

# GUIDELINES ON BENIGN PROSTATIC HYPERPLASIA

*(Text update March 2005)*

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## Background

Benign prostatic hyperplasia (BPH) is one of the most common benign diseases in men that can lead to benign prostatic enlargement (BPE), benign prostatic obstruction (BPO) and/or lower urinary tract symptoms (LUTS). Bothersome LUTS occur in about 30% of men older than 65 years.

The aetiology is multi-factorial with age, PSA and prostate volume being the true factors related to the development of the disease. A group of patients at increased risk of progression, and for whom it might be appropriate to initiate early treatment, can be identified based on these specific risk factors. The need for surgery to treat BPH increases with age and with the degree of clinical symptoms at baseline. Nocturia and changes of urinary flow stream seem to be the most predictive symptoms.

## Assessment of men with BPH

These recommendations apply only to men above 50 years of age without significant risk of non-BPH related origin of LUTS. Men with concomitant neurological diseases, younger

age, prior lower urinary tract disease, or surgery usually require a more intensive work-up. Accurate and early diagnosis of BPH leads to a better treatment outcome and predetermines the treatment choice. Diagnostic tests are divided into 3 categories (Table 1).

1. **Recommended:** Evidence supports the use of these tests and they should therefore be done in all patients with BPH.
  - Medical history: Should be taken in order to identify causes of LUTS other than BPH.
  - Symptom scores: Evaluation of symptoms should be performed because it contributes to allocating treatment and monitoring response. The IPSS questionnaire is recommended because of its worldwide distribution and use.
  - Physical examination: Digital rectal examination (DRE) and a basic neurological examination are the minimal requirements. DRE can estimate prostate size and identify other prostate pathologies.
  - Prostate-specific antigen (PSA): Besides diagnosis of prostate cancer, PSA (as a proxy parameter of prostate volume) can be used to evaluate the risk of acute urinary retention and the need for prostatic surgery.
  - Creatinine measurement: BPH may cause upper urinary tract dilatation and renal failure even though the risk seems to have been overestimated in the past. The minimal requirement to assess the upper urinary tract function is a creatinine measurement or, alternatively, an ultrasound examination of the kidneys.
  - Urine analysis: Causes of LUTS other than BPH (e.g. uri-

nary tract infection or bladder cancer) should be excluded.

- Uroflowmetry: Can detect abnormal voiding. Two or more flows with a voided volume of  $\geq 150$  mL are recommended to obtain a representative flow test.
  - Post-void residual urine indicates bladder dysfunction. Two or more measurements should be done preferably with an ultrasound device. Large volumes of residual urine ( $> 200$  mL) predict a less favourable treatment outcome.
2. **Optional:** These investigations are not required for the diagnosis or initial assessment but may be helpful in the decision-making process.
- Pressure-flow study: Is the only test that can distinguish between bladder outlet obstruction and detrusor hypocontractility and should be done prior to surgery under certain circumstances:
    - voided volume  $< 150$  mL in repeated uroflowmetry measurements
    - $Q_{\max}$  of free uroflowmetry  $> 15$  mL/s
    - LUTS in men  $> 80$  years
    - post-void residual urine  $> 300$  mL
    - suspicion of neurogenic bladder dysfunction
    - after radical pelvic surgery
    - after unsuccessful invasive BPH treatment.
  - Endoscopy: Urethro-cystoscopy is recommended prior to (minimal-invasive) surgery to assess the shape and size of the prostate that may have an impact on treatment modality. Additionally, urethro-cystoscopy is indicated to rule out

other pathologies of LUTS in men with a history of haematuria, urethral stricture, bladder cancer or lower urinary tract surgery.

- Urinary tract imaging: Should be done – preferably by ultrasound – in all men who have not had a creatinine measurement. Beside diagnosis of upper urinary tract dilatation, ultrasound imaging can also identify renal tumours, evaluate the bladder and measure post-void-residual urine as well as prostate volume. Transabdominal or transrectal (preferred) ultrasound to determine the prostate size and shape should be done for the selection of surgery (TUIP, TURP or open prostatectomy), prior to minimal-invasive or medical therapy with 5 $\alpha$ -reductase-inhibitors.
  - Voiding charts: In order to receive objective information about frequency and voided volume, a 24-hour voiding diary is usually sufficient.
3. **Not recommended:** There is no evidence to support the use of the following tests in the diagnostic work-up for the average patient: excretory urography, filling cystometry, retrograde urethrography, computed tomography or magnetic resonance imaging.

## Treatment of BPH

The aim of the treatment is to improve LUTS and patient's quality of life as well as to prevent BPH-related complications.

1. **Watchful waiting (WW):** Should be recommended to patients with mild symptoms or those with moderate/

severe symptoms that have no or minimal impact on their quality of life. Reassurance, education, periodic monitoring and lifestyle modifications are recommended to optimise WW.

## 2. Medical therapy:

- $\alpha$ -blockers are a treatment option for patients with moderate/severe LUTS. All  $\alpha_1$ -blockers (alfuzosin, doxazosin, tamsulosin, terazosin) have a similar clinical efficacy even though side-effect profiles seem to be in favour of alfuzosin and tamsulosin.
- $5\alpha$ -reductase-inhibitors (finasteride or dutasteride) are treatment options for patients with moderate/severe LUTS and enlarged prostates (> 30-40 mL). Both drugs reduce the prostate volume by 20-30% and seem to have similar clinical efficacy.  $5\alpha$ -reductase-inhibitors can prevent the progression of BPH. Special issues (long-term medication, side-effects, costs, prostate cancer) should be discussed with the patient.
- Combination therapy of an  $\alpha$ -blocker with a  $5\alpha$ -reductase-inhibitor seems to be more beneficial and durable than the monotherapy of either substance. Data for combination therapy are restricted to the outcome of the MTOPS study which analysed finasteride and doxazosin.
- Plant extracts cannot yet be recommended for the treatment of LUTS in BPH patients. Further investigations should evaluate these drugs in randomised, placebo-controlled trials with a long-term duration.

## 3. Surgical therapy:

- First line treatment options are transurethral incision of the prostate (TUIP) for prostates < 30 mL and without a middle lobe, transurethral resection of the prostate

(TURP) for prostates 30-80 mL, and open prostatectomy for those > 80 mL. Surgical treatment should be chosen for patients who

- did not improve after medical therapy
  - do not want medical therapy but request active treatment
  - present with a strong indication for therapy (refractory urinary retention, renal insufficiency due to BPH, bladder stones, recurrent urinary tract infection, recurrent haematuria refractory to  $5\alpha$ -reductase-inhibitors).
- Transurethral electrovaporisation (TUVP) is an alternative to TURP especially for high risk patients with small prostates.
  - Laser treatments (such as VLAP, ILC or Holmiumlaser resection) are generally indicated in high risk patients who require invasive BPH treatment. Holmiumlaser resection is an alternative to TURP and open prostatectomy irrespectively of any anatomical configuration.
  - Transurethral microwave thermotherapy (TUMT) should be reserved for patients who prefer to avoid surgery, who no longer respond to medication or do not want to have long-term medication. TUMT is also suitable for high-risk patients presenting with recurrent urinary retention.
  - Transurethral needle ablation of the prostate (TUNA) is indicated in high-risk patients unfit for surgery.

#### 4. Prostatic stents:

Stents are only indicated for high-risk patients presenting with recurrent urinary retention as an alternative to catheterization and for those who are unfit for other types of surgery. Complications such as encrustation, urinary tract infection or chronic pain occur frequently.

## 5. Emerging techniques:

High-intensity focused ultrasound (HIFU), chemoablation of the prostate, water induced thermotherapy (WIT) and plasma energy in a saline environment (PlasmaKinetic®) should be used in clinical trials only.

## 6. Obsolete techniques:

Balloon dilatation and transrectal/ transurethral hyperthermia are no longer recommended for the treatment of BPH.

## Follow-Up

All patients who receive BPH treatment need a follow-up (WW included). Follow-up schedules depend on the type of treatment administered. Table 2 can be used as a suggestion for the timing of follow-up.

**Table 1: Assessment of men with BPH**

Recommended	Optional	Not recommended
<ul style="list-style-type: none"><li>• Medical history</li><li>• Symptom score</li><li>• Physical examination</li><li>• Laboratory (PSA, creatinine)</li><li>• Urine analysis</li><li>• Uroflowmetry</li><li>• Post-void residual urine</li></ul>	<ul style="list-style-type: none"><li>• Pressure-flow study</li><li>• Endoscopy</li><li>• Urinary tract imaging</li><li>• Voiding chart</li></ul>	<ul style="list-style-type: none"><li>• Excretion urography</li><li>• Filling cystometry</li><li>• Retrograde urethrography</li><li>• CT</li><li>• MRI</li></ul>

**Table 2: Recommended follow-up tests after BPH treatment**

Treatment modality	First year after treatment			Annually thereafter
	6 weeks	12 weeks	6 months	
WW	-	-	+	+
5 $\alpha$ -reductase inhibitors	-	+	+	+
$\alpha$ -blockers	+	-	+	+
Surgical or minimal invasive treatment	+	+	+	+

*This short booklet text is based on the more comprehensive EAU guidelines (ISBN 90-70244-19-5), available to all members of the European Association of Urology at their website - <http://www.uroweb.org/guidelines/online-guidelines/>.*