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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

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