) SUGGESTIVE OF BENIGN PROSTATIC ENLARGEMENT (BPE)

Hypothesis / aims of study
Although an assessment of subjective symptoms is extremely important in the management of patients with LUTS suggestive of BPE, objective parameters obtained from urodynamic studies are also frequently used to describe the causes for an underlying voiding dysfunction. Nevertheless, subjective symptoms do not appear to correlate with objective measures, including the prostate volume (PV) and urodynamics. We therefore investigated the associations between the symptoms and QOL with objective variables in a strictly selected large cohort of subjects with symptomatic BPE.
Study design, materials and methods
A retrospective review was done on a total of 1417 men who had undergone TURP (transurethral resection of the prostate) at our institution between January 1993 and December 2002. The patients underwent preoperative evaluations including International Prostate Symptom Score (I-PSS), QOL index, ultrasound estimated post-void residual (PVR), the PV as estimated by transrectal ultrasound and full urodynamics including a pressure-flow study (PFS), in addition to the basic clinical evaluations. All drugs that seem to affect the parameters had been washed out at least 2 weeks before the preoperative and/or postoperative evaluations. Patients were included in this analysis if they achieved a symptomatic improvement (a 25% or more reduction of total I-PSS: postoperative/preoperative 0.75) at 3 months after TURP, therefore, assuming that the LUTS were primarily due to BPE, and if they had completed the preoperative evaluations and postoperative symptomatic assessment at 3 months without any of the exclusion criteria listed below, thus resulting in 662 cases being enrolled into the final analysis. The exclusion criteria in the preoperative state was 1) Younger than 50 years of age, 2) A PV of less than 20 ml, 3) Maximum urinary flow rate as determined by a free-uroflow test (F-Qmax) more than 20 ml/sec, 4) Neurogenic bladder dysfunction, 5) Disease with bladder outlet obstruction (BOO) other than BPE, 6) A history of prostatic and/or urethral surgery, 7) Previously diagnosed or suspected carcinoma of the prostate, 8) Known bladder neoplasm and/or stones, 9) Acute or chronic prostatitis. The association between the preoperative subjective symptoms (each question of I-PSS, total I-PSS, total storage symptoms comprising the summation of nocturia, urgency and an increased frequency score, and the total voiding symptoms comprising the summation of hesitancy, intermittency and weak stream score) and the QOL score with objective preoperative variables including the patient's age, estimated PV and urodynamic parameters which consist of the maximum cystometric capacity (MCC), the presence of detrusor overactivity (DO), F-Qmax, PVR, the maximum detrusor pressure (pdet.max), the detrusor pressure at Qmax (pdet.Qmax), bladder contractility index (BCI: pdet.Qmax+5Qmax), and the BOO index (BOOI: pdet.Qmax-2Qmax) were all statistically analyzed. We correlated the symptoms score and QOL score with the objective parameters using Spearman's correlation coefficient, and we validated the correlation by calculating the p value. Statistical significance was considered to be present at a value of $p<0.05$.
Results
Table 1 shows the background of the patients. The correlation coefficients are listed among the subjective symptoms (I-PSSs) and the QOL score, and the preoperative objective parameters in Table 2. The F-Qmax and the PVR strongly influenced the patients' symptoms and QOL. The presence of DO was significantly associated with the symptoms. The degree of detrusor contractility and MCC were weakly, but significantly associated with the storage symptoms. The QOL score was not, but symptoms were, weakly associated with obstruction grade. Even though older men tended to demonstrate lower voiding symptom scores on the I-PSS, the patients' age did not correlate with the storage symptoms except for nocturia. The PV showed little association with the symptoms or the QOL score.
Interpretation of results
The presence of PVR resulted in higher symptoms score and a worse QOL, while a higher Qmax resulted in lower symptoms score and an improved QOL. Patients with DO presented with higher scores regarding storage symptoms and lower scores regarding voiding symptoms. A weakly significant correlation was found between the detrusor contractility grade or bladder capacity and the storage symptoms. A high obstruction grade resulted in a higher score for urgency and straining. While older men tended to have a lower score for intermittency, they also tended to show higher score for nocturia.
Concluding message
Despite the large group of subjects based on a strict selection of men with BPE, the association between the symptoms and/or QOL and the objective parameters, including the urodynamics, was nevertheless still weak.

Table 1

Age (years)	69.7 ± 7.1
< 60	54
60-79	551
80≦	57
PV (ml)	44.7 ± 19.4
25 <	65
25-50	398
50≦	199
DO (%)	39.7 (263/662)
MCC (ml)	297 ± 91
F-Qmax (ml/sec)	8.4 ± 3.6
PVR (ml)	89 ± 76
BOOI	72.8 ± 35.4
< 40	105
40≦	557
BCI	128.3 ± 31.8
< 100	119
100≦	543

Mean ± SD
Median (25%, 75%)

Table 2

	Age	PV	BOOI	BCI	MCC	DO	F-Qmax	PVR
Nocturia	0.21#				-0.15#	2.53*	-0.15#	
Urgency			0.14#	0.16#		3.12#	-0.09*	0.12#
Frequency					-0.13#	2.05*		
T. storage symptom				0.08*	-0.14#	3.20#	-0.11#	
Straining			0.10*			-2.16*	-0.19#	0.11#
Intermittency	-0.12#						-0.12#	0.08*
Weak stream						-2.73#	-0.16#	0.08*
T. voiding symptom	-0.09*					-2.38*	-0.19#	0.12#
Incomplete emptying							-0.16#	0.15#
Total I-PSS			0.09*				-0.20#	0.13#
QOL score							-0.14#	0.10*

* Correlation significant at 0.05. # Correlation significant at 0.01.

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HUMAN SUBJECTS: This study was approved by the Graduate school of Medicine, Kyushu University and followed the Declaration of Helsinki Informed consent was not obtained from the patients.