

RISK OF SURGERY IN PATIENTS TREATED WITH TAMSULOSIN FOR BENIGN PROSTATIC HYPERPLASIA

Hypothesis / aims of study

α_1 -blockers have been the first choice for the treatment of lower urinary tract symptoms (LUTS) possibly due to benign prostatic enlargement / benign prostatic obstruction caused by benign prostatic hyperplasia (BPH). Although there have been some reports on the long-term efficacy of α_1 -blockers, it may not be that the risk factors for surgery for BPH have been fully identified in everyday clinical practice. To examine the baseline risk factors for surgery, our hospital undertook a study of the long-term efficacy of α_1 -blockers and risk factors for surgery in patients being treated with the α_1 -blocker tamsulosin. In this study, we especially focused on which symptom in IPSS questionnaire is a significant risk factor since there have not been much published data on the association between individual LUTS and the likeliness of proceeding to surgery for BPH.

Study design, materials and methods

The sample consisted of 136 male patients aged 50 years and over who were treated for lower urinary tract symptoms associated with benign prostatic hyperplasia (LUTS/BPH) with tamsulosin at a dosage of 0.2 mg/day over a five year period from October 1995 to September 2000. Subjects were excluded for the following reasons: a history of a condition that might cause neurogenic bladder; infections of the lower urinary tract and prostate; bladder cancer, prostate cancer, bladder stones, or urethral stenosis; a history of lower urinary tract surgery; concurrent medications that might affect lower urinary tract function; the use of medications within 1 month prior to presentation with the aim of improving LUTS; a history of urinary retention within 1 month prior to presentation; and past use of anti-androgenic agents. Anti-androgens were not administered to any patients over the entire follow-up duration as well. Prediction factors for surgery were evaluated using log-rank tests on the following parameters: prostatic volume; maximum urinary flow rate estimated according to Siroky's nomogram (Q_{max}); post void residual volume (PVR); past history of urinary retention; and the overall score on the International Prostate Symptom Score (IPSS) scale, as well as individual symptom scores. Kaplan-Meier survival analysis was used to determine surgery rates in terms of the severity of these baseline characteristics. Finally, Cox proportional hazards analysis was used to determine the relative risk of each baseline characteristic. Hazard ratios for five baseline characteristics - prostatic volume, Q_{max} , PVR, past history of urinary retention and the IPSS total score - were calculated taking into account hazard ratios for other baseline characteristics. Hazard ratios for each LUTS (i.e., for individual IPSS symptom scores) were calculated taking into account prostatic volume, Q_{max} , PVR, past history of urinary retention, IPSS total score and other LUTS scores in the IPSS questionnaire.

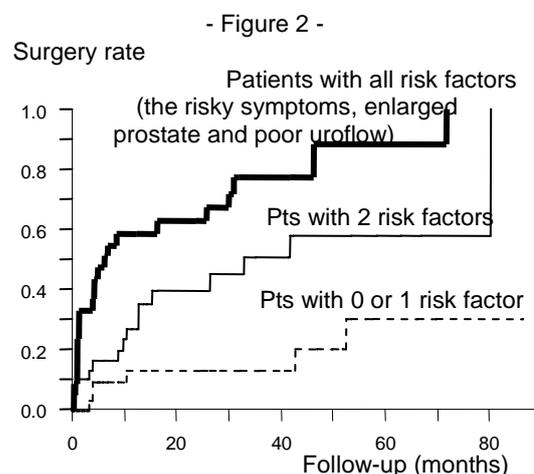
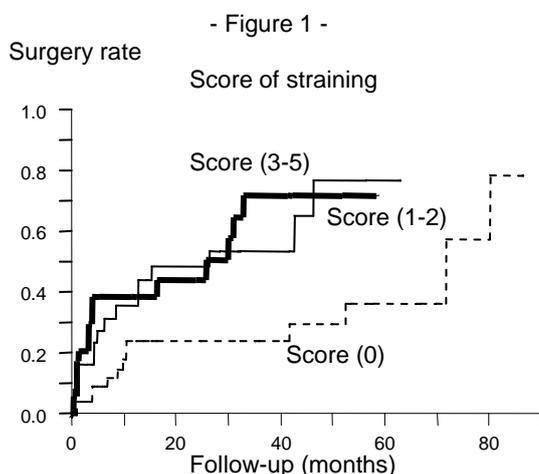
Results

Of the 136 subjects in the sample, 46 (34%) subsequently underwent surgical treatment. Surgery rates were 31% after one year of treatment, 46.2% after three years and 68.5% after five years. Baseline characteristics found to have a significant correlation with surgery were: prostatic volume ($p = 0.002$); Q_{max} ($p = 0.004$); overall IPSS score ($p = 0.005$); urgency ($p = 0.011$); slow stream ($p = 0.039$); and straining ($p = 0.003$). A statistically significant correlation with surgery was not identified for the sensation of incomplete emptying, voiding within two hours, interrupted stream, and nocturia.

Multivariate analysis showed severe LUTS (the IPSS total score of 20 or more), past history of urinary retention and enlarged prostate (prostatic volume of 30 ml or greater) to be independent predictive factors for surgery.

In the multivariate analysis that included all individual LUTS, one individual IPSS symptom, straining, was identified as a significant risk factor for surgery, but urgency and slow stream were not. In this analysis, enlarged prostate, poor uroflow ($Q_{max} < -2SD$ in Siroky's nomogram) and past history of urinary retention were also identified as independent significant risk factors for surgery, but IPSS total score was not. Surgery rates by straining IPSS scores were shown in Figure 1. Patients with a straining score of one or more were likely to require surgery relatively soon, and were therefore considered high risk (Figure 1).

When we assigned straining and past history of urinary retention to the risky symptoms for surgery, patients with all three risk factors (the risky symptom(s), enlarged prostate and poor uroflow) had greater risk for surgery than those with two of these three risk factors or those with one of three or without (Figure 2).



Interpretation of results

Our study identified three lower urinary tract symptoms - urgency, slow stream, and straining - as high-risk factors for surgery, in addition to IPSS total score of 20 or more, enlarged prostate, poor uroflow and past history of urinary retention. In these high risk categories, the multivariate analysis in which all LUTS in IPSS questionnaire were taken into account showed that one symptom – straining -, enlarged prostate, poor uroflow and past history of urinary retention are independent risk factors for surgery. Therefore, patients with these risk factors can be regarded as the patients who are at great risk for surgery. These patients should be monitored after the commencement of tamsulosin treatment to determine the most appropriate timing of surgical intervention. Since the risk of surgery varies depending on the type of lower urinary tract symptoms experienced by the patient, it is most important to formulate a treatment regime tailored to the patient's condition, based on a full analysis of the information obtained during the initial examination.

Concluding message

One lower urinary tract symptom – straining to void –, enlarged prostate, poor uroflow and past history of urinary retention are the independent risk factors for surgery for benign prostatic hyperplasia. Straining to void may be the key symptom for predicting the risk of proceeding to surgery.

<i>Specify source of funding or grant</i>	None
<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>	Yes
<i>Specify Name of Ethics Committee</i>	The Ethical Committee of University of Fukui
<i>Was the Declaration of Helsinki followed?</i>	Yes
<i>Was informed consent obtained from the patients?</i>	No