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VALIDATION OF A NEW SCREENING INSTRUMENT FOR ASSESSMENT OF URINARY INCONTINENCE IN WOMEN: THE SELF-ASSESSMENT LEAKAGE CIRCUMSTANCES QUESTIONNAIRE (LCQ)

Hypothesis / aims of study
There are several validated instruments design to measure symptom severity and degree of bother, in case of urinary incontinence (UI) in women, such as the Urogenital Distress Inventory (UDI) and Incontinence Impact Questionnaire (IIQ). Admittedly, these instruments do not assess finely urinary leakage circumstances. For example, the brief effort dimension correlates with question #3 of the UDI-6, which combines three components into a single question, “Do you experience leakage of urine related to coughing, sneezing and laughing” instead of evaluating each circumstance (coughing, sneezing, and laughing) independently. In addition, many of the other leakage events are not represented on these validated questionnaires. Our team has previously developed the Leakage Circumstances Questionnaire (LCQ), a self questionnaire to characterize leakage circumstances in women consulting for urinary incontinence [1]. The aim of the present study was (i) to test the data quality, scaling assumptions, scoring algorithms and structure of the questionnaire underlying the leakage circumstance questionnaire (ii) to test construct validity by examining the association between each dimension score and patients clinical or urodynamics characteristics.

Study design, materials and methods
We conducted a prospective analysis of 215 consecutive patients operated for SUI by suburethral sling between April 2007 and December 2011. Each one was evaluated using a self assessed questionnaire recording leakage occurrence in 23 casual circumstances (table) rated in a four class response rating from “No, not at all”, to “Yes, a lot”. Other preoperative data were assessed by clinical and urodynamical examination. Principal components analysis was performed to determine the dimensions for leakage circumstances. Cronbach's α for each was calculated to assess the internal consistency for each dimension. Construct validity was assessed by testing predefined hypotheses about relationship between leakage circumstances and definite clinical or urodynamics conditions.

Results
189 patients responded the questionnaire (87.9%). Missing response rates ranged from 22.2 % (sneezing) to 42.3% (having sex, and orgasm). Among the leakage circumstances, the principal components analysis permitted to distinguish 4 stable dimensions (table): leakage occurring while efforts (i. e. coughing; sneezing, laughing, running, sport, lifting…Cronbach’s alpha = 0.89), under stimulating circumstances (contact with water, arriving near the toilets, cold, fear, urge…; Cronbach’s alpha = 0.81), while changing position (i. e. Standing, leaving bed, leaning forward..; Cronbach’s alpha = 0.72) and with sexe (during intercourse and orgasm; Cronbach’s alpha = 0.69). Several items (walking, going up or down stairs, while sleeping) were found to have different sense among women.
For each patient, dimension scores were determined as the sum of the item values within their own dimension. The effort dimension score decreased with aging (r = -0.35; p<.0001), increased with visual analog scale for bothersome (r=0.53; p<.0001), increased with the amount of urinary leakage (r=0.43; p<.0001), increased with the degree of stress incontinence assessed by the physician (r=0.542; p<.0001). The stimulation dimension, increased with visual analog scale for bothersome (r=0.30; p=.0001)), increased with the amount of urinary leakage 0.26; p=0.001, decreased with increasing [le délai de retenu] (r=-0.35; p<.0001), increased with the degree of urge incontinence assessed by the physician (r=0.53; p<.0001). The position dimension score increased with visual analog scale for bothersome (r=0.45; p<.0001), increased with the amount of urinary leakage (r=0.50; p<.0001), decreased with increasing time to delay passing urine (r=-0.26; p=.0008), increased with the degree of urge incontinence assessed by the physician (r=0.50; p<.0001), increase with the degree of stress incontinence assessed by the physician (r=0.42; p<.0001), decrease with increasing MUCP (r=-0.17, p=0.0238), The sexual dimension only showed a slight correlation with the degree of stress incontinence assessed by the physician (r=0.14; p<.0001). Patient with intrinsic sphincter deficiency (MUCP < 30 cm H20) had higher position dimension scoring than other patient.

Interpretation of results
Our results suggest that more than 2 different mechanisms might be involved in female urinary incontinence. The LCQ allows distinction between classical effort that relate to important increase of abdominal pressure and a positional domain that may relate to minor increase of abdominal pressure suggesting the role of sphincter deficiency. Similar finding was found out [1]. The four dimensions are consistent with common sense and physiopathology and very meaningful for the clinician. They are already used in everyday practice to evaluate urinary incontinence as recommended by the Standardization and Terminology Committees IUGA-CS: the effort dimension which corresponds to *stress incontinence* and the stimulation dimension score which is comparable to *urge incontinence*, the positional dimension relates to the *postural* incontinence, while the sexe dimension relate to *coital incontinence* [2]. The LCQ provide an atheoritical manner to measure in routine the extent of each of these four domains.

Concluding message
The leakage circumstance questionnaire may be valid for the pre-operative assessment of women with stress urinary incontinence and mixed urinary incontinence. If our hypothesis postulating that leakage circumstances are related to specific mechanisms is correct, leakage circumstances should constitute prognostic factors to predict the success of the suburethral sling procedure.

Table: Principal components analysis of the leakage circumstances questionnaire (varimax orthogonal rotation). The strongest correlation of a circumstance to a dimension appears in bold.

Circumstance	Effort dimension	Stimulation dimension	Position dimension	Sexual dimension
Coughing	**0.79**	0.10	0.05	0.27
isolated cough	**0.82**	0.16	0.04	0.19
Sneezing	**0.86**	0.15	0.02	0.12
Laughing	**0.67**	0.14	0.38	0.11
Running, or jumping	**0.85**	0.06	0.04	0.07
Sport or physical activity	**0.84**	0.11	0.06	-0.08
Lifting or carrying something	**0.67**	0.10	0.31	-0.06
Having sex	0.20	-0.01	0.21	**0.85**
Walking up or down stairs	0.42	0.11	**0.59**	-0.13
Walking	0.45	0.14	**0.50**	-0.03
Getting out of bed or up from a chair	-0.02	0.28	**0.67**	0.14
Leaning forward, kneeling or crouching	0.24	0.19	**0.66**	0.02
The noise of water running	0.09	**0.78**	0.19	0.08
Contact with water	0.15	**0.84**	0.13	0.08
Arriving near a toilet/ Being near to a toilet	-0.12	**0.68**	0.23	0.19
Contact with cold	0.13	**0.78**	0.02	-0.05
Nervousness or stress	0.18	**0.66**	0.25	0.01
Fear	0.20	**0.58**	0.10	-0.03
Orgasm	0.12	0.19	0.05	**0.85**
Urgent need to urinate	0.25	**0.46**	0.39	0.17
Steaky leakage while standing	-0.02	0.25	**0.67**	-0.16
Undetected leakage without urge or physical exertion	0.11	0.05	**0.75**	0.22
Leakage while sleeping	0.02	0.07	**0.50**	0.18

References

1. Fritel X, Fauconnier A, Pigne A. Circumstances of leakage related to low urethral closure pressure. J Urol. 2008 Jul;180(1):223-6.
2. Haylen BT, de Ridder D, Freeman RM, Swift SE, Berghmans B, Lee J, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. Int Urogynecol J. 2010 Jan;21(1):5-26.

Disclosures

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