

# Benign prostatic hyperplasia: prevalence and diagnosis

GPs in the UK will, on average, each have 50 men on their list between the ages of 60 and 80 years who have moderate or severe urinary symptoms related to benign prostatic hyperplasia. This article discusses the prevalence and assessment in general practice of this condition.

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Benign prostatic hyperplasia (BPH) is a common disease among older men and is the most common form of prostate disease (accounting for over 80% of clinical presentations).<sup>1</sup> It is also the most common cause of lower urinary tract symptoms (LUTS) in elderly men. Therefore, although LUTS may be caused by other diagnoses (eg, prostatitis, urinary stones, prostate cancer or bladder cancer), studies of the prevalence of LUTS are a good indication of the prevalence of BPH in this population.

The 2003 UrEpik study<sup>2</sup> of LUTS, using the International Prostate Symptom Score (IPSS) in men aged 40–79 years, found that the prevalence of LUTS was remarkably similar across all four centres (three in Europe and one in Korea) of the study. Prevalence of the condition increases with age, with it affecting almost 20% of 50–59 year olds, 30% of 60–69 year olds and 40% of 70–79 year olds. In terms of BPH, the figures for the 60–69 year olds and 70–79 year olds are the most relevant.

These figures represent a considerable symptom burden,

which will be magnified by the ageing population effect. Projections for the UK population and age-range changes are that the number of men in the UK aged 60–84 years will increase by 40% from 5.7 million in 2008 to 7.9 million in 2028.<sup>3</sup> From a GP's perspective, these prevalence data translate to the average GP in England (with a typical list of 1800 patients) having 50 male patients with moderate-to-severe LUTS (IPSS score of >8) in the age group 60–80 years rising to 62 men for the GP practising in 2028.<sup>3</sup>

## Impact on patients

BPH can significantly impair men's quality of life (QOL). For example, it causes anxiety/depression, erectile dysfunction, ejaculatory dysfunction and falls. It can also significantly affect the QOL of the men's partners.

### QOL

The adverse effects of BPH on men's QOL has long been ignored and underestimated. This has been

addressed in studies over the last 15 years. One study<sup>4</sup> that assessed the impact of LUTS on patients' lives found that:

- 28% said their symptoms were a 'medium or big worry'
- 37% said symptoms interfered with their daily activities at least some of the time
- 43% were unhappy or 'felt terrible' about the prospect of a future with their current symptoms.

A recent study measured levels of LUTS, urinary-specific QOL, anxiety and depression (using the Hospital Anxiety and Depression scale) in a cross-sectional, population-representative sample of 30,000 men. They showed that men with significant LUTS had the lowest QOL scores and the highest levels of anxiety (36% had moderate-to-severe anxiety) and depression (30% had moderate-to-severe depression).<sup>5</sup>

### Self-esteem and bother

What do men actually feel about their LUTS? A study by psychologists of men attending a urology outpatients UK clinic found

**Box 1:** LUTS**Obstructive**

Hesitancy  
Straining  
Weak stream  
Intermittency  
Feeling of incomplete bladder emptying

**Irritative**

Frequency  
Urgency  
Nocturia  
Urge incontinence

that most men hold negative views about what it means to have prostate problems, and that they view BPH as 'a progressive disease associated with old age'.<sup>6</sup> 'Bother' appears to originate from a combination of symptom severity, psychological distress (ie, being anxious or depressed), negative views of the condition and negative beliefs about the reactions of others, particularly their spouse.

**Sexual dysfunction**

Sex is still important to the ageing male. Studies show that older people retain a significant interest in sex and that a large proportion of older men and women remain sexually active. They also show that sexuality correlates well with quality of life and an individual's perception of their well-being.<sup>7</sup> Sexual dysfunction may be classified into three separate forms:

- Erectile dysfunction (ED)
- Ejaculatory dysfunction (EjD), which is defined as ejaculation with reduced amount of semen or loss of ejaculation

- Reduced libido

GPs are aware that the incidence of ED increases with age. The most comprehensive study to date on sexual dysfunction assessed 12,800 men in the USA and six European countries.<sup>8</sup> Rates of ED were 31% for 50–59 year olds, 55% for 60–69 year olds, and 76% for 70–79 year olds, and rates of EjD were 29% for 50–59 year olds, 55% for 60–69 year olds and 74% for 70–79 year olds.

This study also showed that sexual dysfunction (both ED and EjD) is related to BPH, independently of age and other co-morbidities. As the severity of LUTS increased, so did the associated ED and EjD (ie, the worse the BPH, the worse the sexual dysfunction). Interestingly, age and severity of LUTS, independently of each other, are stronger risk factors for ED and EjD than diabetes, hypertension, heart disease and hyperlipidaemia.

**Falls**

LUTS in elderly men is significantly associated with the risk of falling, and this risk increases with age. KelloggParson et al found that, compared with men with mild LUTS, the risk of falling one to two times over a 12-month period was increased by 11% in men with moderate LUTS and increased by 33% in men with severe symptoms. The risk of falling three or more times during a year was increased by 21% in moderate LUTS and 63% in severe LUTS.<sup>9</sup>

**Effect on spouse**

The UrEpik study<sup>2</sup> showed that the spouse was bothered by sleep disturbance caused by their partner's nocturia and was concerned that the patient

might have underlying cancer. Additionally, it found that 29% would be unhappy if their husband's condition remained as it was. Further studies have supported these findings,<sup>10</sup> with:

- 28% of spouses reporting sleep disturbance
- 30% reporting disruption of social life
- 62% being afraid that their husband had prostate cancer
- 82% feeling stressed at the prospect their husband might require surgery.

**Diagnosis**

LUTS can be grouped into obstructive and irritative symptoms (box 1). It is very important to remember that BPH is not the only cause of LUTS, which is why LUTS are now called 'LUTS' rather than their previous name of 'prostatism'.

GPs need to understand the patient's expectations when he presents with symptoms. A survey of 230 patients asked them to detail the importance of the following five aspects of BPH: relief of symptoms, avoidance of worsening symptoms, avoidance of future complications (eg, acute urinary retention), avoidance of surgery and exclusion of prostate cancer. The most important aspects were the exclusion of prostate cancer and secondly, the avoidance of disease deterioration.<sup>11</sup> This is the rationale for conservative treatment—many men simply want reassurance.

**History**

Questioning of patients with potential BPH should focus on LUTS, significant past medical history and co-morbidity (eg, diabetes, multiple sclerosis,

Parkinsonism), family history of urology problems and medication (eg, diuretics, including caffeine intake and anticholinergics).

It is extremely useful to use a symptom score such as the IPSS (including bother factor) to assess symptom severity and the degree to which the symptoms bother the patient. These two factors are important because they influence the choice of treatment.

A score of 0–7 means the symptoms are mild, a score of 8–19 indicates moderate and a score 20–35 suggests severe symptoms. When assessing the patient's history, the GP should review whether or not they need to refer the patient to secondary care. Referral is indicated by:

- History of frank haematuria
- Recurrent UTI
- Past history of urethral stricture
- Severe symptoms.

### Examination

This is focused on

- Palpable bladder (ie, urinary retention)
- Digital rectal examination (DRE)
- Severe phimosis
- If indicated from the history, a general neurological examinations.

There are two reasons to perform a DRE. Firstly, to exclude features suggestive of prostate cancer (ie, nodularity, asymmetry of size/firmness). Secondly to assess the size of the prostate, as this will have a major bearing on subsequent drug treatment of BPH.

The normal prostate is 20ml in volume and should feel flat, with a central sulcus. Only as the prostate increases in size in BPH, does it become more

protuberant and rounded. DRE, even by experienced urologists, systematically underestimates prostate size by up to 55% (compared with transrectal ultrasound measurement).<sup>12,13</sup> Because of this, the DRE should be viewed as vital to exclude prostate cancer but only used as a guide to determine prostate size.

After examination, the following features indicate referral to secondary care:

- Chronic retention
- Abnormal DRE
- Severe phimosis (rare in causing significant LUTS).

### Investigations

These should include

- Urinalysis, which should be by dipstick or formal mid-stream specimen of urine (MSU)
- Urea and electrolytes (U&E), renal impairment secondary to BPH is rare
- Prostate specific antigen (PSA).

There is some controversy regarding the measurement of PSA in men presenting with LUTS. The guidelines of the American Urology Association on the management of BPH state that 'PSA should be carried out in men with at least a further 10-year life expectancy for whom knowledge of the presence of prostate cancer would change management or patients for whom the PSA measurement may change the management of their urinary symptoms'.<sup>14</sup> The European Urology Association guidelines state<sup>15</sup> 'the measurement of PSA is recommended when a diagnosis of prostate cancer will change the decision about which therapeutic option to use'.

PSA has two important functions in the assessment of men with LUTS: to exclude prostate

cancer and to predict the future of BPH.

There is debate as to whether to use 4ng/ml as a standard cut-off point for normal or whether to use age-related PSA norms. I use the age-related norms as outlined by Oesterling.<sup>16</sup> These are:

- Age <50 years = <2.5ng/ml
- Age <60 years = <3.5ng/ml
- Age <70 years = <4.5ng/ml
- Age <80 years = <6.5ng/ml

However, for men over age 80 years, I use <20ng/ml as the norm, which is low enough to detect men with clinically significant prostate cancer before it has metastasised to bone. The vast majority of men in this age group who are diagnosed with clinically significant cancer will be treated with hormone treatment rather than radical surgery or radiotherapy (ie, the aim being to provide suppressive rather than curative treatment).

### Prediction of BPH behaviour

This is an extremely important use of PSA that is not well known in general practice. In 1996, a meta-analysis of randomised trials that used PSA and compared finasteride with placebo in men with BPH, was carried out. This showed two striking results:<sup>17</sup>

1. A difference in clinical response when the patients were stratified by their prostate volume (PV) on starting the trial. The larger the prostate at trial entry, the greater the clinical response (improvement in IPSS and flow rates) to finasteride, compared with placebo. This became statistically significant with PV over 40mls.
2. A strong log-linear mathematical relationship between PV and PSA. This

was fundamentally present for all age-groups. A PSA >1.4ng/l denotes a PV >30mls.

PSA and PV are essentially interchangeable. This was confirmed in subsequent long-term studies of both finasteride (proscar long-term efficacy and safety study [PLESS]) and dutasteride (phase-3 trials).<sup>18,19</sup> These trials also demonstrated that PV (and therefore PSA level) predicts future:

- Prostate growth
- LUTS symptom severity
- Bother factor and interference with daily activities
- Deterioration in flow rate
- Acute urinary retention•
- Need for surgery
- Clinical response to 5-alpha reductase inhibitor drugs (finasteride and dutasteride)

Uroflow tests and ultrasound assessment of residual volume are considered secondary care tests and deemed 'optional' by the European Association of Urology in men presenting for the first time with straightforward LUTS. Features of the investigations indicating a need to refer to secondary care are:

- Raised age-related PSA—two-week wait
- 1+ dipstick haematuria or microscopic haematuria on MSU—two-week wait
- Raised serum creatinine.

In my own experience, men often mention LUTS as the second or even third complaint. Because of the obvious constraints on time, I always plan to assess the problem over two consultations, several days apart:

- Consultation 1: take a brief history and give the patient an IPSS questionnaire, MSU form & bottle and PSA & U&E card

- Consultation 2: examination including DRE. Assess U&E, PSA, MSU results. Plan treatment.

## Conclusion

BPH is a highly relevant condition amongst men. Although frequently under-reported, it has significant effects on quality of life of the man and his partner. There is a high incidence of associated psychological and sexual problems. The assessment of BPH is straightforward in general practice using a focused medical history, examination and simple investigations. Features necessitating referral to secondary care have been outlined. The second part of this article will concentrate on management.

**I have received honoraria from GlaxoSmithKline**

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