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VOIDING DYSFUNCTION / FEMALE UROLOGY
MINI-REVIEW

Overactive bladder syndrome: Current pathophysiological concepts and therapeutic approaches

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KEYWORDS

Overactive bladder;
Antimuscarinics;
Botulinum toxin;
Mirabegron

ABBREVIATIONS

OAB, overactive bladder syndrome;
DO, detrusor overactivity;
AM, antimuscarinic agent;
ER, extended-release;
BTX, botulinum toxin A;
PTNS, posterior tibial nerve stimulation;

Abstract ***Objectives:*** The overactive bladder syndrome (OAB) is a highly prevalent and bothersome symptom complex. We review contemporary reports to provide an update of the key aspects of its pathogenesis and the therapeutic approaches.

Methods: The PUBMED database was searched for relevant publications in the period from 1 January 1985 to 1 May 2013, using the keywords 'overactive bladder', 'anti-muscarinics', 'β-3 agonists', 'intravesical botulinum toxin', 'tibial nerve stimulation and 'sacral neuromodulation'.

Results: In all, 33 articles were selected for this review. OAB is very common, affecting 10–20% of the population. It is often bothersome and frequently affects the quality of life. The current definition of OAB remains a source of controversy. Anti-muscarinic agents remain the mainstay of pharmacotherapy. The new β-3 agonists have some efficacy whilst avoiding anti-cholinergic effects, and so might benefit patients who are unable to tolerate anti-muscarinic agents. Intravesical botulinum toxin is recommended for patients in whom oral pharmacotherapy fails, although the optimal parameters in terms of dosing, number of injections and injection site are yet to be fully established. Sacral neuromodulation is another option that has a good response in about half of patients.

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SNM, sacral neuromodulation

Conclusions: OAB remains an incompletely understood problem that presents a significant management challenge. A range of therapeutic options is now available for clinicians managing this problem.

Introduction

The overactive bladder syndrome (OAB) is a common and highly bothersome set of chronic symptoms that often has a significant effect on the quality of life of those affected. OAB affects both men and women equally and becomes more prevalent with increasing age. There is a large economic burden resulting from the problem, on both individuals and society, in terms of the direct care-related costs and lost productivity. OAB comprises storage LUTS and has been defined by the ICS as 'urinary urgency with or without urgency incontinence usually accompanied by frequency and nocturia' [1]. The pivotal symptom which must be present is urinary urgency, defined as 'a sudden and compelling desire to void that is difficult to defer' [1].

Terminology and definitions

The original terminology relating to OAB had its basis in pathophysiology, relying on the finding of non-volitional detrusor contractions during bladder filling, previously termed 'detrusor instability' (idiopathic aetiology) or 'detrusor hyper-reflexia' (neurogenic aetiology) [1]. The term currently recommended for this finding by the ICS is detrusor overactivity (DO). In 1996, Abrams and Wein [2] proposed a shift to a symptom-based definition, as it was clear that patients with bothersome symptoms did not always have DO. Also, it was felt unnecessary to subject all patients with symptoms to urodynamic studies before starting drug therapy. The term OAB was used, as it was deemed to be easier for patients to understand and was subsequently rapidly adopted by the healthcare profession, as well as the regulators and major pharmaceutical companies. The outcome has been an increase in the public profile of the syndrome, the rapid expansion of research into OAB, and growth in the market of agents used in its treatment.

Although there have been clear advantages in developing a symptom-based definition and adoption of the term OAB, OAB continues to generate controversy. Some have argued that the definition of OAB is too vague, with the inclusion of terms such 'usually' and 'with or without', to have sufficient specificity [3]. A further criticism is the lack of standardised outcome measures for symptom severity, e.g., how many voids, the degree of frequency (above the threshold of eight episodes per day) and the degree of incontinence, in the definition. This might result in the inclusion of individuals with mild or occasional symptoms but who might actually be 'normal', albeit on the extreme of a spectrum. Thus the implication is a possible over-medicalisation and an overestimation of the scale of the problem, particularly as the large surveys on the epidemiology reported to date have relied upon rather subjective methods, such as telephone interviews and Internet-based questionnaires.

From a practical perspective the interpretation of urgency, the sensory symptom which must be present, is often difficult. The ICS definition does not describe whether urgency is a discrete or continuous phenomenon, whilst a compelling desire to void is also arguably felt by normal individuals if the bladder is sufficiently full. Some authors have suggested that patients with urgency have a 'fear of leakage' and it is this which truly sets them apart from other individuals [4]. When the toilet is not reached in time incontinence results, termed urgency urinary incontinence, which happens in ≈30% of patients (usually female) with OAB. In men such episodes are highly correlated with underlying DO (in 60–90%) compared to women (in 58%) [5] due to the relatively weaker bladder outlet in women, which means that leakage is more likely to occur. Furthermore, the term 'urgency' is not differentiated from 'urge' in many languages as a specific concept.

Epidemiological aspects

Many epidemiological studies have shown that OAB has a high prevalence worldwide, whilst being a consistent cause of bother and reduced quality of life in both sexes and in all age groups. The largest study was a survey of over 19,000 individuals in four countries across Europe, as well as Canada (the EPIC study), which determined that OAB was present in 10.8% of men and 12.2% of women in the general population, becoming increasingly prevalent in individuals aged >40 years, at 13.1% and 14.6% men and women, respectively [6]. In those with OAB, incontinence was a feature in 28.0% and 44.5% of men and women, respectively. More than half of individuals reported being troubled by their symptoms. Subsequently, the effect of OAB on health-related quality of life has been studied, with the finding that individuals with OAB are more likely than age-matched controls to have depression (11.4% vs. 3.6%) and sexual problems, in addition to being more likely to have work-related impairment (24.7% vs. 12.2%), or be unemployed (42.0% vs. 33.6%) [7].