

INITIAL PHASE OF THE DEVELOPMENT OF A SENSITIVE AND SPECIFIC QUESTIONNAIRE FOR VOIDING DYSFUNCTION, COMPARISON WITH IPSS AND SELF-SCORED VOIDING FUNCTION.

Hypothesis / aims of study

Various symptom questionnaires exist to standardize evaluation of lower urinary tract dysfunction. The domain of the majority of the questionnaires is (bladder storage function and/or) urinary incontinence. Apart from the IPSS (or AUA) symptom score, designed for elderly male dysfunction no validated scores are available for voiding function. IPSS evaluates the voiding symptoms together with the storage symptoms which is valid because especially in older men the (enlarging prostate causing increasing bladder outflow obstruction and) reducing flowrate may lead to storage symptoms e.g. because of ineffective emptying. Voiding function is however little specifically questioned and both for men but certainly for women the predictive value of questioning is not established. Improved specific questioning of voiding function, also if better applicable for women, would be of help in the stratification and evaluation of management. In women with urinary incontinence or OAB syndrome, as their predominant symptom, sensitive questions could predict the co-existence of voiding dysfunction. Furthermore specific questions may be of help in the diagnosis and evaluation of patients (men and women) with voiding dysfunction other than bladder outflow obstruction. Especially diagnosis and evaluation of management of underactive detrusor function would benefit from this. As a first step in the validation of questions to evaluate voiding function we tested a large set of questions in a wide age range group of persons of both gender.

Study design, materials and methods

We developed a list of questions considered -face valid- to be relevant for the evaluation of voiding, these were preceded by 3 screening questions (current LUT treatment; past relevant surgery or relevant neurological abnormality). Questions about voiding frequency, constipation and urinary tract infection were added and also specifically for men a question about voiding in standing position and for women a question about 'hovering over' the toilet. One question asked to rate voiding (self-score) function on a scale (1-10) which is, for the present analysis, dichotomized in 'good' >5 and bad <6. The core -new- questions on voiding (n=22) detailed -in diverse terms and ways- on perceived stream rate, on ease of beginning to void, continuity of the voiding and the ending of the voiding all on a six point (0-5) scale. The standard IPSS questions were also added. Ethical Board review of the questionnaires permitted, without further formal ethical review, to ask inpatient and outpatient -accompanying persons and patients to complete the questionnaire without further written consent.

Results

This initial draft questionnaire was evaluated on the basis of the first 460 sets. Not all questions were answered e.g. missing gender (4,2%) and or age (5,7%). 232 respondents were male (mean age 61 y) and 203 female (mean 49 y). At least 30 persons were included in every 10y age group between 20 and 70y. 12% of persons had current or past relevant treatment or neurology. Of all male and female; 343 persons self-scored 'good' function (≥ 6) and 62 <6 = 'bad'. The significant differences within the gender categories between bad and good in table 1. The scores of the questions with the largest (significant) differences between good and bad voiding function for men and for women are shown in table 2. Column heads 'summarize' the question; empty cells: no difference, higher score; 'more problems'

Not shown in the tables: All men scored 8.8 on average on IPSS and all women 6.3. Largest differences were slow stream and intermittency. Of all persons self-scoring 'good' function; men had mean IPSS 7.3 and women 5.6 and when self-scoring 'bad': men scored IPSS 15.1 and women 12.1. Most important men versus women difference in IPSS both in good as in bad function was slow stream. If the self-scoring was compared with IPSS all IPSS questions were significantly different between self-score >5 'good' and <6 'bad'. Even when persons were self-scoring ≥ 9 points for voiding function the mean IPSS was 4.1 with on average 2 point for frequency and nocturia. Correlation between IPSS questions and self-score was high (r .500) and significant (p .000), but Pearson r was somewhat lower in women: r .350.

Interpretation of results

The IPSS questionnaire is very sensitive for lower urinary tract dysfunction and has a high correlation with patients perception of dysfunction, however also scores up to 7 correlate with patients perception (self-score) of 'good' function. The weight of the questions considering voiding frequency and nocturia seems high. This study has tested a large set of questions other than the IPSS questions; face valid to specifically ask about voiding function (and lesser about storage function).

We can only show the most significant difference between the scoring on these questions against self-scoring. In a group with only 15% persons with (self-perceived) 'bad' voiding functions the significant differences between 'good' and 'bad' demonstrate that the questions are fairly sensitive. Sensitive questions are suitable for screening purposes but (as in IPSS) there may be a rate of false positives. Because self-score (nor IPSS) as the comparator in this study, is the golden standard for the diagnosis of lower urinary tract or voiding dysfunction we cannot conclude about the predictive value of the 'new questions'.

Concluding message

Statements or questions like: 'If I had to postpone a longer time, voiding is slower after that'; 'If I void some portions will follow after the first portion'; 'Voiding is slower on a public toilet.'; 'If I strain during voiding the stream stops or reduces.'; 'I go to the toilet and there is no result, no voiding.'; 'If I go up in the morning I void in a few portions.'; 'If I start voiding the stream is very slow'; 'If I compare with two years ago the voiding takes more time.' may prove to be relevant in the more specific evaluation of voiding

function. Further testing for redundancy, criterion validity and or predictive value of the questions against the golden standard diagnosis (in a more diseased population) should follow to appreciate the clinical value of specific voiding function questioning.

Table 1	Slower night	Slow void	Not intermittent	Worse after ++ urge	dribbling	Public toilet worse	Straining not helpful	To toilet in vain	Double voiding
Men ≥6	1.52	1.35	2.98	0.97	2.09	0.60	0.67	0.49	0.50
Men <6	2.67	3.03	2.17	2.50	3.17	1.97	1.56	1.26	2.03
Women ≥6		0.90	3.47		1.50		0.53		0.61
Women <6		2.04	2.28		2.92		1.26		1.33

Table 2	Slow void	Not intermittent	Dribbling	Public toilet	Slow start	Slower than 2y ago	Public toilet worse	Worse after ++ urge	To toilet in vain
Men ≥6 'good'	1.35	2.98	2.09	1.00	1.28	1.23			
Women ≥6 'good'	0.90	3.47	1.50	1.36	0.99	0.78			
Men <6 'Bad'					2.47	1.97	2.03	2.50	0.49
Women <6 'Bad'					1.44	1.00	0.92	1.56	0.66

Table head term	Question /statement:	Code: 0-5
Slower night	If I void in the night this is slower than during daytime hours	Never(0); often(3); always(5)
Slow void	If I void this goes slow	"
Not intermittent	I void in one portion without interruptions	"
Worse after ++ urge	If I had to postpone a longer time, voiding is slower after that	"
Dribbling	If I void some portions will follow after the first portion	"
Public toilet worse	Voiding is slower on a public toilet	"
Straining not helpful	If I strain during voiding the stream stops or reduces	"
To toilet in vain	I go to the toilet and there is no result, no voiding	"
Double voiding	If I go up in the morning I void in a few portions	"
Slow start	If I start voiding the stream is very slow	"
Slower than 2 y ago	If I compare with two years ago the voiding takes more time	"

Disclosures

Funding: department **Clinical Trial:** No **Subjects:** HUMAN **Ethics Committee:** University Medical Center Utrecht Medical Ethical Committee **Helsinki:** Yes **Informed Consent:** No