

INFLUENCE OF SLING OPERATION ON NOCTURIA IN PATIENTS WITH MIXED URINARY INCONTINENCE

Hypothesis / aims of study

We assessed the impact of transobturator tape (TOT) treatment on overactive bladder (OAB) symptoms, particularly focused on nocturia in patients with mixed urinary incontinence (MUI).

Study design, materials and methods

In this retrospective cohort study, the medical records of 237 patients who underwent TOT surgery for treating women with MUI were reviewed. Of these, 86 (36.4%) patients had preoperative nocturia. Patients with neurological diseases or sleep disorders that could affect the voiding pattern were excluded. Patients who were being treated with anticholinergics and antidiuretic hormones were also excluded and finally 70 subjects eligible for analysis. Pre- and postoperative evaluations consist of physical examination, 3 day frequency-volume charts and health-related quality of life questionnaires (King's Health Questionnaire, OABSS and OAB-questionnaire).

Results

The sling operation significantly improved the subjective nocturia symptoms of the patients. Specifically, the KHQ sleep/energy domain score dropped from 51.04 ± 30.44 to 18.40 ± 22.08 , the OAB-q HRQoL sleep subscales score rose from 47.71 ± 26.22 to 85.57 ± 14.04 (both $P < 0.001$). The sling operation significantly improved the objective nocturia symptom of the patients, as indicated by the frequency-volume charts: 39 (55.7%) patients obtained an objective improvement of nocturia [actual number of nightly voids (ANV) < 1] after the operation. Analysis of the pre- and postoperative 3 day frequency-volume charts revealed that the operation significantly decreased the mean 24hr total void number from 10.27 ± 2.71 to 7.66 ± 2.35 , the mean daytime frequency from 8.60 ± 2.45 to 6.76 ± 2.00 , the mean ANV from 1.68 ± 0.80 to 0.90 ± 0.82 and the mean nocturnal bladder capacity index (NBCi) from 0.45 ± 0.67 to 0.01 ± 0.55 (all $P < 0.05$). However, the mean 24hr urine volume, functional bladder capacity (FBC), nocturnal urine volume (NUV), nocturnal polyuria index (NPI) and nocturnal index (Ni) were not significantly different before and after treatment (all $P > 0.05$). Correlation analysis of the whole cohort revealed that the postoperative changes in NBCi (preoperative NBCi–postoperative NBCi) correlated positively with postoperative changes in ANV (preoperative ANV–postoperative ANV) ($P < 0.001$, $r = 0.547$).

After stratification by nocturia severity, the mean ANV and mean NBCi were significantly decreased after sling operation regardless of nocturia severity (all $P < 0.05$). Subgroup analysis was also performed in patients with and without NP. There were significant reductions in the mean ANV and mean NBCi after TOT in patients with reduced nocturnal bladder capacity and mixed type nocturia (all $P < 0.05$). In contrast, the mean ANV and mean NBCi were not significantly different before and after TOT in patients with NP (each $P > 0.05$).

The nocturia-improved group tended to have a higher mean preoperative functional bladder capacity (FBC) than the nocturia-persisting group (403.78 ± 116.44 vs. 329.23 ± 70.02 , $P=0.023$). Moreover, the nocturia-improved group was significantly less likely to have nocturnal polyuria than the nocturia-persisting group ($P = 0.024$).

Interpretation of results

Over half of the patient (55.7%) achieving an improvement of nocturia after TOT. Patients with pure NP did not experience significant improvement in their nocturia. Improvement in nocturnal bladder capacity after TOT treatment may be attributed to a reduction in episodes of nocturia.

Concluding message

Our results demonstrated that the TOT procedure resulted in an overall significant improvement in overactive bladder symptoms including OAB-related nocturia in patients who present MUI.

Disclosures

Funding: None **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** Institutional review board of Chungbuk National University Hospital (IRB approval number, CBNUH 2017-01-019) **Helsinki:** Yes **Informed Consent:** Yes