Management of overactive bladder: consensus statements from the Hong Kong Urological Association and the Hong Kong Geriatrics Society

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ABSTRACT

Overactive bladder (OAB) is a common urological disease with a high prevalence in older adult populations. Antimuscarinic drugs have been the most common treatment for OAB for more than a decade, but their anticholinergic side-effects and potential impact on cognitive function among older patients are usually underestimated. This consensus aimed to provide practical recommendations concerning OAB management, with a particular emphasis on older patients. A joint consensus panel was formed by representatives of the Hong Kong Urological Association and the Hong Kong Geriatrics Society. Literature searches regarding OAB and its management were performed in PubMed and Ovid. Several working meetings were held to present and discuss available evidence, develop consensus statements, and vote for the statements. A modified Delphi method was used in this consensus process. To address questions regarding various aspects of OAB, 29 consensus statements were proposed covering the following areas: diagnosis, initial assessment, non-pharmacological treatments, considerations before administration of pharmacological treatments, various pharmacological treatments, combination therapy, and surgical treatment. Twenty-five consensus statements were accepted.

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Introduction

Overactive bladder (OAB) is defined by the International Continence Society as urinary urgency in the absence of urinary tract infection or other detectable diseases, usually accompanied by increased daytime frequency and/or nocturia, with or without urinary incontinence.[1] Its reported prevalence ranges from 9.6% to 35.6%.[2] A survey in Hong Kong showed that the age-adjusted OAB prevalence was 15.1%, and age was a significant risk factor.[3]

Although many patients can benefit from lifestyle modifications, medical therapy may be warranted for patients with persistent and bothersome OAB symptoms.[4] Antimuscarinic agents have been the most commonly prescribed class of medications for OAB over the past two decades.[4] However, their anticholinergic effects on cognitive function have long been both concerning and underestimated. This is particularly significant among older individuals because any cognitive decline they experience could easily be attributed to

normal ageing or dementia.[5] Such cognitive decline might be more pronounced when multiple drugs with anticholinergic side-effects are used concurrently.[5] The concept of anticholinergic burden has been introduced to help clinicians estimate the combined anticholinergic effects (and potential impact on cognitive function) of all medications prescribed to a single patient.[5]

Beta-3 agonists represent a new class of drugs approved for the treatment of OAB.[6] They do not have any anticholinergic side-effects and have therefore become alternatives to antimuscarinics for the treatment of OAB, particularly among patients with advanced age, dementia, or polypharmacy.[6]

To provide recommendations for the treatment of OAB in Hong Kong, a joint consensus panel was formed by representatives from the Hong Kong Geriatrics Society (HKGS) and the Hong Kong Urological Association (HKUA). Consensus statements were produced based on the latest evidence and international guidelines, supplemented by expert opinions from panel members.

膀胱過度活躍症的管理：香港泌尿外科學會和香港老人科醫學會的共識聲明

黃國強、簡煒文、林珮珊、張文虹、鄭綺蘭、潘頌庭、鄧穎思、梁樂希、胡偉珊、盧挺傑、朱秀群、陳毅灝、趙家鋒

膀胱過度活躍症是常見泌尿系統疾病，在老年人群中發病率較高。抗膽鹼能藥物在過去十多年一直是膀胱過度活躍症最常見的治療方式，但對於老年患者的抗膽鹼副作用和認知功能的潛在影響通常被低估。這份共識由香港泌尿外科學會和香港老人科醫學會代表組成的聯合專家小組編撰，旨在就膀胱過度活躍症的管理提供實際建議，特別著重老年患者的情況。專家小組在PubMed和Ovid上進行關於膀胱過度活躍症及其管理的文獻搜索，並舉行多次工作會議，以討論現有證據，制定並投選共識聲明。本共識過程採用經修改的德爾菲法。為了探討有關膀胱過度活躍症的各方面問題，專家小組提出了29項共識聲明，涵蓋包括診斷、初步評估、非藥物治療、使用藥物治療前的考慮因素、各種藥物治療、聯合療法和手術治療等範疇，其中25項共識聲明獲得接受。

Methods

The joint consensus panel consisted of 13 experts from Hong Kong: six geriatricians representing the HKGS and seven urologists representing the HKUA. Among these experts, seven were female clinicians and six were male clinicians. In total, seven meetings were held to discuss the scope of the consensus, present key evidence, formulate consensus statements, vote, and have a final discussion regarding manuscript preparation.

Literature reviews were performed in PubMed and Ovid to retrieve relevant articles related to this topic. The key words used included 'overactive bladder', 'anticholinergic', 'antimuscarinic', 'beta3-adrenoceptor agonist', 'β3-adrenoceptor agonist', 'β3 agonist', 'guidelines', 'behavioural therapy', 'behavioural treatment', 'combination therapy', and 'surgery'. In total, 34 articles were selected for presentation and in-depth discussion, including four major guidelines, 15 meta-analyses/systematic reviews, and 15 randomised controlled trials. When discussing areas with inadequate evidence, the modified Delphi method was used. Panel discussions were carried out in a structured manner using appropriate content; each panel member contributed to the discussion in a fair and equal manner. The discussion was divided into seven parts, namely, introduction and overview of OAB, assessment and diagnostic approaches, non-pharmacological treatment, antimuscarinic agents, beta-3 agonists, combination therapy, and surgical treatment for OAB.

Panel members were divided into small working subgroups to review the existing literature, present their findings to other panel members, draft consensus statements, and finalise the consensus statements during panel meetings. In the last meeting, panellists voted anonymously on the practicability of recommendation in Hong Kong for each statement, based on predefined judgement criteria (online supplementary Table 1). If ≥75% of panellists chose 'accept completely' (option A) or 'accept with some reservations' (option B), a consensus statement was regarded as accepted. A total of 29 consensus statements were proposed, and 25 of them were accepted. The complete voting record and all consensus statements are listed in online supplementary Table 2.

The AGREE (Appraisal of Guidelines, Research and Evaluation) reporting guideline was used to ensure the methodological quality, comprehensiveness, completeness, and transparency of this consensus document.

History and physical examination

The initial assessment is intended to diagnose OAB, rule out other pathologies, assess symptom severity, and formulate an individualised management plan.

Statement 1: The clinician should begin the diagnostic process with careful history taking and physical examination.

Statement 2: Storage lower urinary tract symptoms may be a sign of more serious underlying conditions, and their management can be complicated by co-morbidities and polypharmacy. The clinician should seek a specialist's opinion if red flag features are detected.

History taking and focused physical

examination are important in the assessment of storage lower urinary tract symptoms[7,8] (Tables 1 and 2). Patients with alarming symptoms should be referred to relevant specialists (Table 3). Past health also provides clues to the aetiology of the problem. In particular, medical diseases including diabetes mellitus, fluid status, obstructive sleep apnoea, as well as their treatments, can contribute to such symptoms.

Symptom severity can be assessed by the number of pads used per day, degree of restriction in daily activities, and presence or absence of psychological stress.[7,8] Assessments of frailty, cognitive function, and anticholinergic burden are especially relevant in older individuals, considering their implications for subsequent management.

The treatment algorithm for OAB is illustrated in the Figure.

Investigations

Statement 3: Urinalysis should be considered during the initial assessment of overactive bladder syndrome.

Urinalysis is recommended as an initial assessment for patients with OAB in most guidelines, including the European Association of Urology 2023 guidelines on lower urinary tract symptoms[7,8]; the results can rule out urinary tract infection, diabetes mellitus, and proteinuria.[7,8]

TABLE 1. Essential information to collect during history taking[7,8]

Characteristics of lower urinary tract symptoms
• Patterns of storage and voiding symptoms
• Type and severity of incontinence
• Symptom severity and impact on quality of life
Red flag features
• Haematuria
• Persistent dysuria
• Recurrent urinary tract infection
• Continuous urinary incontinence
• Neurological symptoms, including limb weakness, numbness, and sphincter disturbance
Fluid intake habits
• Daily amount and type of fluid intake
Past medical conditions
• Urological and gynaecological diseases
• Pelvic surgery and irradiation
• Neurological diseases
• Ketamine abuse
• Signs of frailty: frequent falls, multiple medical co-morbidities, and polypharmacy

TABLE 2. Essential components of physical examination[7,8]

General examination
• Gait and mobility
• Cognitive function
• Lower limb pitting oedema
Abdominal examination
• Pelvic mass
• Palpable bladder
• Surgical scars
Perineal examination
• Cough stress test for stress urinary incontinence
• Per vaginal examination for atrophic vaginitis and pelvic organ prolapse
• Digital rectal examination for anal tone, prostate size, and prostate consistency
Focused neurological examination of the lower limbs

Statement 4: A bladder diary should be considered during the assessment of overactive bladder syndrome.

A bladder diary serves as documentation of the patient's drinking habits, voiding patterns, and incontinence episodes. It is useful for OAB diagnosis, baseline symptom quantification, treatment response monitoring, and bladder training programme planning.

Statement 5: Urine culture, post-void residual urine, plain X-rays of the kidney, ureter, and bladder, and patient questionnaires may be performed during the initial assessment of overactive bladder syndrome at the clinician's discretion.

Statement 6: If questionnaires are used for assessment of overactive bladder syndrome, appropriate questionnaires validated in the patient's language should be used.

Statement 7: Cystoscopy, urodynamics, ultrasonography of the urinary system, and pad tests should not be routinely included in the initial assessment of overactive bladder syndrome.

Urine culture, post-void residual urine, plain X-rays of the kidney, ureter, and bladder, and symptom/quality of life questionnaires are not considered routine tests in the initial assessment. Questionnaires including the OAB Symptom Score, Urogenital Distress Inventory-6, and Incontinence Impact Questionnaire, Short Form have been validated in Cantonese within Hong Kong. The OAB Symptom Score is a screening tool used to measure symptom severity in both male and female patients, whereas Urogenital Distress Inventory-6 and Incontinence Impact Questionnaire, Short Form

TABLE 3. Findings that require referral

Referral to urologist	Referral to geriatrician	Referral to gynaecologist
• Haematuria • Persistent dysuria • Recurrent urinary tract infection • Continuous urinary incontinence • Underlying neurological diseases (eg, spinal cord injury or instrumentation) • Previous pelvic surgery or irradiation • Palpable bladder or pelvic mass • Previous abnormal investigation results (eg, bladder stones on plain X-rays of the kidney, ureter, and bladder) • Bothersome lower urinary tract symptoms that are unresponsive to medical treatment	• Cognitive impairment • Frail older patients with multiple medical co-morbidities and polypharmacy	• Pelvic organ prolapse

are used to measure symptom distress and health-related quality of life in female patients. Cystoscopy, urodynamics, ultrasonography of the urinary system, and pad tests are not recommended for the initial assessment of OAB in most guidelines.

Treatment

Non-pharmacological treatments

Statement 8: Non-pharmacological treatments, including fluid management, bladder training, and pelvic floor exercises, should be offered to patients with overactive bladder, regardless of drug treatment initiation.

Statement 9: Clinicians should identify medications and substances that may contribute to overactive bladder and consider modifications or alternatives.

Fluid management comprising a 25% decrease in fluid intake can reduce urination frequency and urgency.[9] Reduced liquid consumption after dinner or within several hours before bedtime is a reasonable management approach for nocturia. Caffeine irritates the bladder and can induce urinary urgency; therefore, caffeine intake should be avoided.

Some drugs (eg, diuretics and acetylcholinesterase inhibitors) may worsen OAB symptoms; the use of these drugs should be identified, and the patient should be switched to a suitable alternative. Additionally, angiotensin-converting enzyme inhibitors can induce coughing, thereby exacerbating urinary incontinence. Sodium-glucose cotransporter-2 (SGLT2) inhibitors cause increased urine output and higher urinary frequency; thus, they should be avoided.

Statement 10: Weight reduction should be advised for obese individuals with overactive bladder.

Among obese women, weight loss of 8.0% reduces the overall amounts of weekly incontinence episodes by 47% (vs 28% in the control group) and urgency urinary incontinence episodes by 42% (vs 26% in the control group) within 6 months.[10]

Statement 11: For patients who have difficulty performing pelvic floor exercises and bladder training, early pharmacological therapy should be considered.

Behavioural therapy and bladder training are recommended as conventional approaches before considering drug treatment; the success of these approaches requires active participation by patients and their caregivers. Upfront pharmacological therapy may be considered for patients (especially frail older individuals) who have difficulty complying with these approaches.

Statement 12: Before initiating treatment, clinicians should educate patients and caregivers about the symptoms and natural course of overactive bladder, and the benefits and risks of currently available treatments.

Before drug treatment is initiated, the natural course of the disease and the safety profiles of various treatment options should be explained to increase patient compliance. Clinicians should establish feasible treatment goals with patients and their caregivers.

Statement 13: Antimuscarinics should be used cautiously in patients with cognitive impairment or a high anticholinergic burden.

Statement 14: Because polypharmacy is very common, a detailed review of drug history is recommended to avoid creating a clinically significant anticholinergic burden in patients.

Cognitive impairment (eg, delirium and dementia) has been linked to the use of antimuscarinic agents, particularly in older patients.[11] It is important to review drug history

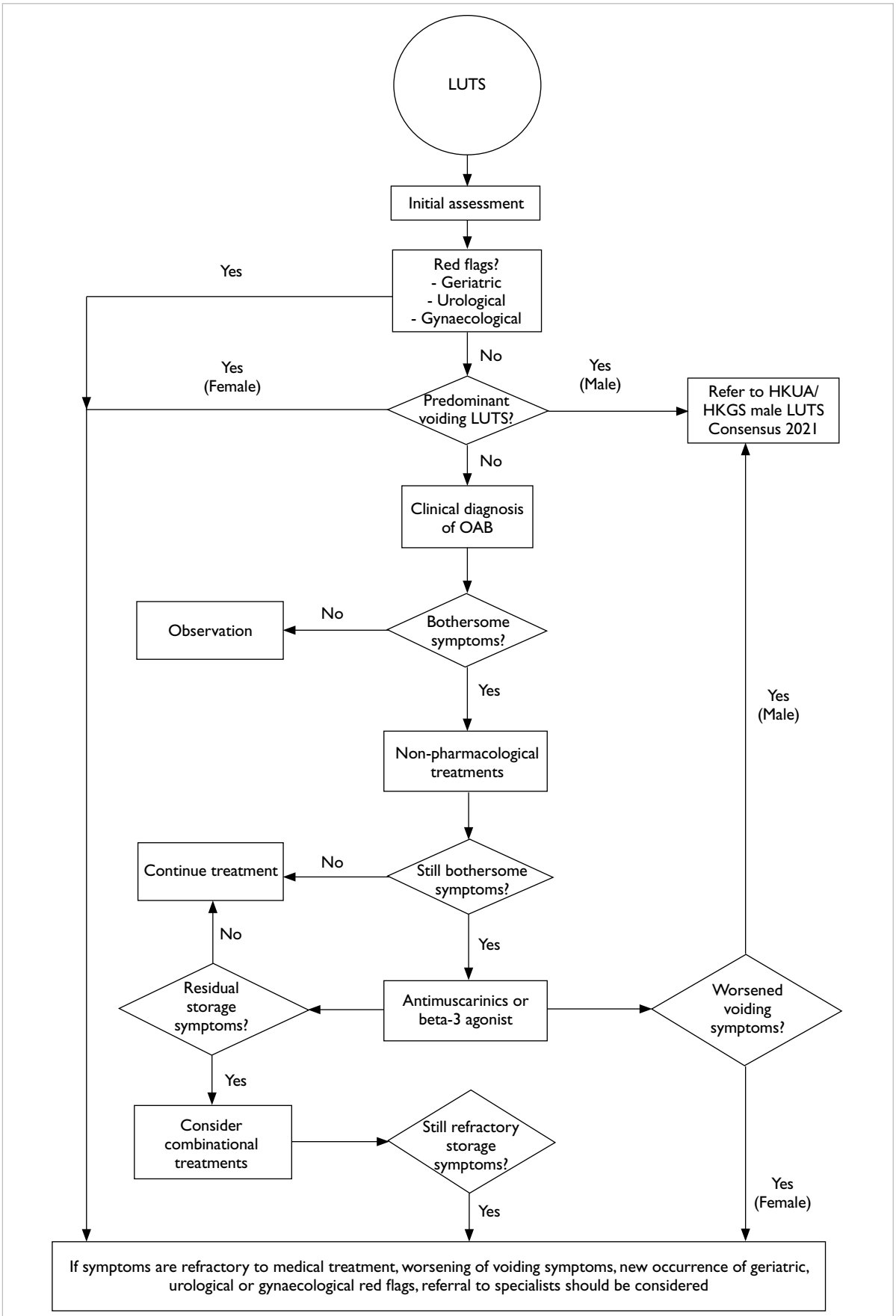

FIG. Treatment algorithm of overactive bladder

Abbreviations: HKGS = Hong Kong Geriatrics Society; HKUA = Hong Kong Urological Association; LUTS = lower urinary tract symptoms; OAB = overactive bladder

before prescribing antimuscarinics to this group of patients. The concurrent use of medications with anticholinergic effects, such as antihistamines and anti-Parkinson's drugs, may potentiate the side-effects of antimuscarinic agents and should be modified accordingly.

Pharmacological treatment

Antimuscarinic agents

Randomised controlled trials have revealed improvements in symptom control and differences in the cure rates of urgency incontinence when using antimuscarinic agents. However, no single agent has demonstrated superiority over the others in terms of efficacy.[12,13]

Statement 15: Antimuscarinics should be offered to patients who have been unsuccessful with non-pharmacological approaches.

Statement 16: Extended-release antimuscarinics are preferred over immediate-release antimuscarinics because of better tolerability, particularly regarding dry mouth.

Statement 17: Antimuscarinics should not be used in patients with narrow-angle glaucoma unless approved by an ophthalmologist.

The overall withdrawal rates of antimuscarinic agents due to side-effects range from 3% to 10%.[14] Adverse events include dry mouth, pruritus, blurred vision, and dizziness (29.6%, 15.4%, 3.8%, and 3.5%, respectively).[14] The results of a meta-analysis suggested that extended-release formulations have lower rates of adverse events, particularly dry mouth.[14] However, the rates of constipation and withdrawal due to side-effects are not significantly different between immediate-release and extended-release formulations. Notably, antimuscarinics can cause pupil dilation and precipitate closed-angle glaucoma, particularly among patients with narrow-angle glaucoma.[15]

Statement 18: Antimuscarinics are effective in treating overactive bladder but regular monitoring of voiding symptoms is recommended, especially among older individuals.

The use of antimuscarinic agents is associated with a minimal increase in post-void residual urine volume among male patients. In a study of men with proven bladder outlet obstruction, this increase in post-void residual urine volume did not lead to acute urinary retention.[16] Nevertheless, changes in voiding symptoms after the initiation of antimuscarinic agents, particularly among older patients, should be monitored.

As a quaternary amine compound with hydrophilic properties, trospium has a theoretical advantage in that it does not cross the blood-brain barrier and therefore may result in less cognitive impairment. There is evidence to support the claim that trospium does not worsen cognitive function in patients with Alzheimer's disease.[17] A pooled analysis indicated that trospium has a lower treatment withdrawal rate due to side-effects compared with other anticholinergics.[18] However, there remains a lack of strong evidence concerning the degree of cognitive decline from various anticholinergic agents.

Antimuscarinic agents registered for the treatment of OAB in Hong Kong are listed in Table 4.

Beta-3 agonists

Statement 19: Beta-3 agonists provide overall efficacy similar to that of commonly used antimuscarinic monotherapies.

Beta-3 adrenoceptor agonists (ie, mirabegron and vibegron) relax detrusor muscles in the urinary bladder wall, allowing the bladder to remain distended during the storage phase. Mirabegron significantly improved incontinence episodes and micturition frequency compared with placebo in a phase 3 trial.[19] The efficacy of mirabegron 50 mg is similar to that of most antimuscarinic monotherapies regarding micturition frequency, urgency urinary incontinence, dry rate, and 50% reduction in incontinence episodes.[20] Mirabegron is efficacious in improving OAB symptoms and quality of life.[21,22]

Statement 20: Beta-3 agonists appear to be better tolerated than antimuscarinics (eg, in terms of dry mouth, constipation, and urinary retention).

Compared with antimuscarinic monotherapy, mirabegron is better tolerated and has significantly lower risks of dry mouth, constipation, and urinary retention. This safety profile remains consistent for up to 1 year of treatment.[22] Mirabegron also has better treatment persistence and adherence rates at 12 months.[22] Therefore, mirabegron can serve as an alternative pharmacological treatment for older patients with OAB.[23,24]

Statement 21: Mirabegron should not be used in patients with severely uncontrolled hypertension.

According to recommendations from the United Kingdom[25] and European[26] health authorities, mirabegron is contraindicated in patients with severely uncontrolled hypertension (ie, systolic blood pressure ≥180 mm Hg and/or diastolic blood pressure ≥110 mm Hg) due to the lack of studies concerning mirabegron effects in this group of patients. However, in a phase 3 randomised controlled trial comparing mirabegron 25 mg, mirabegron 50 mg, and placebo, the incidence of hypertension was similar across all subgroups

TABLE 4. Comparison of antimuscarinic agents currently available in Hong Kong

	Oxybutynin	Tolterodine	Solifenacin	Darifenacin	Trospium	Flavoxate
Dosage form	IR: tablet	IR: tablet ER: capsule	IR: tablet	ER: tablet	IR: tablet	IR: tablet
Selectivity	Non-selective	Non-selective	M3 selective	M3 selective	Non-selective	Non-selective
Dosing	IR: 2.5-5 mg bid/tds (max 5 mg qid) Older patient initial dose: 2.5 mg daily	IR: 1-2 mg daily/bid (max 4 mg per day) ER: 2-4 mg daily (max 4 mg per day)	IR: 5-10 mg daily (max 10 mg per day) Concomitant CYP3A4 inhibitor: 5 mg daily	ER: 7.5-15 mg daily (max 15 mg per day) Concomitant CYP3A4 inhibitor: 7.5 mg daily	IR: 20 mg bid	IR: 100-200 mg tds
Administration	IR: can be crushed	IR: can be crushed ER: capsule should not be opened	IR: should not be crushed	ER: should not be crushed	IR: can be crushed	IR: should not be crushed
Hepatic impairment*	No data Use with caution	Class A/B IR: 1 mg bid ER: 2 mg daily Class C Not recommended	Class A No adjustment Class B 5 mg daily Class C Not recommended	Class A No adjustment Class B 7.5 mg daily Class C Not recommended	No dose adjustment	No data Use with caution
Renal impairment	No data Use with caution	CrCl >30 mL/min No adjustment CrCl 10-30 mL/min IR: 1 mg bid ER: 2 mg daily CrCl <10 mL/min Not recommended	CrCl >30 mL/min No adjustment CrCl <30 mL/min 5 mg daily	No dose adjustment	CrCl >30 mL/min No adjustment CrCl <30 mL/min IR: 20 mg daily	No data Use with caution

Abbreviations: bid = twice daily; CrCl = creatinine clearance; ER = extended-release; IR = immediate-release; qid = four times per day; tds = three times per day

* Mild: Child-Pugh class A; moderate: Child-Pugh class B; severe: Child-Pugh class C

(12%, 11%, and 8.5%, respectively).[19] Additionally, the adjusted mean changes in systolic and diastolic blood pressures from baseline to the final visit were comparable between the mirabegron 25 mg and placebo groups. Patients in the mirabegron 50 mg group experienced a clinically insignificant increase in blood pressure (ie, 1.0-1.5 mm Hg) compared with the placebo group.[19]

Combination therapy

Statement 22: Combination drug treatment (a beta-3 agonist and an antimuscarinic agent) may be considered for overactive bladder that is unresponsive to monotherapy with either antimuscarinics or beta-3 agonists.

Several trials have investigated the use of combination drug therapy comprising an antimuscarinic agent and a beta-3 agonist, especially solifenacin and mirabegron, in patients with OAB.[20,21] In the SYMPHONY study, three combination groups (solifenacin 10 mg/mirabegron 25 mg, solifenacin 5 mg/mirabegron 50 mg, and solifenacin 10 mg/mirabegron 50 mg) displayed significant improvements in mean volume voided per micturition, micturition frequency, and urgency episodes compared with solifenacin 5 mg monotherapy.[27] Despite a slight increase in the incidence of constipation among combination groups using solifenacin 10 mg, combination drug treatments were well tolerated compared with monotherapy or placebo.

In the SYNERGY study, the combination of solifenacin 5 mg/mirabegron 50 mg was superior to solifenacin or mirabegron monotherapy in terms of reducing incontinence episodes, urgency episodes, and nocturia.[28] In two other studies (BESIDE[29] and MILAI[30]), mirabegron was used as an add-on therapy for patients with OAB who remained symptomatic on solifenacin alone. Both studies showed that the combination of solifenacin 5 mg/mirabegron 50 mg produced greater improvements in incontinence episodes and micturition frequency.[29,30] The incidence and frequency of treatment-emergent adverse events were similar in the combination and monotherapy groups. The withdrawal rate related to treatment-emergent adverse events was low (ie, 1.1% to 1.5%).[29,30]

The long-term safety and efficacy of solifenacin and mirabegron combination treatment over 12

months were demonstrated in the SYNERGY II[31] and MILAI II studies,[32] and the use of antimuscarinics other than solifenacin in combination therapy was assessed in the MILAI II study.[32] Similar efficacy and adverse events were observed with various combinations of antimuscarinics (eg, imidafenacin, propiverine, and tolterodine) and mirabegron.

Statement 23: Combination treatment using a beta-3 agonist and an antimuscarinic is preferred over the use of two antimuscarinics due to fewer side-effects and a lower anticholinergic burden.

There is a lack of large-scale randomised controlled trials evaluating combination therapy with two antimuscarinic agents. In a retrospective study, the long-term persistence rate for combination therapy with two antimuscarinics was poor due to adverse events.[20] In contrast, the combination of an antimuscarinic agent and a beta-3 agonist exhibited a better persistence rate compared with monotherapy among patients with OAB who had moderate to severe symptoms.[20,21] Considering the high anticholinergic burden in older individuals, the use of two antimuscarinics is not preferable, even if the response to monotherapy is inadequate. Instead, combination therapy with an antimuscarinic agent and a beta-3-agonist is recommended.

Surgical treatment

Statement 24: Posterior tibial nerve stimulation should be considered for patients who have been unsuccessful with pharmacological treatment.

Percutaneous tibial nerve stimulation (PTNS) is a less invasive procedure among the available surgical interventions for OAB. A meta-analysis involving 2461 patients showed that PTNS could reduce voiding frequency, nocturia frequency, urgency episodes, and incontinence episodes while increasing the maximum cystometric capacity.[33] The main complication was pain at the puncture site, but its incidence was low. One trial comparing the efficacies of PTNS and tolterodine showed that PTNS had superior results concerning the composite outcome of cure or symptom improvement (79.5% vs 54.8%; P=0.01).[34] Trials comparing PTNS with beta-3 agonists are ongoing.

Statement 25: Intravesical botulinum toxin injection or sacral neuromodulation should be considered in carefully selected patients who have been unsuccessful with pharmacological treatment.

A phase 3, randomised, placebo-controlled trial demonstrated that intravesical injection of botulinum toxin A significantly reduced micturition frequency, increased the rate of complete continence, and improved OAB symptoms and quality of life scores compared with placebo.[35] The clinical effects of botulinum toxin A usually persisted for 3 months to 1 year, and additional injections were needed when the effects diminished. Uncomplicated urinary tract infection was the most common adverse event, and urinary retention was observed in 5.4% of patients.[35]

Sacral neuromodulation (SNM) utilises a principle similar to PTNS but involves implantation of electrical leads at the S3 nerve root.[36] A systematic review showed that 15% of patients were completely cured with SNM, whereas 50% of patients had a >90% reduction in the number of incontinence episodes.[36] The most common complications associated with SNM were pain at the implant or lead site (25%), lead migration (16%), and replacement and repositioning of the implanted pulse generator (15%).[36] Pain at the implant or lead site is similar to sciatica, which radiates down to the lower back to the hip, thigh, and toes. A test implant is generally required. If the pain is intolerable, permanent implantation is not performed.

Conclusion

Overactive bladder is a common condition with a substantial impact on quality of life. The number of patients with increasing OAB complexity is expected to increase due to population ageing. Representatives of the HKGS and the HKUA have agreed upon 25 consensus statements regarding the diagnostic approach, management, and referral mechanism for OAB in primary care settings. Through collaborations among primary care practitioners, geriatricians, and urologists, we hope to provide more holistic care to patients with OAB in Hong Kong.

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Conflicts of interest

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Supplementary material

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