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TOWARD A FURTHER CLASSIFICATION OF IDIOPATHIC PHASIC DETRUSOR OVERACTIVITY

Aims of Study

According to the latest ICS terminology, detrusor overactivity is no prerequisite in the definition of overactive bladder syndrome (OAB) (1). During cystometry, detrusor overactivity (DO) can only be found in 40-60% of patients with OAB symptoms (2). DO can be qualified according to cause in neurogenic detrusor overactivity and idiopathic detrusor overactivity or according to pattern of occurence in phasic detrusor overactivity (PDO) and terminal detrusor overactivity (TDO)(1). TDO is more suggestive for a neuropathic bladder dysfunction because patients with TDO have a high incidence of positive ice water tests, impaired sensation of bladder filling and involuntary start of micturition, signs suggestive for neuropathy (3,4). However in patients with PDO, extensive neurological investigation also revealed some neurogenic impairment in a large group (5), which shows the need for further classification. Because DO is often attributed to changes in the afferent nervous system, we investigated whether the ability to feel the involuntary detrusor contraction (IDC) in patients with idiopathic DO, can be used as a parameter for further classification.

Methods

Fifty-three patients (29 women – 24 men, mean age??) with OAB symptoms who showed PDO on conventional cystometry were studied. During cystometry, patients were asked to describe all sensations related to bladder filling. If a IDC was felt, DO was categorized as "sensation associated DO". Excluded were patients with the following signs suggestive for neuropathic bladder impairment: involuntary start of micturition, positive ice-water test and bladder sensory threshold > 20 mA. Patients with urinary infection, determined on urine analysis were also excluded. Parameters studied were: number of IDC, volume and amplitude of 1st IDC, amplitude of highest IDC and maximal cystometric capacity (MCC). The pattern of filling sensation was qualitatively evaluated. As proposed by the ICS terminology, a normal pattern was defined as presence of a first sensation of filling, first desire to void and strong desire to void. Consequently absence of one or more sensations was defined as an abnormal pattern of filling sensation (1). Furthermore standardized electrical sensory thresholds were determined on the arm, bladder, proximal and distal urethra. Because currently, no methods to determine standardized electrical thresholds have been described in males, the determination of electrical thresholds was limited to the women included.

Results

Twenty-nine patients (18 women – 11 men) did not feel any IDC ("non sensation associated DO), whereas 24 patients (11 women – 13 men) felt at least one IDC ("sensation associated DO). Age and sex was not different between the two groups (P > 0.1). Urodynamic parameters are compared in table 1. Evaluation of the pattern of filling sensation showed an abnormal pattern in 72% in the group with non sensation associated DO, whereas an abnormal pattern was only found in 33% in the other group (X^2, P = 0.004).

Table 1

	Non sensation associated DO	Sensation associated DO	P (MWU test)
Number IDC	2.8 ± 1.3	1.6 ± 0.7	0.0003
Vol 1st IDC (mL)	111 ± 53	235 ± 103	0.000001
Amplt 1st IDC (cmH2O)	15 ± 5	12 ± 6	0.024
Amplt highest IDC (cmH2O)	23 ± 7	15 ± 7	0.00003
MCC (mL)	220 ± 86	346 ± 108	0.00002

Table 2 compares the results from the standardized electrical thresholds in females (N = 29).

Table 2

	Non sensation associated DO	Sensation associated DO	P (MWU test)
Arm (mA)	2.0 ± 0.4	2.0 ± 0.5	0.74
Bladder (mA)	10.8 ± 2.1	8.4 ± 2.1	0.006
Proximal urethra (mA)	6.5 ± 1.7	4.4 ± 1.2	0.003
Distal urethra (mA)	3.0 ± 0.9	2.2 ± 0.4	0.013

Conclusions

The results from our pilot study show that patients with OAB symptoms who have urodynamically proved idiopathic PDO do not form a homogeneous group. Based on the ability to feel IDC, two distinct groups can be identified with significant differences in urodynamic DO parameters. Whether non sensation associated DO and sensation associated DO represent two different entities or are different severity grades of the same entity needs to be further studied. However, in patients with non sensation associated DO, the lower urinary tract is significantly less sensitive to electrical stimulation and filling sensation is significantly more disturbed, compared to sensation associated DO. These signs may suggest more neurogenic lower urinary tract impairment in this group. Further neurologic investigation is warranted in these patients.

References

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