Benign prostatic hyperplasia (BPH) depends on the severity of any lower urinary tract symptoms (LUTS) and the degree to which these are affecting a patient’s quality of life. Management options include lifestyle measures, pharmacological treatment and surgery. For some patients “watchful waiting” is the best course of action, whereby patients are monitored closely and interventions made when symptoms become troublesome; this approach has been shown to be safe and acceptable for patients.1

Lifestyle
Patients who have less troublesome LUTS (“international prostate symptom score” [IPSS] <7) can often be managed with watchful waiting. Practical advice can help to reduce the impact of LUTS on a patient’s quality of life. For example, reducing the volume of fluids consumed, especially close to bedtime, can help to minimise nocturia. In addition, avoidance of caffeinated beverages and spicy foods may be of some benefit.

Pharmacists should be aware of any medicines a patient is taking since some can exacerbate LUTS. The use of diuretics, and the time of their administration, should be investigated. Other drugs such as decongestants, antihistamines and antidepressants can also worsen symptoms.

Pads or containment products can be useful in managing symptoms, but are often less acceptable for patients and such products are less likely to be suitable for those who have symptoms associated with outlet obstruction.

Pharmacological treatment
The aim of pharmacological intervention is either to:

- Reduce smooth muscle tone in the bladder or prostate
- Alter the size of the prostate and thereby reduce resistance to urinary flow

Alpha-blockers
The bladder neck and prostate contain numerous alpha1- and alpha2-adrenoceptors within the smooth muscle tissue, mostly of the alpha1 subtype. Medicines that act as antagonists at these receptors have been shown to improve urinary flow.

Older drugs that antagonised both alpha1- and alpha2-adrenoceptors caused effects associated with antagonism of alpha2 receptors within the cardiovascular system. Newer drugs have a higher relative affinity for alpha1-adrenoceptors and are therefore associated with fewer cardiovascular side effects.

The alpha-adrenoceptor antagonists currently prescribed for BPH include tamsulosin (see Box 1, p49), terazosin, alfuzosin and doxazosin. Most are available in once-daily, controlled-release preparations. In general, there appears to be little difference in terms of overall efficacy — most improve IPSS score by increasing maximum urinary flow rate by about 2–3ml/s and

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**SUMMARY**

Treatment of benign prostatic hyperplasia depends on the severity of a patient’s lower urinary tract symptoms (LUTS), the degree to which these affect the patient’s life and the nature of such symptoms (i.e., does the patient have a problem with voiding or storing urine, or both).

Lifestyle interventions (e.g., restricting fluid intake) can be sufficient to control LUTS for some men with less severe symptoms. Men with more troublesome symptoms will require medication or surgery. Pharmacological treatment aims to reduce smooth muscle tone in the bladder (e.g., alpha-blockers) or alter the size of the prostate (e.g., 5α-reductase inhibitors). Surgery is sometimes required, but it is associated with risks such as erectile dysfunction and urinary incontinence.
improving other LUTS symptoms (eg, urgency, terminal dribbling, incomplete emptying). The decision around which particular drug to use should take into account patient comorbidities and tolerance.

Since the action of alpha-blockers is restricted to alteration in muscle tone there is no decrease in prostate size, rate of prostate growth or PSA. Prescribing alpha-blockers does not reduce the likelihood of a patient requiring surgery for BPH in the future.

Guidance from the National Institute for Health and Clinical Excellence for the management of men with LUTS recommends that alpha-blockers be prescribed for moderate-to-severe LUTS. Patients should be reviewed four to six weeks after starting therapy and annually thereafter.

Around 15% of patients will experience mild side effects including headache, dizziness, drowsiness and postural hypotension. Patients should be counselled about the risk of first-dose hypotension and should therefore be advised to take the first dose before bed. If symptoms such as dizziness, fatigue or sweating occur after the first dose, patients should be advised to remain lying down until the symptoms resolve. Alpha-blockers can also cause retrograde ejaculation, whereby ejaculate is forced into the bladder. This is due to a poorly functioning sphincter at the bottom of the bladder which should close during ejaculation.

5α-Reductase inhibitors The 5α-reductase inhibitors (5ARIs) are indicated for men with LUTS, substantially enlarged prostate glands or PSA >1.4ng/ml and a high likelihood of progression of the condition.

Testosterone is converted to dihydrotestosterone (DHT) by the enzyme 5α-reductase in normal androgen metabolism. 5α-Reductase exists as two isoenzymes, 5α-reductase I and II, with isoenzyme II being the most plentiful within the prostate. DHT is more potent than testosterone and is one of the driving factors in normal and abnormal prostatic growth. The 5ARIs inhibit the conversion of testosterone to DHT and therefore have a beneficial effect on BPH and LUTS.

There are two 5ARIs licensed for the treatment of BPH: finasteride and dutasteride. Finasteride inhibits 5α-reductase type II and, as such, is less effective at reducing the overall serum concentration of DHT than dutasteride, which inhibits both type I and II. Each drug significantly reduces serum DHT levels; reductions in prostate volume of 20–30% have been observed, as have improvements in IPSS (typically 3–4.5 points) and increases in maximum urinary flow (typically 1.5–2.5ml/s). These effects are generally seen within three to six months of starting treatment.
Each drug also reduces the risk of the development of acute urinary retention and the need for surgery compared with placebo.6 Both finasteride and dutasteride reduce PSA and this should be borne in mind when interpreting PSA results (used for screening for prostate cancer).6

Most side effects of 5ARIs are related to sexual function, which can be predicted from the mechanism of action. Patients can experience loss of libido and erectile and ejaculatory dysfunction. Some men may also experience breast tenderness. It should be noted that each drug is present in semen and if a patient’s partner is pregnant or likely to become pregnant he should be advised to use a condom to prevent her absorbing the drug. Similarly, women of childbearing potential should be advised to avoid handling broken tablets of finasteride or leaking capsules of dutasteride.6

Initially, patients taking 5ARIs should be reviewed at three to six months and every six to 12 months thereafter.

Combination treatment In view of the mechanism of action of the alpha-blockers and the 5ARIs, the use of one drug from each class can be justified pharmacologically — an alpha-blocker will offer immediate relief of symptoms and a 5ARI will provide long-term benefits in terms of reducing prostate size, the risk of acute urinary retention and the likelihood of needing surgical intervention.

The combination of doxazosin and finasteride was shown to be better than either doxazosin or finasteride alone in terms of slowing the clinical progression of BPH (measured by symptom score, maximum urinary flow rates, development of acute urinary retention and the need for BPH-related surgery).11 The combination of dutasteride and tamsulosin has also recently been investigated with similar results — an overall improvement in symptoms, reduced disease progression and a lower incidence of acute urinary retention and the need for surgical intervention.6 Combination therapy is of clear benefit for men with moderate-to-severe LUTS and large prostates (estimated to be over 30g).

Monitoring for patients taking combination therapy should be as for the individual drugs. Patients who respond to combination therapy can stop the alpha-blocker after six to nine months and continue with monotherapy. However, if symptoms recur they should restart combination treatment.

Antimuscarinics Patients who present with BPH and symptoms indicating detrusor overactivity (eg, polyuria or urgency) might benefit from a combination of an alpha-blocker and an antimuscarinic drug, such as oxybutynin. However, care should be taken with patients who have a history of acute urinary retention. Elderly patients with a history of cardiovascular disease or angle-closure glaucoma are at particular risk of side effects from these medicines.

Herbal products There are several herbal products available for the treatment of LUTS associated with BPH. Most contain the herbal extract saw palmetto (Serenoa repens). There is limited evidence to support such products.

### Box 1: Over-the-counter supply of tamsulosin

Tamsulosin is now licensed in the UK for over-the-counter sale from pharmacies for treatment of functional symptoms of benign prostatic hyperplasia (BPH) in men aged between 45 and 75 years. It is available as a 400µg modified-release capsule and can be taken for up to six weeks, after which time a patient must be assessed by his GP.

Any patient whose symptoms have not improved, or have worsened within 14 days of starting treatment, should be referred for assessment by his GP.

Community pharmacists should be fully aware of the complexity of BPH management and be particularly mindful of the need to differentiate between BPH and other diagnoses (such as prostate cancer or infection) and refer to a GP accordingly. Symptoms that should prompt referral include painful urination, symptoms indicative of a urinary tract infection (such as loin pain, lower back pain or fever), haematuria or cloudy urine in the past three months.

Nonetheless, over-the-counter access to tamsulosin provides a valuable opportunity for men to discuss lower urinary tract symptoms with a health professional where they might otherwise not consider going to see their GP. Patients should also be counselled on lifestyle factors that can improve symptoms, such as avoiding drinks containing caffeine (or limiting their consumption). In addition, patients should be asked about any medicines that they are taking since parasympathomimetics can worsen bladder tone.

Patients should be advised to follow a healthy lifestyle including taking regular exercise and eating an appropriate amount of fibre.

Patients should also be counselled that when they first take tamsulosin there is a possibility that they may experience dizziness as a result of the fall in blood pressure associated with alpha-adrenoceptor blockade.
and the data that do exist are conflicting. To date, the largest clinical trial to examine the use of saw palmetto did not give any convincing results — all measurable aspects of BPH were not improved when compared with placebo.8 Ultimately, there is a lack of high quality clinical evidence to support health professionals recommending herbal preparations for BPH.

**Urinary retention**

Patients with BPH can experience acute urinary retention, which needs to be relieved immediately. Patients can also present with chronic urinary retention, where a painless but palpable bladder develops over an extended period. This can cause renal failure, hypertension and chronic infection.

Generally, in the short term, urinary retention is managed by inserting an urinary catheter to void the bladder. It should be noted that, if a considerable volume of urine is drained quickly after catheterisation, it can lead to electrolyte imbalance.

In some cases of acute urinary retention, it may be appropriate to allow the patient to try to void his bladder without the introduction of a catheter. In such cases, the patient will often be given an alpha-blocker to improve the likelihood of him passing urine.1,11

In acute or chronic retention, patients can be referred for prostatectomy. In addition to standard surgical risks, prostatectomy carries the risk of urinary incontinence and sexual dysfunction. These risks are higher for emergency surgery (which may be required for acute urinary retention) than for elective surgery (for chronic urinary retention).12

Other patients will undergo surgery electively because medical treatment has failed. The aim of surgical intervention is to remove the obstruction to the flow of urine or to solve complications associated with LUTS (eg, acute urinary retention, gross haematuria, renal failure, bladder calculi or obstruction). There are three main surgical options, which are outlined below.

**Transurethral resection of the prostate**

Transurethral resection of the prostate (TURP) is the gold standard procedure for removing prostate tissue. TURP involves using a diathermy current through a fine metal loop to cut away prostate tissue. Developments in the equipment used to perform TURP have limited the need to repeat the procedure, improved safety and reduced the associated morbidity and mortality.

Risks associated with a TURP include blood loss during surgery and TURP syndrome (where an extended surgical period has resulted in patients absorbing excessive amounts of irrigation fluid and thus developing hyponatraemia). Impotence and incontinence can occur after TURP, but the risks are low.13 Retrograde ejaculation affects about 90% of men after TURP.14

**Transurethral incision of the prostate**

Transurethral incision of the prostate (TUIP) involves cutting one or two small grooves in the bladder neck to open up the urinary channel and allow urine to pass through more easily.

A TUIP is considered primarily for men who are sexually active and wish to retain outward ejaculation — the rate of retrograde ejaculation with TUIP is 15–30%.15 However, TUIP is an option only when the prostate gland is relatively small.

**Laser prostatectomy**

Various laser sources have proved useful in prostatic surgery. Compared with TURP, holmium laser enucleation has shown positive post-surgical outcomes — both immediate and longer term.14 However, laser prostatectomy must be undertaken by surgeons skilled in the technique and its use is not yet widespread. This technique is of particular use for patients with larger prostates and those who are at increased bleeding risk, such as patients taking long-term anticoagulants or those who have bled profusely when catheterised.

**References**


