

## CLINICAL PREDICTORS OF SURGICAL INTERVENTION IN JAPANESE PATIENTS WITH BENIGN PROSTATIC HYPERPLASIA: A RETROSPECTIVE LONG-TERM COHORT STUDY

### Hypothesis / aims of study

Benign prostatic hyperplasia (BPH) is among the most bothersome problems elderly men suffer. BPH can result in serious conditions such as acute urinary retention (AUR), and some patients need surgical intervention during their treatment periods. Thus, knowledge of baseline clinical factors that may increase the risk of BPH related surgery is important for the optimal treatment of each patient. Crawford et al. reported the risk of BPH progression during a 4.5 year follow-up period<sup>1)</sup>. According to their study, in western men, the predictors of BPH related surgery was the baseline prostate volume (PV), PSA, maximum flow rate (Qmax), post-void residual volume (PVR) and age. In Japan, **only** Tsukamoto et al. have reported the predictors of surgical intervention, whereas there are several studies from the western world. They concluded Japanese patients who had a PV > 30ml, a severe IPSS score and a PSA 1.5 > ng/ml at baseline were more likely to have surgical intervention. Although their study showed similar results to the western study, its follow-up period (2.8 years) was relatively short. In addition, Japanese patients were known to show different characteristic such as high PSA per unit of PV and lower mean PV. Therefore, long-term observation is needed to clarify the risk factors of Japanese BPH patients exactly. The present study was undertaken to investigate the risk of surgical intervention during a long-term follow-up period in Japanese patients with BPH.

### Study design, materials and methods

This is a retrospective longitudinal cohort study. The medical records of BPH patients aged 50 or older who attended each of two hospitals at least twice during January 1999-December 2008 were reviewed. This longitudinal cohort study consisted of BPH patient whose PV, PSA, Qmax, IPSS and PVR were measured at the initial or second visit. Exclusion criteria were neurogenic bladder, prostate cancer and/or bladder cancer and treatment history of BPH using  $\alpha$ 1-adrenoceptor antagonists. In **addition**, patients treated by hormone therapy during the period were also excluded. Longitudinal urological data was captured to evaluate the predictors of surgical intervention. Chi-square tests were used to compare the baseline urological measures according to the surgical intervention status.

### Results

A total of **305** male patients with BPH were analysed in this study. The baseline characteristics and urological measures of the patients are shown in Table 1. The mean follow up period was **5.1** years. Although all the patients had received  $\alpha$ 1-adrenoceptor antagonists treatment, during the follow-up period, **8.5%** of patients underwent prostate surgery and **6.9%** of the patients experienced AUR. Table 2 shows the distribution of selected urological measures at baseline according to prostate surgery status. The risk of BPH progression was significantly greater in patients with a baseline PSA of 1.5 ng/ml or greater vs less than 1.5 ng/ml ( $p<0.001$ ), a baseline PV 30 ml or greater vs less than 30 ml ( $p=0.006$ ), a baseline Qmax of less than 12ml/s vs 12ml/s or greater ( $p=0.001$ ). The baseline age ( $p=0.252$ ), PVR ( $p=0.558$ ) and IPSS ( $p=0.900$ ) were not **significantly** different.

### Interpretation of results

Patients who had a PV 30 ml or greater, a Qmax less than 12 ml/s, and a PSA 1.5 ng/ml or greater at baseline, were more likely to have BPH related surgical intervention during the long-term follow-up period. PVR, IPSS and age showed no significant difference according to the urological intervention status.

### Concluding message

Baseline PSA level, Qmax and PV were useful predictors of the risk of clinical progression for Japanese patients with BPH. Using these parameters, each **patient** may **be able to** receive an optimal treatment for BPH according to their own risks.

Table 1. The baseline characteristics and urological measures

No of patients	n=305
age (years)	69.4 ± 8.4
PSA (ng/ml)	2.8 ± 2.8
PV (ml)	29.9 ± 17.2
Qmax (ml/s)	12.7 ± 6.3
PVR (ml)	67.1 ± 78.1
IPSS	13.1 ± 7.2

Values are mean ± standard deviation

Table 2. The baseline characteristics of BPH patients by surgical intervention status

	No. of patients with surgical intervention (%)	No. of patients without surgical intervention (%)	P value
Age (y.o)			0.252
<60	1 (3.6)	14 (14.4)	
60-69	11 (39.3)	106 (38.3)	
70~	16 (57.1)	131 (47.3)	
PSA (ng/ml)			<0.001
<1.5	4 (16.0)	188 (67.1)	
1.5~	21 (84.0)	92 (32.9)	
PV (ml)			0.006
<30	8 (36.4)	113 (66.5)	
30~	14 (63.6)	57 (33.5)	
Qmax (ml/s)			0.001
<12	19 (86.4)	117 (50.2)	
12~	3 (13.6)	116 (49.8)	
PVR (ml)			0.558
<40	9 (40.9)	111 (47.4)	
40~	13 (59.1)	123 (52.6)	
IPSS			0.9
0-7	2 (40)	23 (30.3)	
Aug-19	2 (40)	36 (47.4)	
20-35	1 (20)	17 (22.4)	

#### References

1. Crawford ED, Wilson SS, McConnell JD, et al; MTOPS RESEARCH Group. Baseline factors as predictors of clinical progression of benign prostatic hyperplasia in men treated with placebo. *J Urol.* 2006 Apr;175(4):1422-6.
2. Tsukamoto T, Masumori N, Nakagawa H, et al. Changes in prostate volume in Japanese patients with benign prostatic hyperplasia: association with other urological measures and risk of surgical intervention. *Int J Urol.* 2009 Jul;16(7):622-7.

#### Disclosures

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