



735. INFLUENCE OF DETRUSOR UNDERACTIVITY ON LOWER URINARY TRACT SYMPTOMS IN WOMEN WITH PELVIC ORGAN PROLAPSE

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Introduction

To assess the relationship between detrusor underactivity (DUA) and lower urinary tract symptoms (LUTS) in women with symptomatic pelvic organ prolapse (POP).

Materials and Methods

This was a prospective study recruiting women with symptomatic POP, quantified by POP quantification system (POP-Q). Inclusion criteria were: any symptomatic POP, Stage ≥ 2 according to POP-Q system. Women were stratified according to POP-Q system in the following standardized staging: i) Stage 2, ii) Stage 3; iii) Stage 4. Due to the lack of standardized UD parameters for female DUA, we considered DUA women the patients with UD characteristics who met at least one of the following criteria, which are the main ones reported in the literature: i) Pdet@Qmax ≤ 10 cm H₂O and Qmax ≤ 12 mL/s (Jeong et al.); ii) Pdet@Qmax < 30 cm H₂O and Qmax < 10 mL/s (Abarbanel and Marcus); iii) Pdet@Qmax < 20 cm H₂O and Qmax < 15 mL/s and BVE $< 90\%$ (BVE criteria); iiiii) Pdet@Qmax < 20 cm H₂O + Qmax (PIP1 Griffiths). Women could be included in multiple DUA groups according to used DUA criteria. The control group (CG) was comprised by women with symptomatic POP and non-DUA. LUTS were recorded. Statistical analysis included: Chi-square test, T-test.

Results

Data were collected on 330 women with symptomatic POP (mean age 63.7 \pm 18.4 y.o.). Anterior vaginal wall defect (cystocele), and apical defect (uterine/vaginal vault) were 301 (91.2%); while posterior vaginal wall defects (rectocele and enterocele) were 29 (8.8%). According to the chosen UD criteria, DUA was found in 166 females (50.3%), while in the remaining 164 women (49.7%) normal detrusor contractility in the voiding phase was demonstrated. The difference between these latter two groups was not statistically significant (p 0.9). In DUA-G main UD data were: mean Pdet/Qmax 11cmH₂O, mean Qmax 10ml/s, mean PVR 190ml. In CG, mean Pdet/Qmax was 20cmH₂O, mean Qmax 15ml/s, mean PVR 70ml. Rates of main storage and voiding LUTS were significantly higher in DUA-G, except for slow stream that did not reach any statistical difference between groups (Table 1). In table 2 is reported the stratification of women according to POP-Q stages in the overall group, in the DUA group and in the non-DUA group.

Comparison of DUA and non-DUA females according to the POP-Q stages showed that a significantly higher rate of POP-Q stage 4 was found in DUA women, while the prevalence of POP-Q stage 2 and 3 was not statistically different between females with detrusor underactivity and normocontractility.

Interpretation of Results

In women with POP, LUTS are supposed to be related to an obstructive mechanism. However, the higher rate of LUTS in DUA-G indicates that also the detrusor impairment may have a role. DUA may be related to chronic bladder outlet obstruction (BOO), but also to an overstretching of muscle fibers caused by bladder descensus that may reduce their efficiency in contractility. DUA may be the result of a more prolonged BOO and a longer damage on the bladder wall and detrusor, causing also greater storage disorders. For this reason, it is likely that women with a history of POP-Q stage 4 showed higher rate of DUA. Women with normal detrusor may have suffered minor damage and this could explain lower rate of storage LUTS. Voiding symptoms were prevalent in DUA-G, and this is likely due to the concomitant negative influence of BOO and detrusor impairment. Preoperative UD may be useful to diagnose the etiopathogenetic mechanism of LUTS and better tailor surgical counselling. Surprisingly, DUA was approximately equally distributed in the lower POP-Q stages (2 and 3). Thus, women suffering from each POP-Q stage may already have had a detrusor impairment caused by a chronic bladder outflow obstruction. The voiding symptoms of these patients may not be due solely to the obstructive effect of POP, but also to an underlying DUA condition.

Symptoms	DUA n 166	Control group n 164	p
Slow stream pts (%)	130 (78.3%)	78/164 (47.3%)	0.1
Straining pts (%)	81 (48.8%)	65 (39.6%)	0.008
Hesitancy pts (%)	69 (41.6%)	56 (34.1%)	0.004
Urgency pts (%)	129 (77.7%)	107 (65.2%)	0.05
Frequency pts (%)	117 (70.5%)	75 (45.7%)	0.08

Table 1: different LUTS prevalence between DUA-G and CG.

	Overall population	DUA women	Non-DUA women	p
# of patients	330	50.3% (166/330)	49.7% (164/330)	0.9
POP-Q stage				
* 2	56.4% (190/330)	45.2% (84/186)	54.8% (102/186)	0.3
* 3	33.3% (110/330)	50.9% (56/110)	49.1 (54/110)	1
* 4	10.3% (34/330)	76.5% (26/34)	23.5% (8/34)	0.008

Table 2. Detrusor underactivity (DUA) and normal detrusor contractility (No DUA) incidence in women with pelvic organ prolapse (POP) staged by Pelvic Organ Prolapse Quantification system (POP-Q).

Conclusions

Our data showed higher rates of LUTS in POP women with DUA. This finding highlight that emptying disorders may be only partially due to POP-related BOO, while in a non-negligible percent of women they may depend also on detrusor impairment.