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VALUE OF FLOW PATTERN IN THE DIAGNOSIS OF LOWER URINARY TRACT FUNCTION IN WOMEN

Aims of Study

Normal voiding is defined by the ICS (1) as a voluntarily initiated continuous detrusor contraction that leads to compete bladder emptying within a normal time span, and in the absence of obstruction. Abnormal micturition consists of all aberrations of the above.
It is a generally accepted assumption that normal micturition behaviour is reflected in a normal flow pattern on free flow (2). This would also mean that a normal uroflow test would correspond with normal voiding and permits to exclude voiding difficulties (3). Abdominal straining is defined as the muscular effort used to initiate, maintain or improve the urinary stream. Using abdominal straining to void is thought to result in a reflex contraction of the pelvic floor and thereby an interruption of the flow pattern.
In this study we investigated the correlation between voiding behaviour and flow pattern in women.

Methods

We included 126 women with stress urinary stress incontinence (SUI), 51 women with bladder overactivity (BOA) and 15 asymptomatic female volunteers of matching age. All women were asked to attempt with a full bladder to void on the free flow. Afterwards they underwent a standard 6-channel pressure flow examination with explicit attention to the permictional abdominal pressure changes.

Several flow curves are defined (2) and presented in the figure . The normal flow curve is bell-shaped, with a steep acceleration and deceleration. The undulating flow curve is unbroken, but characterized by a less steep acceleration and deceleration. Flow fluctuates during voiding without reaching zero before the end of voiding. A fractionated flow curve is the result of a micturition in several times. The flow falls to zero in between the flow episodes. The long curve -low Qmax pattern is the 4th pattern.

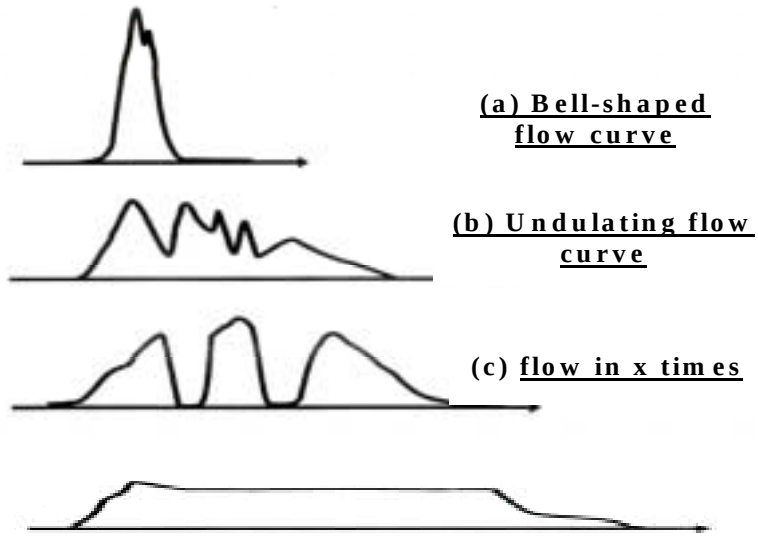

Figure 1: different flow curves

Results

We included women of matching age. The mean age was 56,5 years (30- 83) in the SUI group, 50 years in the volunteers (40- 60) and 56,6 years in the OAB group (25- 82).
Only 39 stress incontinent women and 13 women with BOA were able to void at least 100 ml both on free flow and pressure flow metry. Only 10 of the 15 volunteers could be included because of the voided volume.

The flow pattern in free flow and pressure flow is described in table 1.

Table 1: Flow pattern

Flowtype	***Free flow***						***Pressure flow***					
	volunteers n=10		***SUI n=39***		***BOA n=13***		***volunteers n=10***		***SUI n=39***		***BOA n=13***	
	n	**%**	**n**	**%**	**n**	**%**	n	%	n	%	n	%
Normal bell-shaped	9	90	27	69	9	69	9	90	17	43	8	61
undulating	0	0	11	28	2	15	0	0	16	41	3	23
voided in x times	1	10	1	3	1	8	0	0	3	8	1	8
long + low Qmax	0	0	0	0	1	8	1	10	3	8	1	8

That the flow pattern in free flow and pressure flow only does not correlate well especially in the patients, demonstrates again the importance to repeat the flow and the danger to get into conclusions after one single flow.

The abdominal straining behaviour, related to the flow pattern is given in table 2.

Table 2: abdominal pressure related to the flow pattern

	abdominal pressure	***normal flow pattern***	
	n	***n***	***%***
volunteers n=10	7	6	86
SUI n=39	18	13	72
BOA n=13	3	2	67

Conclusions

It is generally accepted that an abnormal micturition habit is reflected in an abnormal flow pattern on free flow. Our study demonstrates that an abnormal voiding habit can result in a normal flow pattern.
We can conclude that the flow pattern is not an appropriate tool to exclude abnormal voiding behaviour in women.
Repeated flows are needed to best define the patient's flow pattern.

References

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