Title:	Review of interim funded service: Brachytherapy for the treatment of prostate cancer – December 2010
Agency:	Medical Services Advisory Committee (MSAC) Australian Government Department of Health and Ageing MDP 853, GPO Box 9849 Canberra ACT 2601, Australia http://www.msac.gov.au
Reference:	MSAC Application 1089.1 assessment report. First printed March 2011 ISBN (Print) 978-1-74241-359-4 ISBN (Online) 978-1-74241-360-0

AIM

To assess the safety, effectiveness and cost-effectiveness of low dose rate (LDR) ^{125}Iodine brachytherapy (BT) in the treatment of localised prostate cancer compared with radical prostatectomy (RP), external beam radiotherapy (EBRT) and active surveillance (AS).

RESULTS AND CONCLUSIONS

Safety

A total of 17 comparative studies (level II to III-3 intervention evidence) reported on the urinary and / or bowel side effects, sexual dysfunction, or general health related quality of life (HRQOL) of patients receiving LDRBT compared with EBRT, RP or AS.

The most common side effect of LDRBT was a transient increase in irritative and / or obstructive urinary symptoms. Irritative or obstructive symptoms were more common following LDRBT than RP, although comparisons with EBRT were less clear. Urinary incontinence was more common immediately following RP (68%) compared with LDRBT (17%); however, by three years, the differences between groups were more modest.

Men treated with either LDRBT or EBRT were more likely to experience a troubling increase in bowel movement frequency following treatment although this symptom was of shorter duration in LDRBT patients. Rectal bleeding was more common following treatments involving radiation than RP or AS. Problems with changes in bowel function were rare following RP.

Erectile dysfunction was more common 3 years following treatment with RP (67.9%) than with LDRBT (36.4%), or AS, and equally as common following EBRT (67.9%), although age and pre-treatment function strongly influenced the adverse event rates.

Within six months of treatment, LDRBT patients reported higher HRQOL than patients receiving RP. This was likely due to the immediate nature of RP side effects compared to the more delayed side effects from LDRBT. Differences were small and did not extend beyond six months following treatment.

The safety of AS relative to the other treatments was not commonly reported.

Effectiveness

A total of six comparative studies (level II to III-3 intervention evidence) reported on the overall survival, prostate cancer-specific survival or biochemical recurrence-free survival (bNED) in men treated with LDRBT, RP or EBRT. Studies reported better overall survival among men treated with LDRBT or RP than EBRT; however, this is unlikely to be due to differences in treatment effectiveness but instead arise from differences in patient selection and confounding within the studies. Comparable treatment effectiveness is supported by the finding that five year bNED is similar following LDRBT, RP and EBRT.

No studies addressed the effectiveness of AS relative to other treatments.

Cost-effectiveness

The cost-effectiveness of LDRBT could not be assessed due to the uncertainty surrounding both safety and effectiveness outcomes. A financial impact analysis indicated that there was little difference in cost between treatment options. The average cost of treating one patient with LDRBT was estimated to be $13,322 compared with $13,286 for RP and $13,428 for EBRT. While the cost to the MBS for treatment with LDRBT was substantially less than for EBRT ($3,497 versus $11,161), EBRT was equally less costly than LDRBT for state and territory governments and private insurers.

It was estimated that 5,000 men would be eligible for treatment with LDRBT in 2010. If one-third were treated with each of the active treatment options, the overall cost to the Australian healthcare system would be estimated at $66.7 million. The cost of managing men with AS is not insubstantial and a large proportion of men are likely to later opt for active treatment. In addition, not all men who are eligible for LDRBT are suitable candidates for AS. Based on current best estimates of the incidence of AS among Australian men, the overall cost of treating 5,000 men with the three active treatments or active surveillance was estimated at $65.7 million.

METHODS

Medline, Embase, The Cochrane Library, and several other biomedical databases, HTA and other internet sites were searched from 2000 until May 2010. Studies were included in the systematic literature review using pre-determined PICO selection criteria and reasons for exclusion were documented. Study quality was appraised, data extracted in a standardised manner, and findings synthesised narratively.

Prepared by Adelaide Health Technology Assessment (AHTA) on behalf of the MSAC