Transurethral Resection of the Prostate for Benign Prostatic Obstruction: Will It Remain the Gold Standard?

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In the United Kingdom, symptomatic benign prostatic obstruction (BPO) affects 2.5 million men, with 44 000 new cases diagnosed annually. Symptomatic BPO is associated with worsening physical role, social functioning, vitality, and mental health [1]. The number of patients with BPO is expected to grow by almost 50% by the year 2025, as it is a disease of older men [2]. Men usually present with lower urinary tract symptoms (LUTS), such as slow and intermittent urinary stream, or with acute urinary retention (AUR). LUTS may be treated by watchful waiting or drugs, but many will require prostate surgery. About 25 000 procedures are currently performed annually in the United Kingdom, accounting for an expenditure of about £54 million per year. Transurethral resection of the prostate (TURP) has been the gold standard operation for LUTS and AUR and has not changed significantly in 30 yr.

TURP is associated with a small but significant risk, with a 30-d mortality of 0.3% and a variety of morbidities including transurethral resection syndrome (1%), which is the absorption of irrigating fluid leading to confusion and collapse, haemorrhage during the operation (transfusion rate: 5%), and subsequent urinary tract infections (20%) [3]. These morbidities result in delayed discharge, increased readmissions, and increased primary care utilisation, causing considerable distress to patients and resulting in additional costs for the UK National Health Service (NHS), or any health service around the world. Because the operation is increasingly performed on older men—in the NHS, for example, 41% of the TURP operations in 2010–2011 were on patients >75 yr—the risks of surgery will likely increase as the population ages. According to the NHS hospital episode statistics, the median stay in hospital after TURP is about 2 d, whereas that of laser prostatectomy is 1 d.

In this month’s issue of European Urology, Cornu et al [4] present a systematic review and meta-analysis of randomised controlled trials (RCTs) evaluating efficacy and safety of transurethral ablative procedures by looking at functional outcomes and complications following transurethral procedures for LUTS resulting from BPO. They analysed 69 RCTs from 1992 to 2013 assessing monopolar TURP (M-TURP), bipolar TURP (B-TURP), holmium laser enucleation of the prostate (HoLEP), and GreenLight photoselective vaporisation of the prostate (PVP). Their conclusion was that B-TURP, HoLEP, and PVP have shown efficacy outcomes comparable with conventional techniques but have the advantage of reduced complication rates. The authors concluded that further studies are needed to provide long-term comparative data and head-to-head comparisons of emerging techniques.

In 2010, the UK National Institute for Health and Clinical Excellence (NICE) published guidelines [5] for the management of LUTS in men (NICE CG 97). NICE recommended that M-TURP, B-TURP, monopolar transurethral vaporisation of the prostate, or HoLEP should be offered to men suffering with voiding LUTS presumed to be secondary to BPO. The 2014 European Association of Urology (EAU) guidelines suggested that B-TURP achieved results comparable to M-TURP in the short and midterm with a more favourable perioperative safety profile.

NICE recommended that HoLEP should be performed only in centres that specialise in the technique because a significant learning curve is associated with using it, and appropriate mentored training should be available for
surgeons wanting to learn how to perform HoLEP. This is also highlighted by the 2014 EAU guidelines on management of non-neurogenic male LUTS [6]. This approach limits the use and generalizability of HoLEP for smaller hospitals and thus may not be a suitable technique for the general urologist. Besides the advantages of HoLEP mentioned in the article by Cornu et al [4], from a practical point of view, HoLEP also provides tissue for histologic analysis, similar to TURP; however, this tissue is obtained by morcellation of the prostate using a morcellator, which has its own risks and costs associated with it. HoLEP has been recommended for large prostates as an alternative to open prostatectomy. The technique of resecting one prostate lobe in large prostates using TURP may be an alternative, but this has not been assessed in a RCT. It is a potential option at centres that do not have HoLEP but wish to minimise the morbidity of an open prostatectomy and obviates the need to have a laser for prostatectomy or to perform open prostatectomy.

The NICE guidelines recommend that PVP should be offered to men only as part of an RCT that compares the procedure with TURP. This guidance was mainly due to the limited trials published at that time. As Cornu et al [4] point out, the 180-W potassium titanyl phosphate (KTP) laser—the latest PVP laser—has been compared with TURP, but the data were not used because the published follow-up was for only 6 mo. The functional results are promising, with good intraoperative safety; however, disadvantages of the KTP laser are the longer operating time and the unavailability of tissue for histologic analysis.

At the NHS, several types of laser have been used for BPO, but only 2600 procedures (10% of total BPO operations) were performed in 2010–2011 using laser. This suggests that despite HoLEP, and other lasers, being an effective method and being available for a number of years, this technology has not proved to be generalizable, probably because it may require extensive experience, learning of a unique skill, morcellation of the prostate within the bladder to extract the enucleated tissue (HoLEP), or investment in new capital equipment without any cost-effective data.

Cornu et al [4] have not assessed the technique of thulium vaporesection of the prostate (ThuVARP). Seven clinical studies have reported on ThuVARP in peer-reviewed journals: Two had control groups, and only one of those studies is an RCT [7], with 12-mo follow-up. European Urology published a systematic review in 2012 [8] that recommended surgical treatment of symptomatic BPO by TURP or by either ThuVARP or HoLEP.

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In summary, there are different laser systems that produce different effects on tissue, such as coagulation, vapourisation, resection, and enucleation, but for these laser treatments to be considered alternatives to TURP, they must achieve the same improvement in symptoms and quality of life as TURP. They must also improve all urodynamic parameters, such as maximum urinary flow rate and postvoid residual urine volume, with less morbidity and shorter hospitalisation than with TURP and also be cost-effective. These parameters can be assessed only in the context of high-quality RCTs, which currently are scare. Until then, TURP will remain the gold standard, in the form of B-TURP, especially now that some centres, including ours, are performing selected TURPs as day cases and sending patients home with a catheter to have it removed the next day either in the community or in the clinic.

Conflicts of interest: The authors are leading a national clinical trial (H.H., chief investigator; P.A., co-investigator) funded by the Health and Technology Assessment programme of the National Institute for Health Research (ref: 12/35/15; ISRCTN00788389) in the United Kingdom to compare thulium vaporesection of the prostate and transurethral resection of prostate.

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