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THE IMPACT OF PREOPERATIVE PATIENTS' CHARACTERISTICS AND FLOW RATE ON EARLY COMPLICATIONS AND VOIDING DYSFUNCTIONS AFTER TRANSOBTURATOR PROCEDURE FOR FEMALE STRESS INCONTINENCE

Hypothesis / aims of study

Midurethral slings (MUS) still represent the gold standard and the dominant procedure for the treatment of female uncomplicated stress urinary incontinence (SUI). Age, severe preoperative urgency urinary incontinence, and surgical complications are risk factors for postoperative failure. The aim of this multicenter study is to analyze the impact of pre-operative patients' characteristics and flow rate on failure of surgical procedure, early post-operative complications and voiding dysfunction after transobturator MUS procedure in female patients with uncomplicated SUI.

Study design, materials and methods

We retrospective evaluated a cohort of 219 women treated with MUS for SUI. This multicentre study was conducted at Urology academic departments from North, Centre, and South of Italy. Exclusion criteria were: overactive bladder, presence of urogenital prolapse of grade > I, previous pelvic radiotherapy or clinical contra-indications for surgical procedures, neurogenic bladder dysfunction or collagen diseases and preoperative UTI. Before MUS surgery, patients underwent comprehensive assessment especially for pelvic reconstructive procedures or hysterectomy, physical examination, pad usage, and uroflowmetry analysis according to ICS standards. Urogenital Distress Inventory (UDI-6), ICIQ-Urinary Incontinence Form and visual analogue scale (VAS), demographic information, medical history, symptoms of LUT and pelvic floor dysfunction were assessed both before and after MUS surgery. The surgery was performed using tension-free vaginal tape obturator system (TVT-O) sling procedure. Student's independent t-test or Mann-Whitney U-test, Multivariate logistic regression models were used for statistics. All tests were completed using SPSS v. 19 software (SPSS Inc, IBM Corp, Somers, NY, USA)

Results

Mean age was 59 years (50.0-72.0), median BMI 27 kg/m² (24.0-30.0); 63.9% of patients are in menopause. Diabetes occurred in 7.7% and hypertension in 27.3%. We observed significant changes of mean of peak flow (24.95 vs. 30.34; p<0.05), mean of post-void residual (40.85 vs. 7.37; p<0.01) and mean UDI-6 (9.47 vs. 1.36; p<0.01) after surgery. The persistence of incontinence rate after surgery was 16.4%, the complication rate was 24.2% while the satisfaction rate was 86.3%. At the multivariate logistic regression analysis, menopause (OR: 6.19 [0.68-56.45]; p=0.03) and pre-operative UDI6 (OR: 1.21 [95%CI: 1.04-1.50]; p=0.02) were independent predictors of surgical failure after TVT–O procedure (Tab 1), while peak flow (p=0.43), post-void residual (p=0.43) and pre-operative number of pad (p=0.18) resulted negligible for surgical failure. Moreover, we determined the cut-off value of UDI6 of 9.0 for predicting post-operative SUI with 62% specificity, 72% sensibility and 66% accuracy: at the multivariate logistic regression analysis, pre-operative UDI6 ≥9.0 was independent predictors of post-operative SUI. The only predictors of postoperative complications were menopause (p=0.04) and pre-operative UDI-6 (p=0.01). Nineteen women (9.5%) experienced early voiding dysfunction. At the multivariate logistic regression analysis (adjusted for age, BMI, number of childhood, UDI6), pre-operative peak-flow (OR: 0.98; p=0.62) and pre post-void residual (OR: 0.99; p= 0.25) were not associated with early voiding dysfunction. (Tab 2)

Interpretation of results

In present multicenter trial, pre-operative flow rate was not associated with the risk of occurrence of early voiding dysfunction after TVT-O procedure. After MUS, the rate of persistency of incontinence was 16.4%, the rate of complications was 24.2% while the rate of overall satisfaction was 86.3%. Menopause and UDI6 were the only pre-operative risk factors of early TVT-O failure and complications rates.

Concluding message

Women with uncomplicated SUI and with low preoperative flow rate can be treated with TVT-O, with good results in term of safety and efficacy. Menopause are the main determinant for persistency of SUI after TVT-O. Well-designed randomized prospective studies with a suitable number of patients are needed in order to corroborate our findings.

Table 1. Multivariate logistic regression of predictive factors of failure of TVT-O

	OR (95%CI)	p-value
Age (years)	1.02 (0.94-1.10)	0.60
BMI (kg/m^2)	1.17 (0.97-1.40)	0.09
Number of childbirth	0.62 (0.32-1.18)	0.15
Pad/die	1.12 (0.95-1.32)	0.18
Peak flow (ml/s)	0.97 (0.90-1.04)	0.43
Post-void residual (cc)	1.00 (0.99-1.01)	0.43
UDI6	1.24 (1.04-1.50)	0.02
Menopause	6.19 (0.68-56.45)	0.03
Type of childbirth	1.64 (0.11-23.22)	0.72

Table 2. Characteristics of patients according to pre-operative peak flow			
	Qmax < 15 ml/s (n=21)	Qmax ≥ 15 ml/s (n=180)	p-value
Age (years), median (IQR)	59.87 (53.83-72.76)	58.0 (50.48-65.93)	0.58
BMI (kg/m^2), median (IQR)	27.34 (24.57-30.31)	26.56 (23.88-29.38)	0.43
Number of childbirth, median (IQR)	2.0 (1.0-2.0)	2.0 (1.0-2.0)	0.47
Pad/die, median (IQR)	3.0 (2.0-4.0)	3.0 (2.0-4.0)	0.42
Pre-operative UDI6, median (IQR)	9. 47 (7.5-13.0)	9.47 (9.0-11.0)	0.43
Pre-operative voided volume, median (IQR)	370.0 (318.5-408.52)		
Menopause, n (%)	125 (69.4%)	15 (71.4%)	0.85
Post-operative peak flow, median (IQR)	30.34 (25.5-30.34)	30.34 (26.62-30.34)	0.68
Post-operative UDI6, median (IQR)	1.36 (0.0-1.68)	1.36 (0.0-1.36)	0.89
Post-operative voided volume, median (IQR)	329.16 (319.20-335.6)	329.16 (307.5-339.16)	0.35
Postoperative peak flow-preoperative peak flow, median (IQR)	17.5 (15.17-22.09)	4.74 (-4.17-9.46)	<0.01
Post-operative voided volume-preoperative voided volume, median (IQR)	-79.35 (-101.02;-13.83)	-79.35 (-128.14; 59.62)	0.36

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