TITLE: Photoselective Vaporization of the Prostate with Green Light Laser for the Treatment of Benign Prostatic Hypertrophy: Clinical Effectiveness, Cost-Effectiveness, and Safety

DATE: 28 June 2010

RESEARCH QUESTIONS:

1. What is the clinical effectiveness of photoselective vaporization of the prostate with Green Light laser for the treatment of benign prostatic hypertrophy?

2. What is the evidence for the improved safety of photoselective vaporization of the prostate with Green Light laser for the treatment of benign prostatic hypertrophy compared to transurethral resection of the prostate?

3. What is the cost-effectiveness of photoselective vaporization of the prostate with Green Light laser for the treatment of patients with benign prostatic hypertrophy compared to transurethral resection of the prostate?

METHODS:

A limited literature search was conducted on key health technology assessment resources, including PubMed, the Cochrane Library (Issue 6, 2010), University of York Centre for Reviews and Dissemination (CRD) databases, ECRI (Health Devices Gold), EuroScan, international health technology agencies, and a focused Internet search. The search was limited to English language articles published between January 1, 2005 and June 17, 2010. No filters were applied to limit the retrieval by study type. Internet links were provided, where available.

The summary of findings was prepared from the abstracts of the relevant information. Please note that data contained in abstracts may not always be an accurate reflection of the data contained within the full article.
RESULTS:

HTIS reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by randomized controlled trials (RCTs), non-randomized studies, and economic evaluations. Due to the large volume of relevant literature, the inclusion of studies to address the clinical effectiveness of photoselective vaporization of the prostate (PVP) with Green Light laser for the treatment of benign prostatic hypertrophy (BPH) has been limited to those published from 2009 to present. This represents an update of the previous report on the topic dated 2009 (http://www.cadth.ca/media/pdf/K0065_Greenlight_Laser_for_BPH_final.pdf). Four systematic reviews, three RCTs, and five non-randomized studies were identified regarding the clinical effectiveness and evidence for improved safety of PVP with Green Light laser. Two economic studies were identified regarding the cost-effectiveness of PVP with Green Light laser for the treatment of patients with BPH compared to transurethral resection of the prostate. Additional articles of potential interest can be found in the appendix.

OVERALL SUMMARY OF FINDINGS:

The authors of studies reporting two year and five year outcomes concluded PVP was a safe and effective treatment for symptomatic BPH. Treatment with PVP for BPH resulted in a significant improvement in International Prostate Symptom Score (IPSS) and uroflowmetry, and no serious complications were observed. The results of two systematic reviews indicated photoselective vaporization treatment of the prostate was clinically beneficial but further urodynamic studies should be initiated.

A comparison of PVP and transurethral resection of the prostate (TURP) for BPH showed both procedures resulted in a significant increase in urinary flow and a decrease in IPSS. The length of the procedure was shorter for TURP compared with PVP. Catheter removal occurred sooner and length of stay in hospital was shorter following PVP. No transfusions were required by patients undergoing PVP. One observational study reported significantly lower adverse event rates for PVP and two studies reported a similar adverse event rate between groups. The two year reported repeat procedure rate was higher for PVP.

Canadian economic data provided in one study indicated the cost of PVP, including start-up costs, was half that of TURP. Four studies concluded that PVP was less costly than TURP. However, one economic model concluded that PVP was more costly and less effective than TURP. The authors of this study indicated there were limitations with the data used and the results should be interpreted with caution.

No serious complications related to PVP were observed during two years of follow up. Length of stay and time to catheter removal were reported to be shorter for PVP but procedure time was reported to be shorter for TURP. Four of five studies reporting cost determined that PVP is less costly than TURP. Long term outcomes suggest PVP is a safe and effective treatment for symptomatic BPH.
REFERENCES SUMMARIZED:

Health technology assessments
No literature identified

Systematic reviews and meta-analyses


Randomized controlled trials


Non-randomized studies

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of the prostate: update of a prospective non-randomized two-centre study. BJU Int. 2008 

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prostate and transurethral resection of the prostate: a prospective nonrandomized bicenter 

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APPENDIX – FURTHER INFORMATION:

Review articles


