BPH

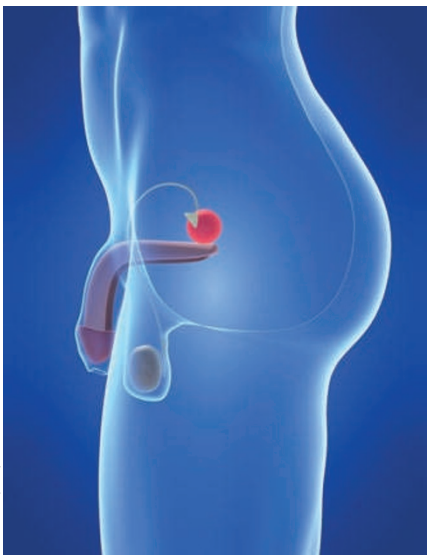
Diathermy vaporization a more cost-effective initial intervention than TURP

Medical and behavioral strategies fail to relieve the symptoms of many men with benign prostatic hyperplasia (BPH). As a result, tens of thousands of transurethral resections (TURPs) are performed every year. In England, the annual cost to the National Health Service of providing more than 25,000 of these procedures is about £53 million (US$76 million). A model created by the BPE Study Group indicates that directing funds towards diathermy vaporization as a first-line surgical treatment might strike a better balance between clinical impact and cost.

Up to 80% of men will benefit from TURP, and few require re-treatment. As such, this procedure is the most widely recommended surgical intervention for lower urinary tract symptoms secondary to BPH. Nevertheless, the risks of myocardial damage and hemorrhage during TURP have driven the development of alternative technologies. According to BPE Study Group member Robert Pickard, "Over the last 20 years a number of different modalities using various energy sources have been trialed, in particular to reduce treatment-related morbidity such as bleeding." Many of these newer techniques, such as laser vaporization and thermotherapy, are associated with symptomatic improvement and a lower likelihood of complications; higher rates of re-treatment are also common, however.

So, men with BPH can now balance risk versus reward according to personal preference. Understandably, many choose minimally invasive options in the first instance. Is this trend likely to benefit health-care providers as well as patients?

To address this question, the authors constructed a Markov model that included 23 different treatment strategies. Rather than focusing on single treatments, each strategy incorporated up to five sequential interventions of escalating invasiveness. This approach more-accurately represents the 'real-life' clinical experience of managing a chronic health problem such as BPH, for which there is no curative treatment, explained Pickard. In the model, TURP was regarded as the 'standard procedure', with alternatives drawn from one of three categories: minimally invasive (generally as transurethral microwave thermotherapy); tissue ablative (generally as diathermy vaporization, but also as potassium titanyl phosphate laser vaporization); and holmium laser enucleation of the prostate (HoLEP).



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Using data from a systematic review and meta-analysis, 10 successive yearly cohorts of 25,000 men were entered into the model. A regimen of initial diathermy vaporization, followed by HoLEP for the small number of nonresponders and those who relapsed, was the most cost-effective. Diathermy vaporization followed by TURP also more effectively relieved symptoms and was less costly than other strategies, including initial TURP (repeated once if necessary). Interestingly, decreasing the duration of hospitalization from 3 days to 2 days increased the probability of the initial/subsequent TURP regimen being cost-effective.

Importantly, this mathematical analysis does not support the increasingly widespread and unrestricted use of potassium titanyl phosphate laser vaporization for early treatment of BPH. All tested strategies that began with this modality—as well as those in which microwave thermotherapy was applied first—had a low probability of being cost-effective. Pickard cautions, however, that "evidence gaps … related to potassium titanyl phosphate laser vaporization limit the certainty of our conclusions."

An important point when considering a switch to a new 'gold standard' management strategy is setup expenditure. Pickard speculates that "a change to diathermy vaporization followed by HoLEP … may be worthwhile to the UK National Health Service, but this would depend on the initial opportunity cost of reconfiguring service provision."

The implications of this study extend beyond men with BPH and health-care providers to clinical trial design. The model showed that sequences of treatments were more beneficial than one-off interventions. Restricting prospective controlled trials to comparison of single treatments could lead to potentially useful modalities being discarded, when in fact they might be beneficial if incorporated into a more clinically relevant multi-treatment regimen. Further, "It would be ideal if new surgical treatments had to be evaluated in the same way as drugs in order to provide robust data to determine cost-effectiveness within various health-care organizations," notes Pickard.

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