319

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OBJECTIVE DIFFERENCES BETWEEN OVERACTIVE BLADDER PATIENTS WITH AND WITHOUT URODYNAMICALLY PROVEN DETRUSOR OVERACTIVITY

Hypothesis / aims of study

Overactive bladder (OAB) is a syndrome defined by the presence of urinary urgency in the absence of identifiable pathology. Detrusor overactivity (DO) is thought to be the main mechanism responsible for this symptom. Urodynamics testing (UDS) is often performed in OAB patients to identify the presence of DO, although DO is missed by UDS in approximately 50% of patients (1). Some investigators have identified clinical differences between OAB patients with and without urodynamically proven DO (2). The purpose of this study is to identify, in a female OAB population, differences in subjective and objective measures between patients with and without urodynamically proven DO.

Study design, materials and methods

A retrospective chart review was performed on 146 women with OAB. Exclusion criteria included: an overt neurological condition (e.g. multiple sclerosis, stroke, spinal cord pathology) or other condition that could affect sensation (e.g. diabetes), pure stress incontinence, painful bladder syndrome, or incomplete data. Patients with subjective mixed incontinence were included if their urge component predominated. No patient had greater than stage 2 vaginal prolapse (beyond hymenal ring), post-void residual urine volume greater than 100mL or abnormal bladder compliance. All patients completed an AUA symptom score (AUASS) as well as 48 hour bladder diary documenting voided volumes and incontinent episodes, and degree of urgency to void using the Indevus Urgency Severity Scale (IUSS, 0 - no urgency, 1 - awareness of urgency, but is easily tolerated and you can continue with your usual activity or tasks, 2 - enough urgency discomfort that it interferes with or shortens your usual activity or tasks, 3 - extreme urgency discomfort that abruptly stops all activity or tasks). Average voided volumes were calculated for each IUSS grade. All patients underwent multichannel UDS consisting of medium fill cystometry (30-50mL/min) via a 6F double lumen urethral catheter and a rectal catheter to measure abdominal pressure. Patients were instructed to report the different levels of increasing bladder sensation as per the ICS recommendations and the volumes at which these sensations occurred were noted. Patients were considered to have abnormal urodynamic bladder sensation if there was >1 sensory level missing (3). DO was diagnosed when there was any rise in the detrusor pressure associated with an urge to urinate or incontinence, with or without provocation. Leak point pressure (VLPP) testing was also performed in all patients to detect stress incontinence and the lowest valsalva leak point pressure (absolute pressure) was recorded. The studies were interpreted by either of 2 urologists with fellowship training in UDS.

We compared demographic, symptom score, bladder diary and urodynamic variables between patients with and those without urodynamically confirmed DO using non-parametric tests (Wilcoxon rank-sum test for continuous variables, Fisher's exact test for categorical variables) and the level of statistical significance was set at $P<0.05$).

Results

DO was identified urodynamically in 79/146 (54.1%). Patients with DO were significantly older (mean 61.8 yrs vs. 50.8 yrs, p=0.01) and more likely to complain of incontinence (100% vs. 83.5%, p<0.001). There were no significant differences in AUASS (broken down for each symptom) between groups.

Table 1. Bladder Diary Variables (means)

	With DO	Without DO	p
24 hr frequency	9.9	10.8	0.16
24 hr urine output	1795.2	2320.3	0.01
Avg voided vol/void	191.5	229.2	0.41
Max voided vol/void	376.5	475.6	0.01
# daily incont episodes	4.6	3.6	0.03
Daily pad use	4.4	3.3	0.02

Table 2. Mean IUSS Volumes on Diary (mL)

IUSS	With DO	Without DO	p
0	132.6	144.8	0.62
1	171.0	201.5	0.17
2	198.8	236.8	0.23
3	228.4	322.4	0.009
Avg IUSS/void	1.8	1.8	0.85

Table 3. UDS Results

Avg vol (mL) at:	With DO	Without DO	p
FS	83.7	112.9	0.21
ND	125.6	164.6	0.21
SD	166.9	261.4	0.0001
U	174.9	354.8	0.0001
Abnormal sensation	27	1	<0.0001

SUI present	33	29	0.87
Avg VLPP	101.8	115.9	0.21

Interpretation of results

We found that, despite complaining of similar symptoms, there are objective differences between OAB patients with and without urodynamically proven DO. DO patients tend to be older and more incontinent, similar to the findings of Haylen et al (2). On bladder diary, no differences were noted in urinary frequency, average voided volume or lower grade IUSS volumes which may simply reflect behavioural adaptation. The significantly lower 24 hr urine output in patients with DO is consistent with this (i.e. fluid intake restriction). However, DO patients were also noted to have significantly smaller bladder storage capacities for the highest degrees of urge, both on diary and UDS, and are more likely to have abnormal bladder sensation (odds ratio 34.27, 95%CI:4.51, 260.6), even when adjusting for age (OR=30.8, 95%CI:3.9, 239.9). Taken altogether, these results suggest a greater disturbance of bladder functioning in patients with urodynamically proven DO.

Concluding message

Objective differences do exist between OAB patients with and without urodynamically proven DO. These differences suggest a greater disturbance of bladder functioning in patients with urodynamically proven DO.

References

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