

## THE IMPACT OF TRANSURETHRAL RESECTION OF THE PROSTATE ON NOCTURIA AND SLEEP QUALITY

### Hypothesis / aims of study

Nocturia is one of the most bothersome lower urinary tract symptoms (LUTS) and often difficult to treat because diseases causing nocturia range from urological to non-urological conditions. Recently the significant impact of nocturia on sleep quality has often been discussed.

BPH is a well known factor of nocturia and it was previously reported that TURP significantly reduced the number of night-time voids (1, 2). However there are very few reports about the change of sleep quality that are associated with improvement of nocturia by TURP. Therefore we studied the impact of TURP on nocturia and sleep quality.

### Study design, materials and methods

A prospective study was conducted in 37 patients with LUTS associated BPH (LUTS/BPH) including nocturia who were referred for TURP. Before and 6 months after TURP, LUTS and sleep quality were investigated. LUTS and quality of life (QoL) due to urinary symptoms were assessed by International Prostate Symptom Score (IPSS) and QoL index. Sleep quality was assessed by the Pittsburgh Sleep Quality Index (PSQI) that is a self-rated questionnaire developed to assess sleep quality and consists of 7 components. Sleep disorder was defined if patients had 5.5 or more of PSQI, because this is a proposed cut-off value to have the best sensitivity and specificity for the diagnosis of sleep disorder.

### Results

The mean age and prostate volume of the study patients were 71 years (range 57 to 87) and 48 ml (range 12 to 119), respectively. Mean score of nocturia (question 7 of the IPSS) was 3.1 (range 1 to 5) and significant positive correlation was observed between the number of night-time voids and both age ( $r=0.55$ ,  $p<0.001$ ) and component 2 of the PSQI (sleep latency) ( $r=0.43$ ,  $p<0.01$ ). According to the definition of sleep disorder described above, 13 patients (35%) had sleep disorder before TURP. Six months after TURP, IPSS total score (from  $17.6\pm6.7$  to  $5.3\pm3.9$ ,  $p<0.001$ ), QoL index (from  $4.9\pm1.1$  to  $1.7\pm1.1$ ,  $p<0.001$ ), and score of nocturia (from  $3.1\pm1.2$  to  $1.9\pm0.9$ ,  $p<0.001$ ) significantly decreased. Global score of the PSQI (from  $4.8\pm3.5$  to  $3.9\pm2.8$ ,  $p=0.09$ ) and its component 1 (subjective sleep quality, from  $1.1\pm0.7$  to  $0.9\pm0.7$ ,  $p=0.09$ ) tended to improve but did not reach statistical significance (Figure 1). There were no significant changes in other components of the PSQI after TURP. Sleep disorder was noted in 9 patients (24%) after TURP.

### Interpretation of results

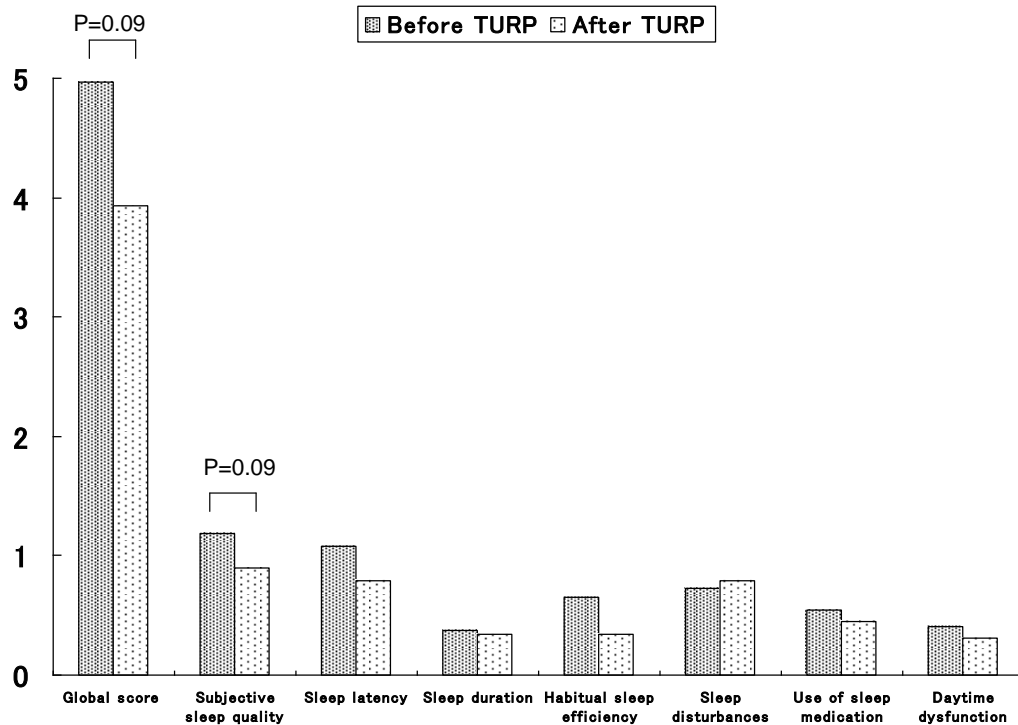
In patients with LUTS/BPH, the number of night-time voids significantly correlated with age and sleep latency. The increased number of night-time voids with age seems to be associated with nocturnal polyuria that is derived from non-urological conditions including hypertension, congestive heart failure, diabetes, and cerebrovascular disease. While TURP improved voiding symptoms and reduced the number of night-time voids about one time, we could not show dramatic improvement of sleep quality after TURP. This result might be due to a small sample size and reflect the complexity of pathophysiological correlation between nocturia and sleep disorder.

### Concluding message

In patients with LUTS/BPH TURP can improve nocturia about one time, but a great improvement of sleep quality is unlikely after TURP.

Figure 1

Global score and each component of the Pittsburgh Sleep Quality Index before and after TURP. The difference of score was not statistically significant.



References

1. J Urol 2002, 167, 172-76
2. Urology 2003, 61, 786-90

<b><i>Specify source of funding or grant</i></b>	none
<b><i>Is this a clinical trial?</i></b>	No
<b><i>What were the subjects in the study?</i></b>	HUMAN
<b><i>Was this study approved by an ethics committee?</i></b>	Yes
<b><i>Specify Name of Ethics Committee</i></b>	The ethical committee of Asahikawa Medical University
<b><i>Was the Declaration of Helsinki followed?</i></b>	Yes
<b><i>Was informed consent obtained from the patients?</i></b>	Yes