Updated Definition of Female Lower Urinary Tract Symptoms and Dysfunctions

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INTRODUCTION

In order to promote higher quality of treatment for women with problems of the lower urinary tract in Taiwan, a series of clinical guidelines for management of the lower urinary tract and pelvic floor dysfunction will be set up for helping local primary care providers to follow the relevant principles. The Taiwan Urogynecology Association (TUGA) and Taiwanese Continence Society (TCS) collaborated and invited local experts to a joint panel discussion to find a consensus for upcoming symposiums held in the future. First, "Experts meeting on the management guidelines of female stress urinary incontinence and pelvic floor prolapse" has been held in Kaohsiung on June 3, 2007.

We have been reviewing literature reported by the International Continence Society (ICS) since 1976 regarding the standardization of terminology of lower urinary tract function [1-3]. Initially, recommendations on terminology related to lower urinary tract function were proposed to facilitate comparison of results and enable effective communication by investigators and clinical practitioners. Terms, recommended by the sub-committee of the ICS, have been discussed comprehensively with the committee and agreed upon by committee members. The ICS tried to make terms used for the descriptions of the lower urinary tract function are objective, definable and applicable. In this article, we quote terms and definitions from reports of the standardization sub-committee of the ICS [4] for Taiwanese readers of the innovative medical journal of Incontinence and Pelvic Floor Dysfunction. Hopefully, our work is able to provide informative knowledge and common language for communication of lower urinary tract function to clinicians, clinical or basic researchers, nurses, physiotherapists, as well as other care providers. We also tried our best to make this new terminology easier to understand for the practicing clinician who can incorporate the standardized term into daily practice and research.

UPDATED DEFINITION OF FEMALE LOWER URINARY TRACT SYMPTOMS AND DYSFUNCTIONS

This manuscript focuses on the following areas: lower urinary tract symptoms (LUTS), signs suggestive of lower urinary tract dysfunction (LUTD), and urodynamic observations and conditions in the order reported by the Standardization Sub-committee of the ICS presenting in Neurourology and Urodynamics [4]. In order to match the topic of an updated definition for female stress urinary incontinence in the experts meeting, we only chose the terms from the latest report of the ICS (from 1.1 through 1.3) that describes symptoms which may present in the storage, voiding, and postmicturition phases. Sixteen symptoms with new definitions and three symptoms defined in the first report by the ICS that had some changes in 2002 are listed in Table 1. These terms have been categorized and some comments have been added to help our readers compare to the older terminology. The footnotes from the original article have also been cited and added to the comments portion. In Table 1, analysis and comments by Sand et al [5], for these terms, are added to the comments' column (some of them are labeled "#") to let our readers know the rationale for changes in the terminology.

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URODYNAMIC OBSERVATIONS AND CONDITIONS

In 2002, the ICS proposed that urgency with or without urge incontinence, usually with frequency and nocturia, in the absence of pathologic or metabolic factors are defined as overactive bladder (OAB) syndrome [4]. Theoretically, OAB is characterized by the presence of involuntary bladder contractions that occur during the bladder filling phase despite the patient's attempt to suppress them during urodynamic investigation [3]. However, it is a relatively new term and a symptom syndrome. The diagnosis of OAB is independent of urodynamic diagnosis of detrusor overactivity. In clinical practice, we also found that LUTS rarely occur singly but in combination with other symptoms to form symptom syndromes. In the latest version of terminology, some terms such as motor urgency, sensory urgency, motor urge incontinence and reflex incontinence are no longer recommended by the ICS since they are misused and lack an intuitive meaning.

In this section, we only quote conditions and terms used for diagnosis of lower urinary tract dysfunction by urodynamic investigations including detrusor and urethral function (3.2.2 and 3.2.5) during cytometry, and urethral function during voiding (3.3.4) are classified in Table 2. However, some terms that are used for descriptions of urodynamic techniques are not presented in this manuscript since they will be revealed elsewhere.

CONCLUSION

The standardized terms of symptoms, signs, urodynamic observations and conditions associated with LUTD and urodynamic studies have been reported sequentially and systemically by the ICS in the past three decades. Aims of the Standardization Sub-committee of the ICS are to try to enable effective communication and to facilitate comparison of results by investigators who use urodynamic methods. In this review, we summarized the literature reported by the ICS and con-

Table 1. Terms and Definitions which Descriptions of Lower Urinary Tract Function that have been Quoted from Reports of the Standardization Sub-committee of the International Continence Society 2002

New Terms (after 2002)	Descriptions	Comments
Lower urinary tract symptoms (LUTS) are divided into three groups, storage, voiding, and postmicturition symptoms		
Symptoms	Subjective indicator of a disease or change in condition as perceived by the patient, care or partner and may lead him/her to seek help from health care professionals	Are qualitative as not to be used to make a definitive diagnosis
Signs	Observed by physician including simple means, to verify symptoms and quantify them	In 1976, a classical sign is able to be observed by frequency volume charts, pad test, validated symptoms and quality of life questionnaires; non-validated questionnaires
Urodynamic observations	Observations made during urodynamic studies	Schema of symptoms, signs and conditions are different than conditions; Do not represent a definitive diagnosis, disease or condition; Helps to explain symptoms but does not always define the underlying responsible condition
Conditions	# Prior reports: condition was defined by urodynamics Presence of urodynamic observations associated with characteristic symptoms or signs and/or urodynamic evidence of relevant pathological process	Deemphasizes the necessity of urodynamic testing and adds that other evidence or investigation may be useful
1.1 Storage symptoms	Experienced during the storage phase of the bladder, and include daytime frequency and nocturia	
Increased daytime frequency	Complaint by the patient who considers that he/she voids too often by day Individuals tend to define normative experiences based on their own environments (i.e. patient's perception)	Replaced the old term "frequency" Equivalent to " pollakisuria" Can be as a sign, but may not be as a symptom
Daytime frequency	The number of voids recorded during waking hours and includes the last void before sleep and the first void after waking and rising in the morning	Number of voids recorded on frequency volume charts or bladder diaries
Nocturia	Has to wake at night one or more times to void Voids that occur after the individual has gone to bed, but before he/she has gone to sleep; and voids which occur in the early morning which prevent the individual from getting back to sleep	Not "night time frequency" "Night" may actually be interpreted as whenever one regularly sleeps
Urgency	A sudden compelling desire to pass urine, which is difficult to defer	The additional qualifications of "compelling" and "difficult to defer" enhances the definition
Urinary incontinence	Any involuntary leakage of urine # Not applicable in infants and small children	Removal of the qualifier in the original definition of social and hygiene problem
Stress urinary incontinence	Involuntary leakage on effort or exertion, or on sneezing or coughing # Qualifying potential drivers of urinary leakage- effort, exertion, sneezing or coughing rather than just stating "anything that increases intraabdominal pressure" is problematic	"Stress" was problematic # Because it eliminates other causes of increased intraabdominal pressure like vomiting, and forces clinicians to try to understand whether position change or walking represents "effort or exertion" # How about leakage during coitus?
Urge urinary incontinence	Involuntary leakage (of urine) accompanied by or immediately proceeded by urgency"	More precise than the First Report that said that "urge incontinence was involuntary loss of urine associated with a strong desire to void" # Prior "motor urge incontinence" and "sensory urge incontinence" require urodynamic cystometric investigations
Mixed urinary incontinence	Involuntary leakage of urine associate with urgency and also with exertion, effort, sneezing or coughing	The first part of the definition matches that of the old definition of "urge incontinence" from the First Report and does not reflect the current changes for *urge urinary incontinence* The definition does reflect the changes for *stress urinary incontinence* and suffers from the same limitations listed above
Enuresis	Any involuntary loss of urine	
Nocturnal enuresis	Loss of urine occurring when it is during sleep	
Continuous urinary incontinence	Continuous leakage of urine	
Other types of urinary incontinence	May be situational	Incontinence during sexual intercourse, or giggle incontinence
Bladder sensation	*Normal:* the individual is aware of bladder filling and increasing sensation up to a strong desire to void *Increased:* the patient feels an early and persistent desire to void	

	Reduced: the individual is aware of bladder filling but does not feel a definite desire to void *Absent:* the individual reports no sensation of bladder filling or urge to void *Non-Specific:* the individual reports no specific bladder sensation, but may perceive bladder filling as abdominal fullness, vegetative symptoms or spasticity	# Most frequently seen in neurological patients, particularly those with spinal cord trauma and in children and adults with malformations of the spinal cord
1.2 Voiding symptoms	Experienced during the voiding phase	
Slow stream	The individual as he or she perception of reduced urine flow, usually compared to previous performance or in comparison to others	Correspond to the urodynamic term of obstructive flow, but is a useful addition for the description of patients' symptoms
Splitting or spraying	Descriptions of urine stream	
Intermittent stream (Intermittency)	An individual describes urine flow, which stops and starts, on one or more occasions during micturition	
Hesitancy	Difficulty in initiating micturition resulting in a delay in the onset of voiding after the individual is ready to pass urine	
Straining	Muscular effort is used to either initiate, maintain or improve the urinary stream	
Terminal dribble	A prolonged final part of micturition, when the flow has slowed to a trickle/dribble	
1.3 Post micturition symptoms	Those experienced immediately after micturition	
Feeling of incomplete emptying	A self-explanatory term for a feeling experienced by the individual after passing urine	"Post-Micturition Fullness" described by clinicians in the past
Post micturition dribble	The involuntary loss of urine immediately after he or she has finished passing urine, usually after leaving the toilet in men, or after rising from the toilet in women"	
Symptom syndromes suggestive of lower urinary tract dysfunction (LUTD)		# Can be as empirical diagnoses
Urgency	With or without urge incontinence, usually with frequency and nocturia	# Can be described as the overactive bladder syndrome, urge syndrome or urgency-frequency syndrome
* Micturition, passing urine and voiding: urine being expelled voluntarily from the bladder		
Signs suggestive of LUTD during physical examination		Observation of incontinence
Urinary incontinence	Urine leakage seen during examination	May be urethral or extraurethral
Stress urinary incontinence	The observation of involuntary leakage from the urethra, synchronous with exertion/effort, or sneezing or coughing	Stress Leakage is presumed to be due to raised abdominal pressure
Extra-urethral incontinence	The observation of urine leakage through channels other than the urethra	
Uncategorized incontinence	The observation of involuntary leakage that cannot be classified into one of the above categories on the basis of signs and symptoms	

Table 2. Terms and Definitions which Descriptions of Urodynamic Observations and Conditions that have been Quoted from Reports of the Standardization Sub-committee of the International Continence Society 2002 [5]

Urodynamic observations and conditions		
Detrusor overactivity	Involuntary detrusor contraction during the filling phase which may be spontaneous or provoked	Characterized by an urodynamic observation. No lower limit for the amplitude of an involuntary detrusor contraction The phrase "which the patient cannot completely suppress" has been deleted from the old definition May also be qualified, when possible, according to cause.
Phasic detrusor overactivity	A characteristic wave form, and may or may not lead to urinary incontience	Are not always accompanied by any sensation, or may be interpreted as a first sensation of bladder filling, or as a normal desire to void
Terminal detrusor overactivity	A single involuntary detrusor contraction occurring as cystometric capacity, which cannot be suppressed, and results in incontinence usually resulting in bladder emptying (voiding)	It is typically associated with reduced bladder sensation.
Detrusor overactivity incontinence	Incontinence due to an involuntary detrusor contraction	The old terms "motor urge incontinence" and reflex incontinence" was deleted and no longer recommended. When normal sensation is present urgency is likely to

		be experienced just before the leakage episode # There may be overlap -even in the same patient whom might have phasic contractions early in cystometry and then has a terminal detrusor contraction with a large amount of urinary incontinence
Neurogenic detrusor overactivity	When there is a relevant neurological condition	Replaces the old term "detrusor hyperreflexia"
Idiopathic detrusor overactivity	When there is no defined cause	Replaces the old term "detrusor instability
Incompetent urethral closure mechanism	Leakage of urine in the absence of a detrusor contraction during filling cystometry	
Urethral relaxation incontinence	Leakage due to urethral relaxation in the absence of raised abdominal pressure or detrusor overactivity	Unstable urethra is a confusing term of uncertain significance and was rarely used ICS did not recommend using urethral instability to describe fluctuations in the urethral pressure
Urodynamic stress incontinence	The involuntary leakage of urine during increased abdominal pressure, in the absence of a detrusor contractiond during filling cystometry	Replacement term for genuine stress incontinence # Only people who could perform urodynamics were qualified to make the "genuine" diagnosis
Leak point pressure	Should be qualified according to the site of pressure measurement (rectal, vaginal or intravesical) and the method by which pressure is generated (cough or valsalva) The baseline pressure should be specified	LPP may be calculated in three ways from the three different baseline values which are in common use: zero (the true zero of intravesical pressure), the value of pves measured at zero bladder volume, or the value of pves immediately before the cough or valsalva (usually at 200 or 300ml bladder capacity)
Abdominal leak point pressure	The intravesical pressure at which urine leakage occurs due to increased abdominal pressure in the absence of a detrusor contraction	
Detrusor leak point pressure	The lowest detrusor pressure at which urine leakage occurs in the absence of either a detrusor contraction or increased abdominal pressure	Detrusor leak point pressure has been used most frequently to predict upper tract problems in neurological patients with reduced bladder compliance. The ICS has defined it "*in the absence of a detrusor contraction*" although others will measure DLPP during involuntary detrusor contractions
Bladder outlet obstruction	Increased detrusor pressure and reduced urine flow rate	Is the generic term for obstruction during voiding # It is usually diagnosed by studying the synchronous values of flow rate and detrusor pressure # BOO has been defined for men but, as yet, not adequately in women and children
Dysfunctional voiding	An intermittent and/or fluctuating flow rate due to involuntary intermittent contractions of the peri-urethral striated muscle during voiding in neurologically normal individuals	Although dysfunctional voiding is not a very specific term, it is preferred to terms such as "non-neurogenic neurogenic bladder". Other terms such as "idiopathic detrusor sphincter dyssyergia", or "sphincter overactivity voiding dysfunction", may be preferable # The condition occurs most frequently in children Whilst it is felt that pelvic floor contractions are responsible, it is possible that the intra-urethral striated muscle may be important
Detrusor sphincter dyssynergia	A detrusor contraction concurrent with an involuntary contraction of the urethral and/or peri-urethral striated muscle. Occasionally, flow may be prevented altogether	Detrusor sphincter dyssynergia typically occurs in patients with a supra-sacral lesion, for example after high spinal cord injury, and is uncommon in lesions of the lower cord Although the intra-urethral and peri-urethral striated muscles are usually held responsible, the smooth muscle of the bladder neck or urethra may also be responsible
Non-relaxing urethral spincter obstruction	Occurs in individuals with a neurological lesion and is characterized by a non-relaxing, obstructing urethra resulting in reduced urine flow	Non-relaxing sphincter obstruction is found in sacral and infra-sacral lesions, such as meningomyelocoele, and after radical pelvic surgery. In addition, there is often urodynamic stress incontinence during bladder filling This term replaces "isolated distal sphincter obstruction" # It can be used to described voiding dysfunction due to urethral dysfunction
Acute retention of urine	A painful, palpable or percussable bladder, when the patient is unable to pass any urine	Although acute retention is usually thought of as painful, in certain circumstances pain may not be a presenting feature, for example when due to prolapsed intervertebral disc, post partum, or after regional anaes thesia such as an epidural anaesthetic The retention volume should be significantly greater than the expected normal bladder capacity

Chronic retention of urine	A non-painful bladder, which remains palpable or percussable after the patient has passed urine. Such patients may be incontinent	In patients after surgery, due to bandaging of the lower abdomen or abdominal wall pain, it may be difficult to detect a painful, palpable or percussable bladder The ICS no longer recommends the term "overflow incontinence" Exclude transient voiding difficulty, for example after surgery for stress incontinence, and implies a signifi cant residual urine Typically the retention in these patient is > 300 mL

densed terms from the articles so as to update our readers of the new knowledge and to update care providers to help them improve the quality of health care.

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