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Chen J[1], Qu C[1], Wang C[1], Yin L[1], Xu D[1], Gao Y[1], Cui X[1], Cui X[1]
1. *Department of Urology, Changzheng Hospital, Second Military Medical University, China*

FACTORS AFFECTING FEMALE PATIENTS WITH NON-NEUROGENIC LOWER URINARY TRACT SYMPTOMS

Hypothesis / aims of study

Our aim of the study was to assess the impacts of age, parity, menopause and urine-holding on voiding function in urology patients

Study design, materials and methods

The medical records of total 7,200 patients with urodynamic studies were reviewed at our center between January 2002 and March 2012. Among them, 2195 belonged to the population of female patients with non-neurogenic LUTS .Patients with conditions including a prior continence procedure, advanced pelvic prolapse, hysterectomy or neurologic deficits were excluded from our study. Comprehensive medical histories, physical examinations, bladder diaries and results of multi-channel urodynamic testing were analyzed. The urodynamic investigations included maximum flow rate (free Qmax), filling cystometrography (CMG), voiding pressure-flow study (PFS), external anal sphincter electromyography (EAS EMG) and urethral pressure profilometry (UPP) according to previously described techniques. Methods, definitions and units were employed according to the standards recommended by the ICS (International Continence Society), except where specifically noted [3]. During CMG and PFS, vesical pressure (Pves) and abdominal pressure (Pabd), and then detrusor pressure (Pdet=Pves-Pabd) were measured by using a two-lumen 8 French catheter and a rectal balloon catheter, respectively. EAS EMG was also simultaneously monitored using two needle-guided-wire electrodes inserted at 3, and 9 o'clock of the anus aperture with lateral distance of 0.5 cm. Filling CMG was performed with a rate of 50 to 70 mL/min of saline and the compliance was recorded continuously. The infusion was stopped to initiate voiding with changing position from supine to sitting when maximum cystometric capacity (MCC) was reached. The urinary flow rates, Pdet, detrusor contraction fashion and EAS EMG were measured during the voiding phase when the patient was instructed to void. Finally, the UPP was obtained and the maximum urethral closure pressure (MUCP) and the functional profile length (FPL) were recorded [3]. The distribution of various functional disorders of detrusor and sphincter was calculated and measured according to mode EAU used for NLUTS.

Results

The demographic characteristics and urodynamic parameters of the 2195 female with LUTS were listed in Tab 1. 30.5%(2195/7200) of the female patients in our center had LUTS.The mean age was 53.5 years, and the mean parity was 3.2.41.6%(913/2195) of them was before menopause and the other 58.4%(1282/2195) was after menopause.32.1%(705/2195) of them had urine-holding history and the other 67.9%(1490/2195) had not. We use four urodynamic variables as voiding parameters: maximum flow rate (Qmax) and post-void residual (PVR) from uroflowmetry, maximum urethral closure pressure （MUCP）and detrusor pressure at maximum flow (PdetQmax) from pressure-flow studies（PFS）. Of the four factors (menopause, age, parity and urine-holding), only parity had a significant impact on uroflowmetry and pressure-flow study results (Qmax, p=0.001;PVR,p<0.001;MUCP,p=0.001; PdetQmax, p=0.005).

Interpretation of results

Karram MM[1] and Ling-Hong Tseng[2] both reported that parity was significantly correlated with voiding function, which was consistent with our results. Women had urethral hypermobility after childbirth,and urethral closure pressure decreased significantly when urethral hypermobility was present[3]., and delivery associated injury would lessen urethral closure pressure. These factors could explain the reduction in maximum urethral closure pressure found in our study.

Concluding message

The incidence of female LUTS was 30.5% in our center.Our study indicated that parity had a significant impact on voiding function in urology y patients.The bladder and urethral behavior in women after childbirth may be more complex than previously thought.More attention should be paid to women who suffer from lower urinary tract symptoms especially after childbirth.

Tab1 Demographic characteristics and urodynamic parameters of female with LUTS△

	SUI	MI	DO	DU	VD	Others
n (%)	419(19.1)	146 (6.7)	422 (19.2)	190 (8.7)	213 (9.7)	805(36.1)
Age (yr)	52.4 (11.3)	50.6 (14.1)	51.6 (11.3)	53.8 (17.1)	50.3 (13.1)	51.2(10.8)
Parity	3.9 (0.9)	3.5 (1.1)	3.0 (1.2)	3.2 (1.4)	3.1 (1.3)	2.8(1.4)
Qmax (mL/s)	23.4 (12.8)	22.1 (11.7)	25.1 (12.3)	19.5 (9.8)	20.9 (10.7)	23.5(11.5)
PVR (mL)	31.4 (20.8)	35.8 (26.5)	29.2 (18.5)	48.5 (22.5)	48.9 (20.6)	28.5(21.5)
MUCP (cmH_2O)	58.5 (37.1)	57.9 (36.6)	75.6 (37.9)	74.8 (38.6)	98.7 (38.5)	76.2(40.5)
PdetQmax (cmH_2O)	25.3 (15.2)	26.9 (14.1)	28.3 (14.9)	23.6 (13.5)	26.1 (14.7)	24.5(12.6)

△Data are presented as mean (standard deviation).SUI=stress urinary incontinence ;MI= Mixed incontinence ;DO= Detrusor overactivity ;DU=detrusor underactivity;VD= Voiding dysfunction; Qmax = maximum free flow rate; PVR = post-void residual; MUCP = maximum urethral closure pressure; PdetQmax = detrusor pressure at maximum flow on pressure-flow studies

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