



Review

Benign prostatic hyperplasia and male lower urinary symptoms: A guide for family physicians



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Abstract Male patients with lower urinary tract symptoms (LUTS) and benign prostatic hyperplasia (BPH) are increasingly seen by family physicians worldwide due to ageing demographics. A systematic way to stratify patients who can be managed in the community and those who need to be referred to the urologist is thus very useful. Good history taking, physical examination, targeted blood or urine tests, and knowing the red flags for referral are the mainstay of stratifying these patients. Case selection is always key in clinical practice and in the setting of the family physician. The best patient to manage is one above 40 years of age, symptomatic with nocturia, slower stream and sensation of incomplete voiding, has a normal prostate-specific antigen level, no palpable bladder, and no haematuria or pyuria on the labstix. The roles of α blockers, 5- α reductase inhibitors, and antibiotics in a primary care setting to manage this condition are also discussed.

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1. Introduction

Male patients presenting with benign prostatic hyperplasia (BPH) and lower urinary tract symptoms (LUTS) are

commonly seen by family physicians in the community due to worldwide ageing demographics. This succinct guide serves to assist the busy physician on the clinical examination, investigations and management in a primary care setting.

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2. Definition of clinical BPH

Clinical BPH is prostate adenoma/adenomata (PA) causing a varying degree of bladder outlet obstruction with or without symptoms. PA comprises an important cause of male LUTS [1]. PA is a widespread problem that increases with age. Almost one in four men with prostate problems aged 40–49 years receives treatment, and this increases to three in every four men aged 70 years and older [2].

3. Definition of male LUTS

Male LUTS can be classified as follows:

- i) Voiding symptoms (obstructive) usually caused by prostate or bladder neck stenosis/urethral/meatal stricture; symptoms include: hesitancy, weak stream, post micturition dribble, urinary retention, straining and incomplete emptying.
- ii) Storage symptoms (irritative) that may be caused by an overactive bladder or a bladder tumor/stone; symptoms include: urgency, urge incontinence, frequency, nocturia, dysuria and suprapubic pain [2].

In general, the symptoms seen in early BPH are nocturia and slower urinary stream with sensation of incomplete voiding. When male patients present with urinary urgency and urge incontinence, the concern is that we are dealing with advanced BPH as they may have developed bladder dysfunctions.

4. Diagnosis of clinical BPH (PA)

Family physicians are usually the first medical professionals patients consult for symptoms and signs suggestive of PA. The guidelines proposed here are suggestions on how family physicians can best diagnose and treat patients with PA.

- i) Age: PA usually occurs after the age of 40 years. In the younger age group, urethral stricture should be considered as a possible differential diagnosis, and in the older age group, "ageing bladder" and nocturnal polyuria.
- ii) International Prostate Symptoms Score (IPSS) and Quality of Life (QoL) Index: These scores give an idea of the severity of LUTS and the most bothersome symptoms. On follow-up, these scores can give accurate documentation of patients' progression and deterioration. The deterioration of symptoms especially frequency and urgency may indicate development of an overactive bladder (OAB). It is encouraged that the IPSS/QoL questionnaire be given in the waiting area if the presenting complaint told to the attending nurse in charge of the clinic is suggestive of BPH/LUTS in order to reduce the consultation time.
- iii) Palpate and percuss for a distended bladder: A clinically detectable bladder immediately after urination indicates significant residual urine. The bladder needs to be at least 200 mL to be palpable. This is

suspicious for significant obstruction, which would need more aggressive treatment and referral to the urologist.

- iv) Digital rectal examination (DRE): This is important in differentiating PA (which feels firm and smooth) from malignancy (which feels hard and irregular). The latter of course requires urgent referral to the urologist. A useful guide for note is that when the prostate is flat, it is likely to be small, and when the prostate feels globular, large. Another way to look at this is that a finger's breadth represents about 15–20 g and so a gland that is three fingers in breadth across is 45–60 g [3].
- v) Fasting serum glucose, serum urea and electrolytes plus a urine dipstick: These tests are needed to rule out diabetes, significant renal impairment (e.g., due to hydronephrosis secondary to bladder outlet obstruction), haematuria and urinary tract infection. Those with significant renal impairment due to obstruction and those with haematuria especially isomorphic red blood cells on phase contrasts need to be referred to the urologist. Patients with dysmorphic red blood cells should be referred to the renal physician to investigate for causes such as glomerulonephritis or nephritis.
- vi) Serum prostate specific antigen (PSA): PSA testing is recommended for patients with LUTS and prostate cancer can be reasonably excluded if DRE is normal and PSA is within the normal range of below 4 µg/L. A serum PSA below 1.5 µg/L indicates minimal or no BPH if the flow is good and the patient's symptoms can be due to other causes such as OAB or ageing bladder. In general raised PSA can be due to cancer and non-cancer reasons, and it is best to refer this to the urologist to differentiate between the two.

The following suggested optional tests can be performed in the family practice setting, pending logistics:

- i) Observation of the voiding process: The voided urine can be collected in a urinal and the time required to void is recorded. This would give an estimate of the average flow rate and severity of obstruction. As a point of reference, the average flow rate for males aged 14–45 years is 21 mL/s, 12 mL/s for those aged 46–65 years and 9 mL/s for those aged 66–80 years [4,5].
- ii) Voiding diary: Instruct the patient to note the volume of void, fluid intake and time of each event over the course of 3 days. This is non-invasive and useful in differentiating patients with OAB, inappropriate fluid intake, and nocturnal polyuria. Normally the amount of urine passed in 24 h should be between 1.5 L and 2.0 L, two thirds of which should be during waking hours and one third at night. In nocturnal polyuria, seen in geriatric patients, this may be the reverse.
- iii) Radiological investigations: Ultrasonography is useful for helping to determine bladder wall thickness, prostate size and shape, degree of hydronephrosis and post-void urine. However, most family physicians do

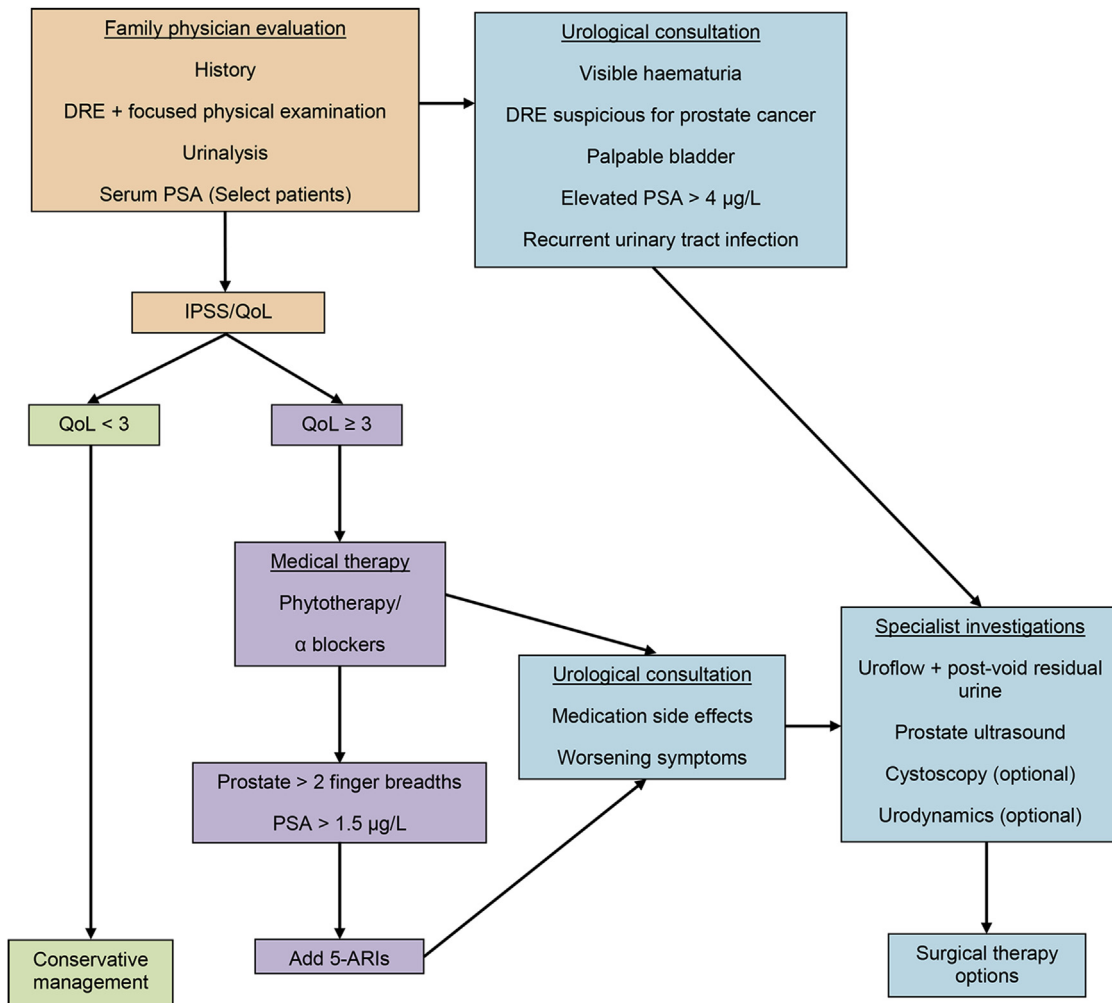


Figure 1 Benign prostatic hyperplasia/male lower urinary tract symptoms flowchart for the family physician. DRE, digital rectal examination; IPSS, International Prostate Syndrome Score; PSA, prostate specific antigen; QoL, Quality of Life Index; 5-ARIs, 5- α reductase inhibitors.

not have an ultrasound machine and generally it is not recommended for initial investigations of patients with uncomplicated LUTS in a family medicine practice.

5. Treatment of patients with PA/male LUTS

Case selection is always key in clinical practice and in the setting of the family physician. The best patient to manage is one above 40 years of age, symptomatic with nocturia, slower stream and sensation of incomplete voiding, has a normal PSA level, no palpable bladder and no haematuria or pyuria on the labstix.

i) **Phytotherapy:** Hexanic extract of *Serenoa* (HESr), can be used as initial treatment for patients with mild LUTS. Double blind studies have shown that it has anti-inflammatory activity in men with BPH-related LUTS. Plus, it is well known as a safe product indicated in the management of symptomatic BPH patients [6].

ii) **α Blockers:** Those patients who are bothered and without a palpable bladder and not better with phytotherapy can be started on a trial of α blockers after counselling on the side effects especially postural hypotension. The usual advice is not to change the position of the head too quickly when getting up from bed and to be careful on bending down to fetch items in the lower shelves in the super market. Patients also need to be careful when bending to play tennis or golf. It is encouraged to use selective α blockers to eliminate the need for titration. Most studies show that the effect of α blockers are seen after 2 weeks and it is important not to give up too early and wait for results of this trial of medication. In general a trial of 4–6 weeks is reasonable as some patients may develop spells of urinary urgency in the first 3–4 weeks; irritable bladder symptoms are largely resolved by 4–6 weeks while the obstructive symptoms are resolved much earlier at 2–4 weeks. If the family physician does not see any improvement after 4–6 weeks of medication, the consideration is to

refer to the urologist to investigate. If the medication is effective after 4–6 weeks, patients can be given further courses of the α blocker and monitored at intervals of 3–4 months, with PSA tested on a yearly basis if there are no concerns. Patients should be advised that α blockers relieve symptoms only but do not prevent progression of the disease. This is because α blockers do not reduce the size of the prostate [7]. Patients' symptoms may wax and wane and therefore it may be reasonable for patients to trial off the α blockers, or take them only on an as-needed basis.

- iii) Antibiotics: Prostatitis may be present at the time of presentation. This may present more like irritable bladder symptoms with intermittent dysuria and elevated PSA. It is reasonable to give a course of prostate-targeted antibiotics at the start of α blockers to improve the response to prostate medication. If the PSA remains elevated at 2–3 months follow-up after a course of antibiotics, then referral to the urologist should be made.
- iv) 5- α Reductase inhibitors (5-ARIs): 5-ARIs may be added to those with larger prostate volumes on DRE (more than 30–40 g or when DRE shows a globular shape) and PSA above 1.5 $\mu\text{g/L}$. The 5-ARIs would not be effective if PSA is below 1.5 $\mu\text{g/L}$ as it indicates a small prostate [8]. The PSA levels would decrease to half of the initial PSA levels after 3–6 months. A rise beyond half the initial PSA level may indicate a prostate infection or malignancy. The 5-ARIs can reduce the prostate size but cannot correct the shape of the prostate, which contributes more significantly to obstruction. Therefore, patients with a large prostate adenoma and high grade intravesical prostatic protrusion may be better treated with surgery. Only surgery can restore the prostate to its normal shape and configuration. Counselling is fundamental in the prescription of 5-ARIs. The advantages of a reduction in prostate size with a reduction in need for surgery and hair preservation over several years need to be discussed along with a drop in ejaculatory volume and in some cases erectile dysfunction.
- v) Combination therapy: A combination of α blockers and 5-ARIs can be considered for the subset of patients with bothersome symptoms and a large prostate size of more than 30 g. However, in elderly patients, combination therapy can be prescribed only after weighing the significant risks of postural hypotension and falls.
- vi) Red flags for referral: Red flags for referral to urologists are persistent bothersome symptoms, gross haematuria, urinary incontinence, hard prostate, palpable bladder, PSA above 4 $\mu\text{g/L}$ and proven urinary tract infection [9].

6. Conclusion

This serves as a concise guide for the family physician and a flowchart of the management of BPH/male LUTS patients is shown in Fig. 1. We believe that by following this guideline, a significant proportion of such patients with BPH and LUTS can be managed in the community, thus ensuring a proper balance in the need for referrals to the urologist and cost effectiveness.

Conflicts of interest

The authors declare no conflicts of interest.

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