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Gamble T¹, Nguyen A¹, Vu M¹, Beaumont J², Botros S¹, Goldberg R¹, Sand P¹

1. Division of Urogynecology, NorthShore University Health Systems, Evanston Hospital Northwestern University Feinberg School of Medicine, 2. Center for Outcomes Research and Education NorthShore University HealthSystem

PREOPERATIVE DETRUSOR OVERACTIVITY PREDICTS MIDURETHRAL SLING OUTCOMES

Hypothesis / aims of study

To determine the impact of detrusor overactivity pressure on the outcome of midurethral sling procedures for the treatment of urodynamic stress urinary incontinence (USI) and detrusor overactivity (DO).

Study design, materials and methods

We retrospectively reviewed the charts of 300 women treated with transvaginal slings for USI and DO on urodynamic testing. Detrusor overactivity pressures were divided into 2 groups: Group I had maximum DO pressures ≥ 25 cm H₂O and Group II had DO pressures < 25 cm H₂O. Demographic, clinical and surgical characteristics of these two groups were compared using 2-sample t-tests for continuous variables and chi-square tests for categorical characteristics. Differences in postoperative DO, UUI, SUI, and USI were compared using chi-square tests. Multiple logistic regression models were used to evaluate potential predictors of persistent DO and USI in this sample. A p value < 0.05 was considered statistically significant for all comparisons. Relative risks with a 95% confidence interval were calculated for all outcome variables. All analyses were performed with SAS version 9.1 (SAS Institute, Cary, NC).

Results

300 patients who underwent midurethral sling procedures consisting of retropubic ([SPARC= 10% (29); TVT= 35% (104)]) and transobturator sling 56 % (167) procedures were evaluated. DO pressure of ≥ 25 cm H₂O was diagnosed in 106/300 women (35%) in group I with 65% having DO pressures < 25 cm H₂O in group II. Mean age (range) was 61.6 (32-88); BMI was 27.4 (18-70) cm/m², and median parity was 2 (1-10). No significant differences were found in age, parity, or BMI between groups. More women in the higher pressure Group I were postmenopausal and on HRT. Chi-square analyses revealed that detrusor pressure was unrelated to postoperative UUI, SUI, or DO resolution in women who underwent retropubic midurethral slings. However, in the transobturator group, preoperative DO pressure of ≥ 25 was significantly associated with persistent postoperative DO [68% vs. 41% OR 3.1 (95% CI: 1.4 –7.0) $p < 0.006$]; postoperative SUI [30% vs. 15% OR 2.4 (CI: 1.1 –5.3) $p < 0.025$]; and postoperative UUI [50% vs. 22% OR 3.6 (CI: 1.8 –7.1) $p < 0.001$]. Further, higher preoperative detrusor pressure was related to postoperative UUI severity as defined by Likert scale (0, 1, 2 vs. 3, 4; $p = 0.001$). Multivariable analysis showed this relationship persisted after controlling for age, BMI, and concomitant procedures.

Interpretation of results

The outcomes of transobturator tape procedures are significantly associated with preoperative DO pressure, with a higher failure rate and persistent OAB syndrome symptoms when higher preoperative DO pressures are present. Small sample size and unequal comparison groups precluded finding similar results among retropubic midurethral slings.

Concluding message

The magnitude of preoperative pressure at which an involuntary detrusor contraction occurs should be considered when performing midurethral sling procedures in women with concomitant USI and DO.

Urodynamic Parameters	≥ 25 cm H ₂ O (n=106)	< 25 cm H ₂ O (n=194)	P
Mean Maximum Cystometric Capacity (SD)	411.3 (179.0)	494.9(186.0)	< 0.001
Mean DO pressure - cmH ₂ O	46.1 (47.8)	14.6 (5.0)	-
Mean DO volume - ML	375.8 (184.7)	491.3 (269.8)	< 0.001
Mean Urethral Closure Pressure	61.5 (37.8)	46.3 (32.2)	0.007
Maximum urinary flow rate Mean (SD)	15.5 (10.5)	18.1 (11.5)	0.021
Post void Residual (> 200 mol)	20 (10.4%)	12 (11.5%)	0.825

References

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Was the Declaration of Helsinki followed?	Yes
Was informed consent obtained from the patients?	No

