In recent years, there has been a rise in interest in detrusor underactivity (DU) [1–3], a bladder dysfunction that affects both sexes and causes bothersome symptoms. DU is defined by the International Continence Society (ICS) as “a contraction of reduced strength and/or duration, resulting in prolonged bladder emptying and/or failure to achieve complete bladder emptying within a normal time span” [4].

As much as 48% of older men and 45% of older women undergoing evaluation for lower urinary tract symptoms (LUTS) show evidence of DU [5,6]. These patients may be affected by symptoms or require catheterisation for bladder drainage. Despite this apparent frequency, DU is largely underresearched in comparison to other lower urinary tract dysfunctions, such as detrusor overactivity (DO) or bladder outlet obstruction (BOO). Moreover, there is no simple, effective treatment.

At present, it is widely thought that the LUTS experienced by patients with DU overlap significantly with the LUTS associated with BOO and that it is not possible to reliably differentiate the two without an invasive urodynamic study. This has hampered the acquisition of epidemiological data and, in turn, has led to a lack of comprehensive evaluation of
the true scale of the problem, its natural history, and its effects in terms of symptoms, symptom bother, and complications (eg, urinary retention, impairment of renal function).

Clinical experience and evidence from available urodynamic case series suggest that DU occurs in diverse patient groups, pointing towards the existence of multiple aetiological factors. These factors are likely to manifest in DU by disrupting the processes involved in the generation of an effective coordinated voiding contraction [2,7]. Interruption to efferent neural pathways secondary to traumatic injury or disease and intrinsic myogenic dysfunction due to fibrosis are well recognised mechanisms. More recently, the potential importance of the urothelium and the afferent system has been suggested [8,9].

There is currently a remarkable lack of consensus on many aspects pertaining to DU as a diagnosis. A plethora of terms are used to refer to DU and/or its associated symptoms, despite the ICS terminology having been published more than a decade ago. Moreover, no accepted diagnostic criteria exist. Furthermore, the ICS report falls short in specifying parameters for reduced contraction strength, prolonged bladder emptying, or normal time span. Most current criteria focus on strength, either applying specific cut-offs for maximum flow rate ($Q_{\text{max}}$) and maximum detrusor pressure ($P_{\text{Dmax}}$) or using indices and calculations such as the bladder contractility index [10] or the Watt factor, which estimate isovolumetric contraction strength [11]. The application of these criteria to DU is limited for several reasons:

- The criteria do not consider definitional aspects, such as contraction speed or how effectively the bladder empties, mostly related to the duration of the contraction.
- Assumptions regarding bladder volumes and energetics are contained within these calculations, which likely are not applicable to some or all instances of DU.
- The rise in detrusor contraction strength with increasing BOO grade in elderly men suggests that it is difficult or impossible to define single threshold values for DU [12].
- Normative data in highly affected populations (eg, the aged) are not available.

There is a need for further research on all aspects of DU. In contrast, DO is well researched, and it is worth revisiting the development of the OAB symptom complex as a concept. This was based on recognition that patients present with symptoms that may not always correlate with an underlying urodynamic abnormality (ie, DO). This has proved to be an effective means of categorising patients in clinical practice to guide the instigation of therapy, particularly at the primary-care level. Consequently, an expansion of research followed that has contributed to our understanding of bladder storage function and pathophysiology and that allowed the development of novel therapies.

In terms of DU, a definition currently exists but is fairly nonspecific due to the extremely limited evidence base from which it was derived. Nevertheless, the urodynamic abnormality is clearly related to a group of recognised symptoms (eg, slow flow, hesitancy). In addition, there are some associated, poorly defined, clinical presentations (eg, impaired or absent bladder sensation) and sequelae (eg, raised postvoid residual and urinary retention). A variety of patient groups are affected, both with and without neurologic disease or injury. In this context, it is easy to recognise some parallels to the example of DO and OAB. Categorisation of the symptoms and/or signs of DU seems like a logical initial step to facilitate standardisation and further research in this area.

A consensus group met at the International Consultation on Incontinence—Research Society and ICS annual meetings in September and October 2014 to review the available evidence base and consider the feasibility of developing a working definition of a symptom complex for underactive bladder (UAB). It was agreed that although patients with DU can present with a variety of storage, voiding, and postmicturition LUTS, the voiding symptoms often predominate. These symptoms appear to be variably associated with the symptoms and signs of incomplete bladder emptying and impaired bladder sensation.

It was clearly recognised that the clinical features of DU may show significant overlap with those of BOO. Despite this, it was felt that a definition of a symptom complex for UAB would be of potential clinical value and could form the basis of a definition on which further qualitative and quantitative epidemiological studies could be conducted.

We propose the following working definition: The underactive bladder is a symptom complex suggestive of detrusor underactivity and is usually characterised by prolonged urination time with or without a sensation of incomplete bladder emptying, usually with hesitancy, reduced sensation on filling, and a slow stream.

Associated factors that need to be considered include sex, age, and any known neurologic pathology. It should be pointed out that the underactive bladder symptom complex is not synonymous with DU, which can be confirmed only by urodynamic testing. The definition and the role of impaired detrusor contractility in DU and UAB also remain to be elucidated.

It must be emphasised that the proposed definition has been developed on the basis of expert opinion and discussion rather than the results of prospective studies. Such studies are now in progress, as are efforts to obtain qualitative data from focus groups. These efforts should help refine this working definition further. Nevertheless, we feel that the development of the definition presented in this paper represents a significant step in the right direction and will help raise the profile of this much-neglected problem and facilitate further research.

In summary, DU is a common but poorly understood lower urinary tract dysfunction that occurs in a heterogeneous group of men and women and that arises due to multifactorial aetiologies. Currently, it can be confirmed only after urodynamic testing. We propose a working definition for a complex of symptoms that we suggest are known as underactive bladder and associated with DU. We feel UAB could prove useful as a means of identifying affected patients, rather analogous to the relationship between DO and OAB,
and could provide a basis for further definitive qualitative and quantitative research on the subject.

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