153

Botros S[1], Yoram A[1], Roger G[1], Sanjay G[1], Jay M[1], Peter S[1]
1. Evanston Continence Center, Northwestern University, Feinberg School of Medicine

DETRUSOR OVERACTIVITY AND URGE URINARY INCONTINENCE FOLLOWING MIDURETHRAL SLING PROCEDURES

Hypothesis / aims of study

Persistent or *de novo* detrusor activity (DO) or urge urinary incontinence (UUI) following sling surgeries pose a dilemma for both patients and surgeons treating stress urinary incontinence due to their potential adverse impact on the patients' quality of life and satisfaction from the surgery. Few studies have directly compared the rates of persistent or *de novo* DO and UUI after various sling types. We sought to evaluate the rates of resolution and onset of de novo DO and UUI after TOT's, midurethral sling procedures and transvaginal bladder neck slings.

Study design, materials and methods

We identified 445 subjects with urodynamic stress or mixed urinary incontinence that underwent midurethral slings (SPARC=52, TVT=91), bladder neck slings anchored to Cooper's ligament (Capio CL =195) and TOT's (Monarc=107). All subjects had a routine office evaluation including a detailed history and subjective assessment of UUI using Likert's scale, physical exam, urinanalysis, postvoid residual, Q-tip test and multichannel urodynamic testing pre- and 3 months postoperatively. Two comparisons were made, first between bladder neck slings and midurethral slings, second, between midurethral slings and transobturator slings. Comparisons were made using Student's t-tests, McNemar's tests and Chi-Square tests. Multivariate logistic regression was performed to detect possible confounding factors.

Results

Subjects in the bladder neck sling group were significantly older, had greater use of HRT and more prior anti-incontinence surgeries than those in the midurethral sling group. (Table 1) There were no significant differences preoperatively between the midurethral and TOT groups with respect to mean age 58-60 (p=0.38), median parity 2 (p=0.94), mean BMI 27.2-28.1 (p=0.68), prior pelvic surgery or prior incontinence surgery.

Preoperatively, subjects who underwent bladder neck slings had higher rates of subjective urge urinary incontinence (85% vs. 68% p=0.002) and DO (75% vs. 60%, p=0.0046) as well as low Pressure Urethra (61% vs. 10% p<0.001) than the midurethral sling group. There were no preoperative differences between subjective UUI (TVT-68% & SPARC-61% vs. Monarc-64%, p=0.80) and DO (59% & 62% vs. 66%, p=0.63) rates between midurethral and TOT sling subjects.

Of patients who had DO and/or UUI preoperatively more patients in the midurethral sling group had resolution of DO than in the bladder neck sling group (38% vs.15%, p<0.001) as well as resolution of UUI (48%vs.32%, P=0.025). Resolution of subjective UUI was higher in patients who received the Monarc than those who received the midurethral slings, however this did not reach statistical significance (48% & 44% vs. 68%, p=0.08). There was no difference in rates of resolution of DO between midurethral and TOT sling patients (42% & 32% vs. 46%, p=0.52).

Subjects in the midurethral sling group had significantly lower rates of de novo DO than subjects in the bladder neck sling group (29% vs. 60%, p=0.003) and were not different from the TOT group (33% vs. 25% vs. 22%, p=0.68). There was not a significant difference in the rate of de novo UUI (21%vs.29%, p=0.46) between the bladder neck slings and midurethral sling groups. However, no patients in the Monarc group developed de novo UUI (27% & 19% vs. 0%, p=0.01).

After adjusting for confounding variables in the bladder neck sling group, the only significant predictors of postoperative DO were preoperative DO (p<0.001) and sling type (p<0.001). After adjusting for preoperative DO, bladder neck slings significantly increased the risk for persistent DO (OR 3.7). When adjusting for possible confounding factors in the TOT group, the Monarc procedure significantly increased the chance of resolution of UUI over the TVT (OR=3.12) or SPARC procedures (OR=3.03) postoperatively.

Interpretation of results

Our study indicates that patients who undergo midurethral and transobturator slings have increased rates of resolution of both DO and UUI over bladder neck slings as well as lower rates of de novo DO. In fact, patients who undergo bladder neck slings have a three fold increase in persistence of DO over midurethral slings. On the other hand, transobturator slings are three times more likely to resolve UUI symptoms. With regards to de novo UUI, midurethral slings and bladder neck slings are similar, but transobturator slings did not demonstrate de novo UUI.

Concluding message

Midurethral slings and transobturator slings have improved outcomes with regard to UUI and DO over bladder neck slings. The effect of slings on DO and UUI should be taken into consideration when counseling patients for surgery.

Table 1. Demographic Data

	Transvaginal Bladder Neck Slings	Midurethral slings	p value
Age	66.9	57.7	<0.001
Menopause	160(83%)	71(77%)	0.212
HRT	115(58%0	43(23%)	<0.001
Parity	3	2	0.077
Prior anti-incontinence surgery	52(27%)	21(14%)	0.006
Anterior Wall Prolapse POP-Q			
Stage 0	6(5%0	9(8%)	0.358
Stage 1	1412%0	36(32%)	0.001
Stage 2	66(55%0	48(42%)	0.057
Stage 3	34(28%)	21(18%)	0.080