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EFFECTIVENESS OF FEMALE READJUSTABLE SLING SYSTEM FOR PATIENTS WITH DETRUSOR UNDERACTIVITY

Hypothesis / aims of study

The continence surgery of the patients with neurogenic bladder is challenging. However, there is no consistent guideline in treating neurogenic urinary incontinence, and the efficacy of synthetic sling, known to be treatment of choice for non-neurogenic stress urinary incontinence, is still unclear for the neurogenic incontinence[1]. Especially incontinence concomitant with detrusor underactivity makes the urologist and the patients be concerned of postoperative voiding difficulty and the results of continence surgery with detrusor underactivity is not clearly known. In these reason, we have tried to find out the surgical outcome of female readjustable sling system applied to the patients with detrusor underactivity.

Study design, Materials and methods

This study was performed retrospectively based on the medical records of female patients who received continence operation with readjustable Remeex sling system from April, 2011 to July 2016. Detrusor underactivity was defined as modified projected isovolumetric pressure (Pressure at maximum flow+ Maximum urine flow rate) less than 35cmH_2O [2,3]. The patients' preoperative neurological history, preoperative urodynamic parameters and postoperative urological outcomes were compared between patients with detrusor underactivity and with normal detrusor function.

Results

Finally, a total of 44 female patients were investigated. The median age at operation was 68.3 (IQR,59.0-74.3) years, and the median follow up duration was 7.7 (IQR,2.3-16.2) months. Out of 44 patients, 35 (79.5%) satisfied with postoperative continence, 6 (13.6%) had minimal stress incontinence, and 3 (6.8%) had moderate stress incontinence after surgery.
When comparing the patients grouped by detrusor contractility with modified projected isovolumetric pressure, postoperative stress urinary incontinence (P=0.547), postoperative intermittent catheterization (P=0.488), postoperative large residual urine volume (P=0.345) and postoperative device readjustment rate (P=0.760) were not different between the two groups. (Table 1)

Interpretation of results

The body mass index (BMI) was significantly different between the two groups. However in consideration of surgical outcome associated with low detrusor contractility, high proportion of low BMI patients in low detrusor contractility group might not be a significant confounding factor.

Concluding message

Female patients with detrusor underactivity may receive continence surgery with similar efficacy as patients with normal detrusor function with readjustable Remeex sling system. In addition, neurogenic stress urinary incontinent patients with underactive bladder might not be denied in deciding readjustable sling surgery.

Table 1. Patient characteristics, preoperative urodynamic parameters and surgical outcome

Variables	Normal Detrusor function (N=22)	Detrusor Underactivity (N=22)	*P*
Age at operation (yr, median,IQR)	67.8 (59.4-76.9)	68.9 (56.5-72.8)	0.719
BMI (Kg/m^2, median, IQR)	26.1 (24.7-28.2)	23.7 (21.9-25.3)	0.001*
Follow Up length (mo, median,IQR)	8.0 (3.4-15.3)	4.0 (1.3-16.8)	0.432
Brain neuropathy (N,%)	5 (22.7)	5 (22.7)	1.000
Spine neuropathy (N,%)	3 (13.6)	5 (22.7)	0.698
Diabetes mellitus (N,%)	10 (45.5)	5 (22.7)	0.203
Previous history of hysterectomy (N,%)	1 (4.5)	4 (18.2)	0.345
Intrinsic sphincter deficiency (N,%)	10 (45.5)	17 (77.3)	0.062
Involuntary Detrusor Contraction (N,%)	6 (27.3)	4 (18.2)	0.721
Maximal Cystometric Capacity (ml, median, range)	516.0 (477.5-572.3)	521.0 (441.3-600.0)	0.789
Bladder Compliance (ml/cmH2O, median, range)	98.6 (68.9-211.9)	87.3 (58.6-146.6)	0.684
Postop stress incontinence (N,%)			0.547
None	16 (72.7)	19 (86.4)	
Minimal	4 (18.2)	2 (9.1)	
Moderate	2 (9.1)	1 (4.5)	
Postop urgency incontinence (N,%)	10 (45.5)	5 (22.7)	0.203
Postop voluntary voiding (N,%)	22 (100.0)	20 (90.9)	0.488
Postop PVR larger than 100ml (N,%)	1 (4.5)	4 (18.2)	0.345
Postop clean intermittent catheterization (N,%)	0 (0.0)	2 (9.1)	0.488
Postop straining voiding (N,%)	3 (13.6)	1 (4.5)	0.607
Postop readjustment (N,%)	8 (36.4)	10 (45.5)	0.760

Statistical analysis for categorical variables was conducted with chi-squared test or Fisher's exact test, and for continuous variables with Mann-Whitney U test.; BMI, body mass index; PVR, post void residual urine volume;
* Statistical significance at $p<0.05$.

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