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PREOPERATIVE LUTS IS ASSOCIATED WITH THE POSTOPERATIVE NOCTURIA AFTER RADICAL PROSTATECTOMY IN LOCALIZED PROSTATE CANCER?: ANALYSIS OF THE CHARACTERISTICS AND INFLUENCING FACTORS OF THE POSTOPERATIVE NOCTURIA

Hypothesis / aims of study
Most of the localized prostate cancer patient complains lower urinary tract symptoms (LUTS) with or without benign prostatic hyperplasia (BPH) and therefore, concerns about the change of LUTS except urinary incontinence is necessary after radical prostatectomy. Generally, nocturia is associated with various factors such as aging, bladder function, and endocrine factor as well as bladder outlet obstruction (BOO). However, compared with urinary incontinence and other LUTS, studies about the change of nocturia after radical prostatectomy is lacking, even though nocturia is the most bothersome symptoms in elderly patients. Therefore, the changes of nocturia and influencing factors on the postoperative nocturia were analysed in the localized prostate cancer patients treated with radical prostatectomy.

Study design, materials and methods
We reviewed the medical records of 96 patients who underwent laparoscopic radical prostatectomy (LRP) and robotic-assisted laparoscopic prostatectomy (RALP) for clinically localized prostate cancer, and completed subjective symptom questionnaire. We evaluated with maximal flow rate (Q max) and post-void residual urine volume (PVR) more than 24 months of follow-up period. The subjective symptom questionnaire, such as international prostate symptom score (IPSS) was used. We divided the patients into 3 groups, according to the changes of pre-, and post-operative number of nocturia.

Results
Voiding symptoms significantly improved in the patients who underwent LRP or RALP after 24 months. However, Most of the patients after LRP and RALP showed persistent or increased nocturia. Moreover, more than one third of the patients (33/96) presented aggravation of nocturia (pre-operative vs. post-operative nocturia: 1.0±0.9 vs. 3.0±1.3). Multiple regression analysis showed that pre-operative IPSS storage sub-score had negative association with the nocturia after radical prostatectomy (p=0.005). However, patients' age, BMI, pre-operative PSA, Gleason score, T-stage, and prostate volume had no association. In addition, the sum of IPSS storage sub-score after radical prostatectomy, except nocturia, was significantly increased in the patients who showed increasing number of nocturia compared with the baseline (p=0.007).

Interpretation of results
The number of nocturia was similar compared with pre-operative nocturia after LRP and RALP. Most of the patients after surgery showed persistent or increased nocturia. The present study showed that IPSS storage sub-score had a negative association with the nocturia after radical prostatectomy. Moreover, the postoperative IPSS storage sub-score, except nocturia, was significantly increased in the patients with aggravation of the nocturia. These findings meant that post-operative de novo frequency or urgency could be associated with the increasing severity of nocturia. Therefore, post-operative de novo overactive bladder (OAB) is thought to be one of the factors which aggravates the nocturia in these patients, although BOO was relieved after prostatectomy.

Concluding message
The present study showed that nocturia could be influenced by various factors such as changes of storage LUTS, as well as relief of bladder outlet obstruction after LRP and RALP. Moreover, the pre-operative storage symptoms are regarded as an important factor which influences the changes of nocturia after radical prostatectomy.

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