Urological Science 26 (2015) 7–16

Contents lists available at ScienceDirect

Urological Science

journal homepage: www.urol-sci.com

Review article

Clinical guidelines for male lower urinary tract symptoms associated with non-neurogenic overactive bladder☆

CME Credits

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ARTICLE INFO

Article history:
Received 3 December 2014
Received in revised form
11 December 2014
Accepted 11 December 2014
Available online 28 January 2015

Keywords:
benign prostatic hyperplasia
guideline
lower urinary tract symptoms
overactive bladder

ABSTRACT

The purpose of this guideline is to direct urologists and patients regarding how to identify overactive bladder (OAB) in male patients with lower urinary tract symptoms (LUTS) and to make an accurate diagnosis and establish treatment goals to improve the patients' quality of life (QoL). LUTS are commonly divided into storage, voiding, and postmicturition symptoms, and are highly prevalent in elderly men. LUTS can result from a complex interplay of pathophysiologic features that can include bladder dysfunction and bladder outlet dysfunction such as benign prostatic obstruction (BPO) or poor relaxation of the urethral sphincter. Diagnosis of OAB in male LUTS leads to accurate diagnosis of pure OAB and bladder outlet-related OAB, and appropriate treatment in men with residual storage symptoms after treatment for LUTS.

1. Purpose

The purpose of this guideline is to direct urologists and patients regarding how to identify overactive bladder (OAB) from male patients with lower urinary tract symptoms (LUTS) and to make an accurate diagnosis and establish treatment goals to improve patients' quality of life (QoL).

2. Male LUTS and OAB – background

2.1. LUTS are highly prevalent among older men and have a negative impact on health-related QoL (HRQoL). (LE 1a, Grade A) OAB is associated with medical diseases such as diabetes and congestive heart failure. (LE 2b, Grade B) OAB and urinary incontinence symptom severity progress dynamically and are also sustained over time. (LE 2a, Grade B)

OAB is a clinical diagnosis defined by the International Continence Society as the presence of "urinary urgency, usually accompanied by frequency and nocturia, with or without urgency urinary incontinence, in the absence of a urinary tract infection or other obvious pathology".[1] OAB symptoms can be bothersome and can negatively affect HRQoL, increase anxiety and depression, and increase health care usage. The strongest predictor of OAB-associated bother was urinary urgency.[2] OAB also adversely affects sexuality in both men and women.[3] OAB is common in older adults and is associated with substantial impairment in mental health and HRQoL, but rates of treatment seeking behavior are low.[4]

Urgency is the core symptom for the presence of OAB. It has been estimated that 10–16% of the population in the world has the OAB condition.[5] However, although an urgency severity scale has been suggested, the grade of urgency is reported subjectively by the patients; therefore, there could be a wide variation among different grades of the reported urgency severity.[6]

The incidence of LUTS, including OAB in men, increases with age. Frequent comorbidity with potential prostatic disease adds complexity to the management of male LUTS.[7] In addition, patients with congestive heart failure had more storage urinary symptoms suggestive of OAB than did the age-matched controls.[8] Patients with type 2 diabetes mellitus present more OAB symptoms such as urgency and nocturia than controls. Among diabetic patients, a higher glycosylated hemoglobin level represents an independent predictor of OAB/urgency, urge urinary incontinence and nocturia.[9]

OAB and urinary incontinence symptom severity progress dynamically and are also sustained over time. Although symptom

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☆ There are 3 CME questions based on this article.

http://dx.doi.org/10.1016/j.urols.2014.12.003

severity progresses dynamically, for many individuals, symptoms also persist over long time periods.[10]

2.2. OAB is also prevalent in men and frequently associated with LUTS in men. Men with bladder outlet obstruction (BOO) may have OAB symptoms, but OAB may exist independently of BOO in elderly men. (LE 2a, Grade B) Antimuscarinics, in combination with alpha1-receptor antagonists, or alone, improve OAB symptoms in men with and without BOO. (LE 1a, Grade A)

The prevalence of moderate/severe urinary incontinence was 4.5% in men. Prevalence increased with age from 0.7% at 20–34 years old, to 16.0% at ≥ 75 years old ($p < 0.001$).[11] It has been estimated that 29.8 million adults aged ≥ 40 years in the United States have bothersome OAB symptoms. The prevalence of OAB symptoms at least "sometimes" was 27.2% in men.[12] In a longitudinal population-based survey, urinary incontinence and other LUTS constitute dynamic conditions. There was a marked overall increase in the prevalence of urinary incontinence, OAB, and nocturia in the same individual from 1991 to 2007.[13]

Recent concepts on male incontinence have shifted from benign prostatic obstruction (BPO), BOO, or post-radical prostatic surgery to the bladder conditions. Other important pathological conditions such as nocturnal enuresis and postmicturition dribbling are also clinically relevant.[14] Among the LUTS, storage LUTS was more prevalent than voiding or postmicturition LUTS in men (44.6%, 28.5%, 15.9%, respectively). The most prevalent LUTS was nocturia (36.6%) in men.[15] Men with bothersome OAB were significantly more likely to seek treatment and report the lowest levels of HRQoL.[16]

The overall incidence of detrusor overactivity (DO) was 76.1% in male OAB patients, 63% of men with urgency (OAB dry) had DO, while 93% of men with urgency and urgency urinary incontinence (OAB wet) had DO. There was a better correlation in results between OAB symptoms and the urodynamic diagnosis of DO in men than in women, more so in OAB wet than in OAB dry.[17]

Pharmacotherapies that target the prostate often fail to alleviate OAB symptoms, and may not be the most appropriate therapy for men with storage LUTS. Multiple studies have suggested that antimuscarinics alone or in combination with alpha1-receptor antagonists improve OAB symptoms in men with and without BOO. Therefore, in the diagnosis and treatment of male LUTS associated with OAB, greater understanding of the pathophysiology of OAB that underlies male LUTS, and examination of the relationship between symptoms and urodynamic findings are needed.[18]

3. Clinical symptoms – urgency is core symptom

3.1. Diagnosis of OAB in male patients with LUTS should be based on symptom of urgency with/without urgency incontinence. (Grade A) The grade of urgency should be carefully evaluated and BOO, neurogenic lesions, and cognitive function should be carefully assessed prior to making a final diagnosis of idiopathic OAB. (Grade A)

Men with LUTS commonly experience coexisting storage, voiding, and postmicturition symptoms.[15] LUTS, OAB, urinary incontinence, and LUTS/BOO are highly prevalent conditions, emphasizing the need for comprehensive urological assessments of LUTS in men.[19,20] The prevalence of incontinence ranges from 11% to 34% among community-dwelling men aged ≥ 65 years. Benign prostatic hyperplasia (BPH)-related incontinence may be related to progression of BPH or as a postsurgical complication.[21]

Urgency should be the primary or co-primary endpoint for future studies of OAB and detrusor overactivity. Greater clarity is needed in the development of instruments for measuring urgency, so that they do not confuse urgency with normal bladder sensations; more education and guidance are needed on how urgency is defined.[22] Urgency sensation scales or urgency severity scales (USS) have been developed to assess the urinary urgency in men with LUTS-associated OAB.[23] A high urgency severity score (USS) recorded in conjunction with a voiding diary and OAB wet were strongly associated with urodynamic DO.[24]

BPH patients with DO may neglect the symptom of urgency due to abnormal bladder sensation, or negate the symptom by subconscious sphincter contraction to abort the overactivity. Among the 84 BPH-DO patients, 52 reported the symptom of urgency while 32 did not.[25]

First sensation ratio and bladder urgency velocity statistically significantly correlated with the Urgency Perception Score Urodynamic variables correlated with bladder sensation questionnaire scores and may be an objective method to assess sensory dysfunction.[26] Reduced bladder sensation is defined as bladder volume at the first sensation > 300 mL. Increased bladder sensation is defined as bladder volume at the first sensation < 100 mL.[27]

4. Diagnostic tests and differential diagnosis of idiopathic OAB from BOO associated OAB and other bladder conditions

4.1. The initial assessment of OAB in men with LUTS should include the past history, present illness, physical examination, and laboratory examination. (Grade A) In men with BPH and OAB symptoms, the OAB is usually secondary to BOO. In men, BOO is not likely, and the OAB symptoms might be idiopathic. (Grade D)

Patients presented with urgency frequency symptoms which could be due to psychological factors, increased urine production, uninhibited urge due to central nervous lesions, or having DO. Urgency symptom can be caused by sensory dysfunction (hypersensitive bladder) or DO. Sensory urgency might be due to micromotion of the detrusor during bladder filling (increased excitability), rapid bladder filling or diuresis, urothelial dysfunction, or a high sensory perception due to anxiety, depression, or emotional stress. A differential diagnosis of OAB should exclude other pathologies such as psychological distress, interstitial cystitis, UTI, bladder tumor, and urolithiasis.

4.1.1. Past history

A family history of prostatic disease and prostatic cancer, previous history of lower urinary tract diseases such as bladder stone, cystoscopic examination, transurethral surgery, any systemic disease (diabetes, hypertension, cerebral vascular accident, Parkinson's disease (PD), chronic obstructive pulmonary disease, asthma, etc.), and medical history (alpha-blocker, 5-alpha-reductase inhibitor, antimuscarinics, neurological medication) should be recorded.

4.1.2. Present illness

The duration of LUTS (acute or chronic onset) and associated symptoms should be recorded. The LUTS can be assessed using the International Prostate Symptom Score (IPSS) or the American Urological Association Symptom Index (AUA-SI).[28] The total symptom score can be classified as mild (< 8), moderate (8–19), and severe (> 20).[29] The dominant symptoms should be assessed according to the storage and empty symptoms, separately. Daily fluid intake is important. Excessive fluid intake can produce voiding patterns that mimic OAB symptoms. A fluid diary can be helpful in