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REVIEW

Overactive Bladder: the Patient Perspective

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Abstract

Purposeof Review Given that the diagnosis and management of overactive bladder (OAB) is directed by symptomatology, the patient perspective is critical to understanding the disease and efficacy of available treatments. We present a narrative review of literature published in the last 5 years surrounding the patient perspective of OAB.

Recent Findings OAB has a negative effect on health-related quality of life (HRQoL). Management of OAB generates significant cost to the patient, including physician visits, incontinence pads, treatment of urinary tract infections, and management of skin infections and irritation. Patients with OAB suffer in terms of work productivity, food insecurity, and financial strain, and these effects are more profound in patients of lower socioeconomic status and education level. Recent literature investigating the effect of β3-adrenergic agonists on patient quality of life demonstrated similar improvements when compared with anticholinergics and potentially greater tolerability in terms of adverse effects. In terms of third-line therapies, sacral neuromodulation (SNM) has been shown to have significant improvement in HRQoL and urinary symptoms while avoiding the need for frequent office visits.

Summary OAB can have a detrimental effect on HRQoL, sexual function, work productivity, and can generate significant cost to the patient. Recent literature demonstrates that existing treatments show promise in terms of improving HRQoL. Patients prefer oral medications over injectable or more invasive therapies; however, a majority of patients who fail medications are willing to trial third-line therapies. Continued investigation of the patient perspective on OAB will be paramount to continue improvement in patient care.

Keywords Overactive bladder · Health-related quality of life · Antimuscarinics · Sexual function

Introduction

Overactive bladder (OAB) is a prevalent, chronic medical condition that is estimated to affect 29.8 million adults over the age of 40 in the USA [1]. The International Continence Society (ICS) defines OAB as a syndrome characterized by urgency, with or without urgency incontinence, and usually with frequency and nocturia [2]. Although the symptoms associated with OAB suggest detrusor overactivity, a urodynamic observation characterized by involuntary detrusor contractions during the filling phase, they can occur separately and OAB is thus a clinical diagnosis based primarily on patients' symptoms [2].

Per American Urological Association and Society of Urodynamics, Female Pelvic Medicine and Urogenital Reconstruction (AUA/SUFU) guidelines, treatment can range from expectant management for patients with little bother to behavioral therapy, which is considered first line, to medical management with antimuscarinic or β3-adrenergic agonists, which is considered second line [3]. Advanced, third-line therapies such as intradetrusor injection of onabotulinumtoxinA (BTX-A), sacral neuromodulation (SNM), and transcutaneous or percutaneous tibial nerve stimulation (TTNS, PTNS) are reserved for patients who have failed behavioral and medical management [3, 4].

Given that the diagnosis and management of OAB is directed by symptomatology, the patient perspective on OAB is critical to understanding the impact of the disease and efficacy of available treatments. OAB has been demonstrated to negatively impact patients' quality of life (QOL), performance of daily activities, sleep, personal relationships, and mental health [5]. Many available treatments for OAB

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unfortunately carry significant side effects and are costly. As a consequence, patient adherence and satisfaction tend to be low [6]. This narrative review summarizes and critically evaluates literature surrounding the patient perspective on OAB within the last 5 years, including its impact on quality of life and the efficacy and accessibility of available treatments.

Impact of OAB on the Patient

OAB symptoms can be extremely bothersome and can negatively affect quality of life, increase rates of anxiety and depression, decrease productivity at work, limit social interactions and sexual activity, and increase healthcare usage.

Patient-Reported Outcomes

OAB has been demonstrated to significantly impact patient quality of life, which is not always encapsulated by individual symptoms, rendering thorough assessments of patient-reported outcomes (PROs) and health-related quality of life (HRQoL) essential in identifying clinically significant responses to treatment [7]. PROs can include physical function, symptoms, global judgments of health, psychological well-being (anxiety, depression, coping), social well-being (family and intimate relations, leisure activities, sexual activity and satisfaction), cognitive functioning, role activities (employment, household management, financial concerns), personal constructions (satisfaction with bodily appearance, stigma, life satisfaction, and spirituality), and satisfaction with care [8].

The most commonly used instrument is the OAB Questionnaire (OAB-q), a 33-item measure consisting of a symptom bother scale and four HRQoL subscales (coping, concern, sleep, and social interaction) scored on a 6-point Likert scale. The King's Health Questionnaire (KHQ) is also frequently used and consists of 33 items across 9 domains with 4 of the domains being especially relevant for OAB (role limitations, physical limitations, social limitations, and emotions). A systematic review performed by Johnston et al. (2019) of OAB-related clinical trials demonstrated that of 58 included trials, the OAB-q was most frequently used (34 studies, 64%) followed by KHQ (18 studies, 31%) and PRBC (12 studies, 21%).

Impact of OAB on Quality of Life and Sexual Function

It is well established that OAB impacts QOL; however, there is inconsistent data regarding which symptoms are most bothersome. Urge incontinence and nocturia have been shown to be the symptoms with the greatest impact on QOL in Korea and Greece [9, 10]. However, an analysis of a cross-sectional epidemiological study distributed in Brazil that collected data regarding lower urinary tract symptoms (LUTS) and QOL found that voiding, storage, and post-micturition symptoms were all associated with lower QOL scores [11]. A cross-sectional population-based study of 1060 patients in Colombia found urinary urgency to be the most bothersome symptom, with moderate to severe impact on QOL, followed by urge urinary incontinence (UUI) and nocturia [12]. These discrepancies suggest that perhaps unique cultural and societal norms influence which symptoms are most bothersome.

Lin et al. (2021) analyzed the effect of OAB with and without urge incontinence on female sexual function using the female sexual function index (FSFI). [13•] The OAB group had significantly lower FSFI scores than control and there was a significant different among the mild, moderate, and severe OAB groups ($p < 0.05$). In OAB groups, FSFI scores significantly improved after OAB pharmacotherapy ($p < 0.05$).

Cost of OAB to the Patient: Treatment, Work Productivity, and Socioeconomic Status

Management of OAB can generate significant cost to the patient associated with physician visits, incontinence pads, treatment of urinary tract infections, and treatment of skin infections or irritation. A recent review of published economic models related to the economic burden of OAB found that most models include the cost of physician visits and incontinence pads but neglect to incorporate OAB-associated depression and nursing home costs [14]. Overall, the annual cost burden of OAB with UUI to the patient has been estimated at $1500 per year. An economic burden survey revealed that patients spent a median of $162.50 per month on incontinence products, medications, provider visits, and other services prior to considering third-line OAB therapy [15]. Economic burden was associated with interest and decision to pursue third-line therapies.

A secondary analysis of a cross-sectional epidemiological LUTS study performed in Brazil examined impact of LUTS consistent with possible diagnosis of OAB on work productivity [11]. The likelihood of missing work and experiencing limitations in daily living and leisure was markedly increased in patients with LUTS associated with possible OAB. In women with possible OAB, likelihood of missing work due to LUTS was 12.8 times higher in patients with illiteracy ($p = 0.001$). In men with possible OAB, patients with urgency with fear of leaking were 8.9 times more likely to miss work due to LUTS.

A cross-sectional study performed by Tellechea et al. (2021) found that higher OAB symptom scores on the Overactive Bladder-Validated 8-Question (OAB-V8) screening questionnaire were associated with food insecurity, financial strain, difficulty finding or keeping employment, and difficulty concentrating after adjusting for other variables, such as age, race, and body mass index [16••]. Kosilov et al. (2018) also investigated the impact of socioeconomic status (SES) on HRQoL in patients with OAB and determined that patients who had bachelor's or master's degrees had reliably higher HRQoL measures than those with a lower education level [17]. The authors hypothesized that this could be due to higher levels of health literacy in terms of OAB treatment methods, more active use of therapy, and possibly greater compliance to treatment. Additionally, OAB patients working in health and education spheres, married persons, and those who exercise at least 60 min a day all gave significantly higher estimations of their QOL.

In sum, patients of lower socioeconomic status and education level tend to report more bothersome symptoms, have greater reduction in work productivity, and likely have more difficulty managing associated costs rendering this a uniquely vulnerable population. Patients from marginalized populations are underrepresented in OAB literature; however, data suggests that they experience more barriers to treatment of OAB than White patients [18]. Future studies should strive to include non-White and lower socioeconomic patients in order to further elucidate the impact on this patient population and their access or inability to access care.

Perceived Efficacy and Satisfaction with OAB Treatment

There have been several new studies that assess patient perspective and satisfaction with treatment for OAB. Two classes of oral medications, antimuscarinic agents and β3-adreneric agonists, are currently available for the second-line treatment of OAB. In 2012, the FDA-approved mirabegron, or myrbetriq, as the first β3-adreneric agonists for treatment of OAB. Vibegron, or Gemtesa, was subsequently approved in 2020 for OAB and has a higher selectivity for the β3-adreneric receptor. Due to the poorly tolerated side effect profile of anticholinergics and its association with increased risk of dementia and frailty, β3-adreneric agonists have become increasingly used [19]. The patient perspective on these new medications has thus become a popular area of study. There have also been recent evaluations of patients' decisions to advance to third-line therapy and their perception of its efficacy.

Patients' Perception of Antimuscarinics and β3-Adreneric Agonists

Athavale et al. (2018) characterized patient preferences for pharmacological treatment of OAB using a discrete choice experiment (DCE) and investigated differences in preferences based on patient characteristics and disease burden [20]. Participants were presented with a series of hypothetical treatment profiles, including descriptions of treatment efficacy, side effects, dosage, costs, or health states, and choices were then used to calculate the relative importance (RI) of the attributes. Patients placed highest importance on drug deliver method, with strong preference for oral medications and patches over injectable therapies and also preferred treatments that reduced daytime micturition frequency and had lower out-of-pocket costs.

The PREFER study was a two-period, 8-week crossover, double-blind, phase IV study that examined medication tolerability, treatment preference, and symptom improvement during treatment with mirabegron and tolterodine extended release (ER) in treatment-naïve adults with OAB.[21•] Patients completed PROs at each visit, including OAB Satisfaction (OAB-S), OAB-q (total HRQoL and subscales), and Patient Perception of Bladder Condition (PPBC). Mirabegron and tolterodine ER demonstrated similar improvements in OAB symptom scores. A larger proportion of patients achieved clinically relevant improvement in OAB-q scales and OAB-S Medication Tolerability score with mirabegron compared with tolterodine ER; however, this was not tested for statistical significance.

Carlson et al. (2019) created a prospective, non-interventional registry that followed adult patients with OAB who were starting treatment with mirabegron or antimuscarinics with the primary objective of identifying factors associated with treatment efficacy from a patient perspective [22]. Similar improvements in OAB-q Short-Form (OAB-q SF) symptom bother score and health-related quality of life (HRQoL) were observed in both groups. A covariate-adjusted model demonstrated that worse baselines scores, Hispanic ethnicity, being treatment naïve, and use of complementary or supportive OAB therapies at baseline were all significantly associated with greater improvements in both scores. This was the first study to suggest that ethnicity may have an impact on OAB treatment response. In 2021, the same registry was used to evaluate reasons for discontinuation of mirabegron or antimuscarinic treatment and switching patterns [23]. A Kaplan–Meier curve was used to estimate persistence with initial treatment and was adjusted for baseline age, sex, and OAB treatment status (either naïve or experienced). The adjusted analysis demonstrated that by month 2, mirabegron initiators showed higher rates of persistence. This discrepancy was attributed to a higher likelihood that mirabegron initiators were male and treatment experienced compared with antimuscarinic initiators. The most common reasons for nonpersistence were no symptomatic improvement and side-effect aversion.

The EMPOWUR study was an international, 12-week placebo- and active-controlled phase 3 trial evaluating the efficacy and safety of vibegron for treatment of OAB [24••]. Frankel et al. (2021) published secondary end points from the EMPOWUR study, including the effect of vibegron on patient-reported QOL [25]. Patients taking once-daily vibegron for 12 weeks of treatment demonstrated significant improvement in subjective QOL outcomes related to OAB compared with placebo, including OAB-q coping scale, concern, sleep, HRQoL, and symptom bother. Although no statistical analysis was performed, patients taking vibegron had numerically greater improvement in OAB-q scores compared with those taking tolterodine at week 12.

A prospective randomized parallel-group study compared the efficacy and safety of mirabegron versus vibegron in postmenopausal women with treatment-naïve OAB [26]. This was the first study to directly compare the two agents at the same dose. Both groups experienced statistically significant decreases in OAB symptom scores at 4 and 12 weeks ($p < 0.001$) but there was no significant difference in improvement between the two groups at each time point. The QOL index, mean number of micturitions, urgency episodes, and mean voided volume similarly improved in both groups over the 12 weeks with no significant difference between groups.

Although the described data indicates that overall, antimuscarinics and β3-adreneric agonists provide similar benefits to patient QOL, for patients, the greatest distinction between antimuscarinics and B3-agonists was their tolerability, especially in light of recent literature investigating the cognitive impact of anticholinergics [27]. Patients have indicated that they feel assured benefits with limited risks are important when choosing OAB treatments. The potential for cognitive decline is ranked as the most unwanted side effect, followed by severe constipation, blurred vision, and dry mouth.

Patients' Perception of Third-Line Therapy

Semi-structured interviews of patients who failed first- and second-line treatments of OAB found that 75% of patients desired to proceed to a third-line therapy [15]. In terms of considering third-line treatments, patients expressed common themes including embarrassment of accidents, smelling like urine, impact on daily living, and need to use incontinence products forever. Concerns regarding third-line therapy included frequent visits, such as with PTNS, possible need to self-catheterize after BTX-A injection, and fear of installed devices and invasive treatments with SNM [28]. Interestingly, there was no significant difference in response to OAB symptom questionnaires between patients who were interested in third-line OAB treatments and those who were not.

A meta-analysis of clinical trials investigating the efficacy and perceived improvement of QOL after PTNS, TTNS, vaginal electrical stimulation (VES), SNM, parasacral stimulation (PS), pudendal neuromodulation, or placebo demonstrated SNM was the most effective for HRQoL improvement, urinary episodes, and urinary frequency.[29••] PTNS and TTNS were most effective in reducing urgency incontinence episodes and number of pads, respectively, reinforcing the disconnect between objective measures of symptom improvement and patient perception.

A randomized controlled trial evaluated the efficacy, impact on quality of life, and treatment satisfaction rate of PTNS and TTNS in combination with bladder training compared with bladder training alone for patients with idiopathic OAB [30]. Patients who received PTNS or TTNS in combination with bladder training had higher quality of life and treatment satisfaction scale than those who received bladder training alone. TTNS had shorter preparation time, lower discomfort level, and higher patient satisfaction than PTNS. This was a small study including only 60 patients that lacked long-term follow-up; however, the results suggest that TTNS could be an effective alternative to PTNS in patients who are adverse to needles.

SNM has been found to be attractive to patients in terms of long-term relief without frequent office visits and patients who opt for SNM have been shown to have more severe OAB symptoms [31]. BTX-A is similarly preferred for its long-term effect; however, some patients are wary of the need for self-catheterization. Patients felt PTNS was desirable in that it was nonsurgical and without significant risk of complications but limited by its need for frequent office visits.

Conclusion

This narrative view sought to summarize data from the last 5 years that centered on patients' perceptions of OAB. It has been well established that OAB poses a significant threat to patient QOL; however, recent data suggests that marginalized patients and patients of lower socioeconomic status may suffer greater symptom bother and loss of work productivity and are less represented in the current literature. Given the substantial cost of OAB to the patient, efforts should be made to ensure these patients do not face financial or other burdens in accessing care for OAB. Second-line treatment options, anti-muscarinics and β3-adreneric agonists, offer similar improvements to patient QOL and symptom bother scores. However, β3-adreneric agonists are preferred in terms of their less troublesome side-effect profile. Patients remain interested in pursuing third-line treatments, including BTX-A, SNM, and PTNS, despite reservation regarding need to self-catheterize, frequent appointments, and invasive procedures. As OAB is a condition that is largely defined by its symptoms and its management is driven by patient preference and bother, continued investigation of patient perceptions is paramount to improving urologic patient care.

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Declarations

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- • Of importance
- •• Of major importance

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