

CLINICAL AND URODYNAMIC FEATURES ASSOCIATED WITH DETRUSOR OVERACTIVITY IN WOMEN WITH LOWER URINARY TRACT SYMPTOMS

Hypothesis / aims of study

Lower urinary tract symptoms (LUTS) occur frequently in the female population without neurological involvement. Among these, overactive bladder (OAB) is a condition which results in significantly reduced quality of life and depressive symptoms for the individuals affected. Epidemiological studies have already shown some factors associated with OAB, whose pathophysiology involves bladder, urethra, and pelvic floor (1). However risk factors associated to idiopathic detrusor overactivity (DO) in women need to be better studied. This study aims to analyze the clinical and urodynamic features associated with the presence of DO in women with LUTS.

Study design, materials and methods

Women with lower urinary tract symptoms were recruited from a tertiary centre urogynaecology clinic between April 2012 and March 2015. All eligible women completed a three-day frequency-volume chart and underwent urodynamics (UDS) using a standardised protocol and according to ICS guidelines. When analyzing uroflowmetry parameters, only the voided volumes equal or above than 150 milliliters (ml) were included. Weight and height were directly measured. Patients were divided into two groups: 1. Patients without DO (DO-), and 2. Patients with DO identified in UDS (DO+). The statistical analysis was performed on Prism 6 software (Graphpad®). Mann-Whitney U test and Chi-Square test were used for comparison of quantitative and qualitative outcomes, respectively. The significance level adopted was 5 % (alpha < 0.05).

Results

At the time of this analysis, 486 (range 21 to 84 years-old) women were enrolled in this study. The data is presented in Table 1. The presence of DO was associated with higher body mass index (BMI) and previous hysterectomy (any route). There was no difference in age, parity, diabetes, bulge symptoms, previous mid-urethral slings and urodynamic stress incontinence (USI) between the groups. With regard to urodynamic parameters, the presence of DO was also associated with higher initial residual urine, opening pressure, pressure at maximum flow (Pes det Max), and pressure at standing (Pes Det Standing). The maximum flow rate (Qmax) and voided volume were not different in between groups.

Table 1: Clinical data and urodynamic features of non-neurogenic women investigated for urinary incontinence and/or voiding dysfunction.

	DO (-)	DO (+)	U value	P value
BMI [Median (n)] *	25.75 (206)	27.3 (280)	24477	0.004
Age (Years) [Median (n)] *	52.0 (195)	53.0 (268)	24961	0.41
Parity [Median (n)] *	2.0 (147)	2.0 (219)	15346	0.43
Vaginal Deliveries [Median (n)] *	2.0 (131)	2.0 (192)	12186	0.62
Diabetes (Yes/No) †	10 / 194	10 / 135		0.43
Hysterectomy (Yes/No) †	10 / 130	26 / 133		0.01
Bulge Symptoms (Yes/No) †	50 / 51	100 / 115		0.62
Previous TVT (Yes/No) †	12 / 132	13 / 195		0.45
USI (Yes/No) †	81 / 125	89 / 191		0.09
Urodynamics Features	Median (n)	Median (n)		
Q Max (ml/s) *	27.0 (115)	25.0 (109)	5864	0.40
Voided Volume (ml) *	321 (111)	309 (110)	5475	0.18
Residual volume (ml) *	30.0 (105)	50.0 (106)	4382	0.007
Opening Pressure (cmH2O) *	20.0 (174)	25.0 (242)	16681	0.0003
P Det Max (cmH2O) *	5.0 (121)	14.0 (238)	5500	<0.0001
P Det Standing (cmH2O) *	7.0 (60)	9.0 (84)	1804	0.003

* Mann Whitney Test ; † Chi-Square test

Interpretation of results

Previous hysterectomy as well as overweight and/or obesity may be risk factors for idiopathic detrusor overactivity and hence justifying development of subsequent urinary incontinence in these cases. Parity and number of vaginal deliveries do not appear to influence the onset of DO. Although previous studies have associated diabetes and aging as risk factors for OAB, these were not confirmed in the present study (2). Urodynamic features mainly related to bladder emptying may be relevant to the onset of DO in women with LUTS. These results occurred without apparent interference of previous mid-urethral sling, bulge symptoms and stress urinary incontinence (3).

Concluding message

Gaining weight and hysterectomy as well as greater effort required to empty the bladder might be potential risk factors for DO in neurologically normal women. As this is an observational study results should be interpreted with some caution and confirmed in further large studies.

References

1. Incontinence. 5th Edition, 15-107, 2013.
2. BJOG 111: 600–604, 2004.
3. Obstet Gynecol, 109: 1396, 2007.

Disclosures

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