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Title **Systematic Review and Economic Modeling of Effectiveness and Cost Utility of Surgical Treatments for Men with Benign Prostatic Enlargement**

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Aim

To assess the relative clinical effectiveness and cost utility of established and emerging interventional treatments for men suffering symptoms or complications due to benign prostatic enlargement (BPE).

Conclusions and results

Specific objectives: 1) determine the clinical effectiveness of alternative procedures; 2) determine the magnitude of risk of their short- and long-term side effects; 3) rank the clinical effectiveness and risk profile of new interventional procedures against transurethral resection of prostate (TURP), currently considered the standard of care; 4) estimate the cost utility of the alternate procedures; 5) assess the effects of skill and learning on cost effectiveness; 6) identify clinical indications and contraindications for specific procedures; 7) assess the speed of development in the field; and 8) identify areas requiring further research.

TURP was found to provide a consistently high level of improvement of symptoms, maintained in the long term. Improvement in quality of life and peak urine flow rate were also observed. Minimally invasive procedures (eg, TUMT and TUNA) result in less symptom improvement and less increase in flow rate. Ablative procedures (eg, TUVP and HoLEP) give similar symptom and quality-of-life improvement to TURP. Holmium laser enucleation of prostate (HoLEP) resulted in greater improvement in flow rate.

Recommendations

See Executive Summary link at www.ncchta.org/project/1468.asp.

Methods

The research was based on four interrelated components: 1) development of care pathways for the chosen treatment options for men presenting with symptoms or complications resulting from benign prostatic enlargement; 2) systematic review of the literature of the effects of the alternative procedures; 3) systematic review of economic evaluations to inform point 4 below; 4) construction of Markov model and cost-utility analysis of the treatment options.

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Further research/reviews required

Research should concentrate on the design of rigorous, high-quality RCTs, using standardized definitions of outcome with improved reporting, including reasons for re-operation. In the context of the NHS and the patient, it is likely that choices based on strategies of management are more important than choices based on individual interventions. Areas for further research include: 1) for men who might currently be managed medically, a systematic review including modeling to determine how many years of medical treatment are necessary to offset the cost of treatment with a minimally invasive or ablative intervention in the first instance; and 2) better research into the true costs of the different interventions as a critical driver of economic evaluations.

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