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Introduction & Objective

- ✓ Neurogenic stress urinary incontinence (NSUI) is usually accompanied by detrusor dysfunction and poor bladder compliance (BC)
- ✓ Restoration of the continence with anatomically supporting mid-urethral sling (MUS) may result in high pressure reservoir dangerous to upper urinary tract; Possible newly developed detrusor overactivity after MUS may aggravate the increase of intravesical pressure
- ✓ This study was performed to assess change of urodynamic parameters after MUS for female NSUI

Methods

- ✓ Included patients: Female patients who received retropubic MUS for NSUI from March 2008 to October 2017 at Severance Hospital
- ✓ Assessment: Paired comparison of urodynamic parameters, before and after MUS, was performed using Wilcoxon Signed Rank test

Results

- ✓ Out of 18 female patients who received retropubic MUS for NSUI, 10 patients with complete urodynamic data, were included in the assessment
- ✓ Causative diseases were multiple system atrophy (2), spinal dysraphism (1), spinal cord injury (3), spinal stenosis (1), spinal cord tumor (1), cerebrovascular accident (1) and systemic lupus erythematosus (1)
- ✓ Median patient age at midurethral sling was 53.6 (35.8~74.2) years
- ✓ Median follow up period was 45.7 (11.6~120.7) months; there was no significant surgical complication including mesh erosion, and 4 patients needed sling readjustment
- ✓ For one patient with bladder compliance less than 20 ml/CmH₂O, synchronous augmentation ileocystoplasty was performed
- ✓ At latest follow up, 5(50%) patients showed surgical success without NSUI, 5(50%) had improved but still persistent NSUI. 6 (60%) patients relied on assisted bladder emptying. Except for one patient with augmentation ileocystoplasty, 9 patients were included in assessment of change of urodynamic parameters

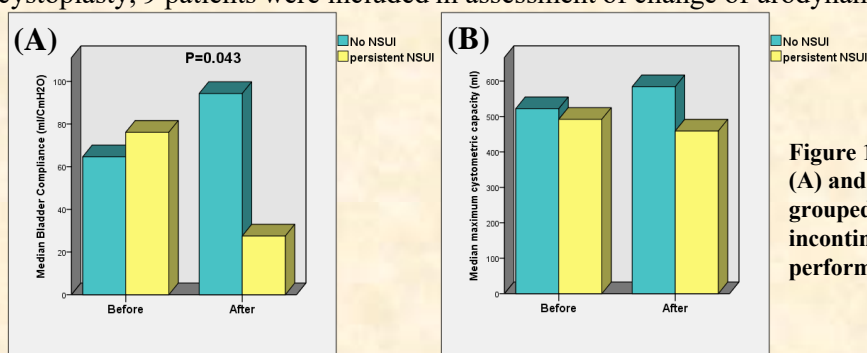


Figure 1. Comparison of bladder compliance (A) and maximum cystometric capacity (B) grouped by postoperative stress urinary incontinence; Statistical analysis was performed using Wilcoxon Signed Ranks test

- ✓ In success group, without postoperative NSUI, bladder compliance has increased from median 64.6 (34.8~219.5) ml/CmH₂O to median 94.3(54.5~179.0) ml/CmH₂O ($P>0.999$), maximum cystometric capacity has increased from median 522 (254~664) ml to median 584(537~600) ml ($P=0.465$). On the other hand, in failure group with persistent NSUI, bladder compliance has significantly decreased from median 76.1(25.8~238.7) ml/CmH₂O to median 27.5(19.6~154.5) ml/CmH₂O ($P=0.043$), and maximum cystometric capacity has also decreased from median 492 (103~716) ml to median 459 (87~618) ml ($P=0.500$) without statistical significance. The lowest postoperative bladder compliance was 19.6 ml/CmH₂O, and all the other patients' bladder compliance was more than 20 ml/CmH₂O.
- ✓ Although bladder compliance has decreased significantly in persistent NSUI group, maximum cystometric capacity has not changed significantly; We could infer that the decreased bladder compliance is not associated with under-filled state of bladder, caused by incontinence

Conclusions

Contrary to general concern that restoration of continence may result in high pressure bladder and consecutive poor bladder compliance, patient with persistent SUI showed significant decrease in bladder compliance. Therefore follow up urodynamic investigation might be provided for all the patients with NSUI regardless of presence of NSUI.

References

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