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Title: VARIABILITY OF DETRUSOR FUNCTION DUE TO BENIGN PROSTATIC HYPERPLASIA

Aims of study:

According to examination of pressure flow study (PFS), it is clearly understood that the difficulty of urination in patients with benign prostatic hyperplasia (BPH) depend on bladder outlet obstruction (BOO) and / or impaired detrusor contractility (weak detrusor). In fact, about 25-40% in patients with BPH have weak detrusor and are suffering from dysuria, in spite of with or without BOO. It is considered that the causes of weak detrusor are secondary to BOO or due to aging. Although some investigators described whether BOO relates with prostate volume and aging, Nobody knows how mechanism happens to change detrusor contractility relative to Schäfer grade.

This present clinical study was undertaken to understand the relationship among detrusor function, prostate volume and the degree of BOO.

Methods:

In 50 patients(range from 51 to 84 years) who underwent TURP(37pts) and open prostatectomy (13pts) under the diagnosis of BPH, Data on PFS performed preoperatively were retrospectively evaluated. The prostate volume was measured by transrectal ultrasonography. PFS was performed by the suprapubic route. The intravesical pressure, the detrusor pressure and the abdominal pressure were simultaneously monitored during the filling of the bladder with saline at the rate of 30ml / min and the voiding phase. These data were plotted on a Schäfer nomogram for the classification of detrusor contractility at weak (W), normal (N) and strong (ST). The best result of uroflowmetry with a voided volume of greater than 150ml was adopted for the data.

Results:

The patients were divided into three groups in group W, group N and group ST, according to Schäfer nomogram. Each groups consisted of 20pts (W), 25pts (N) and 5pts (ST).

The data of prostate volume and urodynamic parameters among each groups are shown in Table 1, 2. The mean prostate volume and the degree of BOO for these groups were 29.5±10.9ml and 2.1±1.1, 50.0±21.7ml and 3.7±1.3, 97.2±39.4ml and 5.6±0.4. In group N and ST, these two parameters were increased significantly, as compared to group W. On the other hand, Age, Qmax, residual urine volume showed no significant association among three groups.

Conclusions:

This study showed that detrusor contractility was correlated with prostate volume and the degree of BOO, on the contrary uncorrelated with age. Especially, there are strong relationship between detrusor contractility and prostate volume. In other words, there is a relation between strong detrusor and large prostate, between weak detrusor and small prostate, too. As it is generally accepted that there are poorly correlations between the degree of BOO and prostate volume, it is suggested that these two factors have independently influence on

detrusor function. It have been well established that hormone is important factor in the development of prostate enlargement. Thus, our results may be suggested that some hormones such as estrogen and androgen have something to do with change of detrusor function as prostate growth. Further investigation demands to study whether effects of hormone causes not only enlargement of prostate but also change of detrusor function.

Table 1

Age(years)	prostate volume(ml)	
W(n=20)	68.1±7.0	29.5±10.9
N(n=25)	67.5±6.9	50.0±21.7
ST(n=5)	66.6±4.2	97.2±39.4

Table 2

degree of BOO	Qmax	residual urine(ml)	
W(n=20)	2.2±10.9	8.6±2.9	61.5±69.7
N(n=25)	3.7±1.3	8.7±2.4	74.3±72.6
ST(n=5)	5.6±0.4	7.8±3.0	258.0±198.3