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Yamanishi T[1], Mizuno T[1], Yasuda K [1], Yoshida K[1], Kitahara S[1], Sakakibara R[2], Uchiyama T[2], Hirakawa S[3]
1. Dokkyo University, 2. Chiba University, 3. Kasumi General Hospital

THE REPRODUCIBILITY OF AMBULATORY URODYNAMIC FINDINGS IN ASYMPTOMATIC, YOUNG AND HEALTHY MALE VOLUNTEERS

Hypothesis / aims of study

At present, conventional urodynamic study has been used for assessment of lower urinary tract function. However, disagreement in the urodynamic and symptomatic diagnosis in 19% to 44% of cases supports the common maxim that the bladder is an unreliable witness and has provided a strong argument for routine urodynamics for investigating and defining lower urinary tract disorders. The reproducibility of this method has also been disputed [1].
Recently, ambulatory urodynamics has been reported to detect detrusor overactivity more accurately than conventional urodynamics, and a high correlation of subjective symptoms with ambulatory urodynamic findings has been reported [2].
It has also been reported that detrusor overactivity is not specific to overactive bladder and is found in the volunteers without symptoms. However, these reported volunteers included aged subjects, and thus it is not clear whether asymptomatic young adults have detrusor overactivity. The aim of the present study is to assess the presence of detrusor overactivity and reproducibility of ambulatory urodynamic findings in asymptomatic, young and healthy male volunteers.

Study design, materials and methods

Fifteen asymptomatic healthy male volunteers (medical school students and young doctors) with a mean age of 25.5(range 22-28 years) were assessed with ambulatory urodynamic studies. According to the standardisation of ambulatory urodynamic monitoring by ICS subcommittee [3], ambulatory urodynamic study was performed by natural-filling cystometry followed by pressure/flow study, which was repeated 3 times. Presence of detrusor overactivity and the urodynamic parameters such as voided volume, maximum flow rate (Qmax), opening pressure and detrusor pressure at maximum flow (PdetQmax) were evaluated for 3 repeated studies. Paired t-test was used to analyze the differences in these urodynamic parameters.

Results

Detrusor pressure was difficult to interpret due to poor subtraction of abdominal pressure in 2 subjects, but they did not seem to demonstrate detrusor overactivity or low compliance bladder. All of the other subjects showed stable bladder during filling phase.
Some pressure/flow studies could not be performed due to technical errors such as splitting urine out of the cup or expelling of the catheter, or discomfort during voiding. Three repeated pressure/flow studies could be assessed in eight subjects and only two studies could be assessed in two subjects. Mean voided volume was significantly greater in the 3rd flow than in the 1st one. However, Qmax, opening pressure and PdetQmax were similar among the 3 flows in the same individuals. BOOI varied with a wide range (-51 to 43), but was within the normal range (<40) excluding two subjects whose detrusor pressure was not correctly recorded due to poor subtraction of abdominal pressure.

Results of pressure/flow parameters were summarized in the table.

Interpretation of results

Pressure/flow parameters were various depending on individuals, and detrusor pressure was difficult to interpret due to artefact, poor subtraction of abdominal pressure in some subjects. However, these parameters among the individual three flows seemed similar and did not change significantly.

Table

	Voided Volume (ml)	Qmax (ml/sec)	OP (cmH2O)	p detQmax (cmH2O)	BOOI
1st study					
Mean	165.2	28.2	42.2	42.7	1.73
SD	68.5	16	20.4	18	48.5
2nd study					
Mean	205.8	25.2	40.2	41.5	8
SD	105.5	13.9	18.5	12.6	31.4
3rd study					
Mean	275.5*	30.4	36.8	37.4	2.89
SD	94.9	15.5	18.7	21.5	49.8
	*p<0.05(vs 1st)	NS	NS	NS	NS

OP:Opening pressure; BOOI=pdetQmax-2Qmax

Concluding message

Bladder function was stable in the asymptomatic, healthy and young male volunteers.
Although measurement of detrusor pressure was difficult to perform in some patients, the ambulatory urodynamic study seems to be reproducible if measured with the similar voided volumes.

References

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