INTRODUCTION

These guidelines have been drafted by the Urological Society of India benign prostatic hyperplasia/obstruction (BPH/BPO) guidelines panel and address management of BPH/BPO. The guidelines are intended for urologists and the recommendations are updated till January 2021. These will remain valid until the next update or for a maximum period of 5 years. The guidelines should not be regarded as a rigid clinical pathway for every patient and are not intended to replace clinical judgment. These guidelines should not be viewed as legal standards of care. This executive summary includes some salient aspects of the guidelines and the guideline statements. The complete guidelines document can be accessed from the Urological Society of India website at www.usi.org.in.

METHODS

A nonsystematic review of the literature available on the subject on Medline and Google Scholar was performed. Results of many of the studies and meta-analyses were combined in a simple narrative fashion. The available articles were reviewed by the panelists and evidence was extracted. The articles published from India and pertaining to the Asian subpopulation were analyzed along with the world literature. Systematic cost analysis of different treatment modalities was not performed. The recommendations are graded (GR) as strong where an action should or should not be undertaken because net benefit or net harm is substantial; moderate/optional where an action may or may not be undertaken because net benefit or net harm is equivocal; and conditional/selective when net benefit or net harm of taking an action is justified only in selective circumstances.

DIAGNOSTIC WORK-UP

1. Medical history: Take a complete medical history from men with lower urinary tract symptoms (LUTS)\(^1\) (GR strong)
2. Symptom assessment: American urological association symptom index\(^2\) is the most commonly used symptom score in India and is recommended for routine use (GR strong)
3. Visual Prostate Symptom Score\(^3\) may be used in illiterate patients (GR optional)
4. Use bladder diary (for three or more days)\(^4\) in men with storage predominant symptoms (GR strong)
5. Perform physical examination and DRE in evaluation of males with LUTS
6. Do urinalysis in evaluation of males with LUTS. Urinalysis helps in identifying issues such as urinary tract infection, diabetes mellitus, and hematuria. It is cheap and easily available. The panel recommends routine use of urinalysis in men with LUTS (GR strong)
7. Serum prostate-specific antigen (PSA) test is optional in evaluation of males with LUTS suspected to be due to BPH. Serum PSA should be done: if it is going to change the management plan, if life expectancy is more than 10 years, and if diagnosis of prostate cancer would alter the management plan\(^5\) (GR strong)
8. Assessment of renal function should be done if renal function impairment is suspected on history and clinical examination, in presence of hydronephrosis, when surgery is contemplated for BPH, and if a patient has diabetes or hypertension\(^6\) (GR strong)
9. Perform uroflowmetry in the initial evaluation of male LUTS\(^7\) (GR conditional/selective)
10. Measure PVR in men with LUTS. Perform ultrasound for upper tracts in men with LUTS (GR conditional/selective)
11. Perform prostate ultrasound for prostate size if it will change the medical management (GR Optional)
12. Perform prostate ultrasound before deciding the surgical management in BPH (GR Strong)
13. Urethrocystoscopy is not routinely advocated in the initial workup of BPH. Perform urethrocystoscopy in men with LUTS if it may change the plan of action or before minimally invasive or surgical therapy for BPH. Perform urethrocystoscopy for diagnosis of bladder outlet obstruction when urodynamics (UDS) testing is not available or not feasible (if there is diagnostic uncertainty and surgical therapy is contemplated)\(^8\) (GR conditional/selective)
14. Perform urethrocystoscopy in men with LUTS if they have hematuria, suspected stricture, or suspected bladder cancer (GR strong)
15. Perform UDS in men with LUTS if there are specific indications for evaluation of underlying pathology, after unsuccessful invasive treatment of BPH, when voided volume <150 ml, and bothersome voiding symptoms with Qmax >10 ml/s; men with bothersome voiding
symptoms with PVR >300 ml; men >80 years with bothersome voiding symptoms when invasive treatment is planned; and men <50 years with bothersome voiding symptoms when invasive treatment is planned\(^9\) (GR: conditional/ selective).

**CONSERVATIVE MANAGEMENT**

1. Offer watchful waiting for men with non-bothersome mild-to-moderate symptoms (GR strong)
2. Offer lifestyle advice to all men with LUTS (GR strong).

**PHARMACOLOGICAL MANAGEMENT**

**Alpha-blockers**

1. Offer alpha-blockers to men with moderate-to-severe LUTS. Alpha-blockers can be prescribed irrespective of prostate volume\(^{10,11}\) (GR strong)
2. Alpha-blockers, especially tamsulosin, might be avoided in patients scheduled for cataract surgery in the near future till the cataract surgery is performed\(^{12}\) (GR conditional)
3. Use alpha-blockers for three or more days prior to trial of voiding without catheter in acute retention due to BPH\(^{13}\) (GR optional).

**5-Alpha-Reductase Inhibitors (5ARI)**

1. Offer 5-alpha-reductase inhibitors (5ARIs) to patients with moderate-to-severe LUTS with prostatic enlargement\(^{14-16}\) (GR Strong)
2. Inform patients about the delayed onset of action (3–6 months)\(^{17}\) (GR strong)
3. Do not use 5ARI in patients with LUTS without prostatic enlargement (GR strong).

**Combination therapy (alpha-blockers and 5-alpha-reductase inhibitors)**

1. Offer combination therapy (alpha-blocker +5 ARI) to all men with moderate-to-severe symptoms and large prostates (>30 g or >40 g) and poor flow rates, i.e., men with a high risk of disease progression\(^{16}\) (GR strong)
2. Inform patients about the ability of this treatment to reduce the disease progression and risk of sexual side effects (GR strong)
3. Offer combination therapy to men with a high risk of progression where follow-up is likely to be poor (GR conditional/selective)
4. Consider discontinuation of alpha-blocker after combination therapy of 6 months or more\(^{19}\) (GR: conditional/selective).

**Other agents**

1. Use antimuscarinic agents (either alone or in combination with alpha-blockers) in patients with predominant storage symptoms. Initial combination of alpha-blockers with antimuscarinic agents is preferable in men with moderate-to-severe LUTS with predominant storage symptoms\(^{20}\) (GR strong)
2. Avoid antimuscarinic agents in men with PVR >150 mL (GR Conditional/Selective)
3. Phosphodiesterase 5 inhibitors may be offered to men who have moderate-to-severe LUTS, especially in younger men with low body mass index\(^{21}\) (GR conditional/ selective)
4. Phosphodiesterase 5 inhibitors should not be used in patients using nitrates and potassium channel openers, patients with unstable angina pectoris and recent myocardial infarction, and patients with significant hepatic and renal insufficiency (GR strong)
5. Beta-3 agonists may be offered to men who have moderate-to-severe LUTS, especially in men presenting predominantly with bladder storage symptoms (GR optional)
6. In the absence of convincing evidence on the use of phyotherapy, Ayurvedic and Homoeopathic medicines, the panel does not recommend the use of these agents (GR selective).

**SURGICAL TREATMENT**

The standard indications for surgical therapy are renal insufficiency secondary to BPH, refractory urinary retention secondary to BPH, recurrent UTIs, recurrent bladder stones due to BPH, gross hematuria due to BPH, LUTS attributed to BPH refractory medical treatment, and LUTS attributed to BPH in a patient unwilling to use other therapies\(^{22}\).

1. Surgery should be offered as a primary modality for patients presenting with complications arising secondary to BPH such as renal insufficiency, refractory urinary retention, recurrent urinary tract infections, recurrent bladder stones, and gross hematuria (GR strong)
2. Surgery shall be offered as an alternative to patients presenting with moderate-to-severe LUTS who failed to respond to medical management and who are not tolerant or compliant to medical management (GR optional)
3. Open prostatectomy shall be offered for treatment of moderate-to-severe LUTS in men with prostate size >80–100 ml if endoscopic enucleation techniques are not available or are deemed unsuitable for the patient\(^{23,24}\) (GR selective)
4. Transurethral resection of prostate (TURP) should be offered to treat moderate-to-severe LUTS in men with prostate size 30–80 ml\(^{25}\) (GR strong)
5. Transurethral incision of prostate should be offered to treat LUTS in men with prostate size <30 ml, in absence of a median lobe\(^{26}\) (GR strong)
6. Bipolar TURP may be offered to treat moderate-to-severe LUTS in men with prostate size 30–80 ml based on equipment availability, surgeon’s experience, and patient’s choice\(^{27}\) (GR optional)
7. Holmium laser enucleation of prostate (HOLEP) should be offered to treat moderate-to-severe LUTS in men as size-independent modality as an alternative to TURP. HOLEP is especially beneficial offered to treat moderate-to-severe LUTS in men with prostate size >80 ml. HOLEP is an endourological alternative to open surgery (GR strong)

8. Green light LASER (80 W, 120 W, 180 W, KTP, and LBO) vaporization of prostate may be offered to treat moderate-to-severe LUTS in men with prostate size <80 as an alternative to TURP. Green light LASER vaporization of prostate may be offered to treat moderate-to-severe LUTS in men receiving antiplatelet therapy. (GR optional)

9. Diode laser vaporization/enucleation of prostate may be offered to treat moderate-to-severe LUTS in men as an alternative to TURP (GR optional)

10. Thulium LASER (Tm: YAG) enucleation of prostate should be offered to treat moderate-to-severe LUTS in men as size-independent modality as an alternative to HOLEP and TURP (GR strong)

11. Thulium LASER (Tm: YAG) vaporization of prostate may be offered to treat moderate-to-severe LUTS in men with prostate size <80 ml. ThuVEP/ThuVARP may be offered to the patients receiving anticoagulation (GR optional)

12. Panel feels that prostatic stents and prostatic urethral lift are optional, intraprostatic botulinum injections are not recommended. Panel recommends to wait for consolidated data on aquablation, minimally invasive simple prostatectomy, TIND, water vapor therapy (Rezum), and prostatic artery embolization before any recommendation as a guideline statement.

Ravindra Bhachandra Sabnis, Prashant Motiram Mulawkar*, Rohit N. Joshi
Department of Urology, Mulijibhai Patel Urological Hospital, Nadiad, 1Department of Urology, Aarna Superspeciality Hospital, Ahmedabad, Gujarat, 2Department of Urology, Tirthankar Superspeciality Hospital, Akola, Maharashtra India. *E-mail: pmulawkar@hotmail.com

REFERENCES

1. Oelke M, Bachmann A, Descazesoud A, Emberton M, Gravas S, Michel MC, et al. EAU guidelines on the treatment and follow-up of non-neurogenic male lower urinary tract symptoms including benign prostatic obstruction, Eur Urol 2013;64:118-40.

2. Barry MJ, Fowler EJ Jr., O’Leary MP, Bruskewitz RC, Holmgren HL, Mebus FT, et al. The American Urological Association symptom index for benign prostatic hyperplasia. The Measurement Committee of the American Urological Association. J Urol 1992;148:1549-57.

3. Roy A, Singh A, Sidhu DS, Jindal RP, Malhotra M, Kaur H. New visual prostate symptom score versus international prostate symptom score in men with lower urinary tract symptoms: A prospective comparison in Indian Rural Population. Niger J Surg 2016;22:111-7.

4. Abrams P, Cardozo L, Fall M, Griffiths D, Rosier P, Ulfstrom U, et al. The standardisation of terminology in lower urinary tract function: Report from the standardisation sub-committee of the International Continence Society. Urology 2003;61:37-49.

5. Novara G, Galfano A, Gardi M, Ficarra V, Boccon-Gibod L, Artibani W. Critical review of guidelines for BPH diagnosis and treatment strategy. Eur Urol Suppl 2006;5:418-29.

6. Centre NCG. The Management of Lower Urinary Tract Symptoms in Men; 2010. Available from: https://www.nice.org.uk/guidance/cg97/evidence/full-guideline-pdf-245363873. [Last accessed on 2019 Dec 01].

7. Veeratterapillay R, Pickard RS, Harding C. The role of uroflowmetry in the assessment and management of men with lower urinary tract symptoms – Revisiting the evidence. J Clin Urol 2014;7:154-8.

8. El Din KE, de Wildt MJ, Rosier PF, Wijkstra H, Debruyne FM, de la Rosette JJ. The correlation between urodynamic and cystoscopic findings in elderly men with voiding complaints. J Urol 1996;155:1018-22.

9. Gürbüz C, Drake MJ. Where can urodynamic testing help assess male lower urinary tract symptoms? Turk J Urol 2019;45:157-63.

10. Djanan B, Chapple C, Milani S, Marberger M. State of the art on the efficacy and tolerability of alpha-1 adrenoceptor antagonists in patients with lower urinary tract symptoms suggestive of benign prostatic hyperplasia. Urology 2004;64:1081-8.

11. Nickel JC, Sander S, Moon TD. A meta-analysis of the vascular-related safety profile and efficacy of α-adrenergic blockers for symptoms related to benign prostatic hyperplasia. Int J Clin Pract 2008;62:1547-59.

12. Zaman F, Bach C, Junaid I, Papatasoris AG, Pati J, Masood J, et al. The floppy iris syndrome – What urologists and ophthalmologists need to know. Curr Urol 2012;6:1-7.

13. Fisher E, Subramonian K, Omar M. The role of alpha blockers prior to removal of urethral catheter for acute urinary retention in men. Cochrane Database Syst Rev 2014;6:CD006744. doi: 10.1002/14651858. CD006744.pub3.

14. Crawford ED, Wilson SS, McConnell JD, Slawin KM, Lieber MC, Smith JA, et al. Baseline factors as predictors of clinical progression of benign prostatic hyperplasia in men treated with placebo. J Urol 2006;175:1422-6.

15. McConnell JD, Bruskewitz R, Walsh P, Andriole G, Lieber M, Holmgren HL, et al. The effect of finasteride on the risk of acute urinary retention and the need for surgical treatment among men with benign prostatic hyperplasia. Finasteride Long-Term Efficacy and Safety Study Group. N Engl J Med 1998;338:557-63.

16. Roehrborn CG, Boyle P, Nickel JC, Hoefner K, Andriole G, ARIA3001 ARIA3002 and ARIA3003 Study Investigators. Efficacy and safety of a dual inhibitor of 5-alpha-reductase type 1 and 2 (dutasteride) in men with benign prostatic hyperplasia. Urology 2002;60:434-41.

17. Tacklind J, Fink HA, Macdonald R, Rutks I, Wilt TJ. Finasteride for benign prostatic hyperplasia. Cochrane Database Syst Rev 2010;6:CD006015. doi: 10.1002/14651858.CD006015.pub3.

18. Zhou Z, Cui Y, Wu J, Ding R, Cai T, Gao Z. Meta-analysis of the efficacy and safety of combination of tamsulosin plus dutasteride compared with tamsulosin monotherapy in treating benign prostatic hyperplasia. BMC Urol 2019;19:17.

19. van der Worp H, Jellema P, Hodik J, Lisman-van Leeuwen Y, Korteschiel L, Steffens MG, et al. Discontinuation of alpha-blocker therapy in men with lower urinary tract symptoms: A systematic review and meta-analysis. BMJ Open 2019;9:e030405.

20. Kim HJ, Sun HY, Choi H, Park JY, Bae JH, Doo SW, et al. Efficacy and safety of initial combination treatment of an alpha blocker with an anticholinergic medication in benign prostatic hyperplasia patients with lower urinary tract symptoms: Updated meta-analysis. PLoS One 2017;12:e0169248.

21. Wang Y, Yao Y, Liu J, Duan L, Cui Y. Tadalafil 5 mg once daily improves lower urinary tract symptoms and erectile dysfunction: A systematic
21. Parsons JK, Barry MJ, Dahl P, Gandhi MC, Kaplan SA, Kohler TS, et al. Surgical management of lower urinary tract symptoms attributed to benign prostatic hyperplasia: AUA Guideline amendment 2020. J Urol 2020;204:799.

22. Line B, Wu X, Xu A, Ren R, Zhou X, Wen Y, et al. Transurethral enucleation of the prostate versus transvesical open prostatectomy for large benign prostatic hyperplasia: A systematic review and meta-analysis of randomized controlled trials. World J Urol 2016;34:1207-19.

23. Elshal AM, El-Nahas AR, Barakat TS, Elsaadany MM, El-Hefnawy AS. Transvesical open prostatectomy for benign prostatic hyperplasia in the era of minimally invasive surgery: Perioperative outcomes of a contemporary series. Arab J Urol 2013;11:362-8.

24. Ahyai SA, Gilling P, Kaplan SA, Kuntz RM, Madersbacher S, Montorsi F, et al. Meta-analysis of functional outcomes and complications following transurethral procedures for lower urinary tract symptoms resulting from benign prostatic enlargement. Eur Urol 2010;58:384-97.

25. Reich O, Gratzke C, Stief CG. Techniques and long-term results of surgical procedures for BPH. Eur Urol 2006;49:970-8.

26. Alexander CE, Scullion MM, Omar MI, Yuan Y, Mamoulakis C, NDow JM, et al. Bipolar versus monopolar transurethral resection of the prostate for lower urinary tract symptoms secondary to benign prostatic obstruction. Cochrane Database Syst Rev 2019;12:CD009629.

27. Gilling PJ, Wilson LC, King CJ, Westenberg AM, Frampton CM, Fraudorfer MR. Long-term results of a randomized trial comparing holmium laser enucleation of the prostate and transurethral resection of the prostate: Results at 7 years. BJU Int 2012;109:408-11.

28. Elmansy HM, Kotb A, Elhilali MM. Holmium laser enucleation of the prostate: Long-term durability of clinical outcomes and complication rates during 10 years of followup. J Urol 2011;186:1972-6.

29. Thangasamy I, Chalasani V, Bachmann A, Woo H. 2028 photoselective vaporization of the prostate versus transurethral resection of the prostate a systematic review with meta-analysis. J Urol 2012;187:315-23.

How to cite this article: Sabnis RB, Mulawkar PM, Joshi RN. The Urological Society of India guidelines on management of benign prostatic hyperplasia/benign prostatic obstruction (executive summary). Indian J Urol 2021;37:210-3.

© 2021 Indian Journal of Urology | Published by Wolters Kluwer - Medknow