



Title	Transurethral microwave thermotherapy (TUMT) for benign prostatic hyperplasia
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Aim

This report, based on a literature review, aims to estimate the value of transurethral microwave thermotherapy (TUMT) for benign prostatic hyperplasia (BPH) in terms of efficacy, safety, and economic considerations.

Microwave thermotherapy systems are intended to heat the prostate, resulting in the necrosis of periurethral prostatic tissue, providing relief from urinary symptoms in patients with obstructive BPH. These devices heat the prostate to therapeutic levels (>45°C) using microwave energy delivered by an antenna contained within a specially designed urethral catheter. To prevent overheating, the systems circulate cooling fluid through the urethral catheter and automatically vary microwave energy output during treatment based on information supplied by temperature sensors placed behind the prostate, within the rectum. Several treatment protocols are currently available: low-energy TUMT (60 min of treatment), high-energy TUMT (60 min) and 30-minute high-energy TUMT (30 min).

The literature review indicates TUMT is a virtually bloodless operation that could be performed on an outpatient basis under local anesthesia or intravenous sedation. Studies have shown that there is a placebo effect after sham treatment which, although minimal and certainly less than the effect of TUMT treatment, is essentially significant for subjective parameters. A significant improvement is observed after low-energy TUMT, essentially in the subjective parameters. After high-energy TUMT, a significant improvement is observed in both objective and subjective parameters, but the improvement is generally smaller than that observed after transurethral resection of the prostate (TURP). Thirty-minute high-energy TUMT cannot be adequately assessed from the data currently available. Morbidity levels are significantly lower after TUMT than after TURP, particularly in terms of a lack of major complications and preservation of sexual function. However, adverse effects increase with high-energy devices; lengthy postoperative catheterization period and higher rates of urinary tract infections (UTI) and urinary retention were observed compared to TURP. Moreover, no significant change in prostate volume was achieved by TUMT, and the mean reoperation frequency was considerably higher than for TURP. It has to be noted that an FDA Public Health Notification was published in October 2000 about the potential for serious thermal injury and related complications associated with the use of microwave energy to treat BPH.

The economic evaluation shows that the cost of TUMT (2410 to 2670 ₤) per patient calculated on the basis of 5 years) would be intermediate between that of the medical management (2060 ₤) and TURP (2900 to 4270 ₤), taking into account re-treatments after treatment failure.

Recommendations

In light of the literature review, there are uncertainties concerning the indications for TUMT, especially about the clinical baseline parameters capable of predicting a good response to treatment. However, TUMT appears to be attractive for patients with a medical treatment failure or with contraindications for TURP. In this context, results are required from clinical studies with the new 30-minute high-energy TUMT protocol to provide evidence for the safety and efficacy of the procedure, particularly in terms of long-term outcome and identification of predictive baseline clinical parameters.

Sources of information

Reports by other agencies and government organizations, contacts with manufacturers and experts, systematic literature analysis (clinical trial, controlled clinical trial, meta-analysis, multicenter study, randomized controlled trial, cost analysis) in English or French (Medline, Embase, Health STAR, Cochrane database, NHS Center for Reviews and Dissemination, Current Contents).

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