A retrospective analysis of the cost effectiveness of treatment with Metastron (89Sr-chloride) in patients with prostate cancer metastatic to bone


Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
The use of strontium isotope as adjunct therapy in patients with prostate cancer metastatic to the bone.

Type of intervention
Palliative care.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with bone metastatic prostate cancer. All patients deceased at the time of the study. Mean age for placebo patients was 72.4 years and for strontium patients 73.9 years.

Setting
Hospital (outpatient). The economic study was carried out in Alberta, Canada.

Dates to which data relate
Effectiveness dates probably between 1989 (date of commencement of trial) and 1993 (date of publication of the clinical paper). Resources were measured at trial date. Price date not given.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively on the same patients as those in the effectiveness estimation.

Study sample
29 patients were entered into the trial; of these, 15 received placebo and 14 were allocated to the intervention group. Duration of follow-up until death. No reference was made to power calculations.

Study design
This was a multi-centre randomised controlled trial. There was no loss to follow-up.
Analysis of effectiveness
Analysis was based on intention to treat. Main outcomes were: survival rate, therapy requirements, treatment toxicity, visual analogue scores of pain and quality of life indices. Groups were comparable in age and prognostic features.

Effectiveness results
The study demonstrated a significant improvement in quality of life indices, a reduction in time to further metastases, a reduction in pain and analgesic intake and a significant fall in requirements for additional radiotherapy. No significant alteration in survival was noted (median survival weeks 34 vs 30). There was no difference in haematologic toxicity.

Measure of benefits used in the economic analysis
Main outcomes were: survival rates, therapy requirements, treatment toxicity, visual analogue scores of pain and quality of life indices.

Direct costs
Quantities and costs were not analysed separately. Only health service costs were considered. Resources were retrospectively calculated from case-notes and trial records for the following items (Sources of the unit costs used in the calculations are given in brackets): Radiotherapy (from literature - 1989 adjusted at 3% per annum); Drugs costs (provided by a cancer clinic pharmacy); Outpatient and day care visits (from the Alberta Cancer Board); Radiology and laboratory investigations (from the Alberta Health Care Insurance Plan); Nuclear Medicine; Tertiary in-patient costs (Alberta Government Department of Health).

Currency
Canadian dollars (Can $).

Sensitivity analysis
A sensitivity analysis was not carried out.

Estimated benefits used in the economic analysis
Metastron was more effective than placebo.

Cost results
The total costs per week survival are Can$ 351 for strontium and Can$ 560 for placebo. Mean costs for drugs and radiotherapy were lower for the strontium group (Can$ 375 for strontium against Can$ 900 for placebo and Can $1422 for strontium against Can$ 2351 for placebo). Overall the mean treatment cost per patient for the strontium group was Can$ 16,570 and Can$ 23,688 for placebo. The 1991 cost of a standard dose of Metastron was Can$ 1600, approximately equal to the direct cost savings in the strontium group.

Synthesis of costs and benefits
Strontium dominates placebo.

Authors’ conclusions
The authors stated evidence of a positive cost-benefit contribution from adding Metastron to the treatment regime.

CRD Commentary
a) This study fails to present a well supported evidence of the effect of Metastron on the quality of life of patients.
ideal study design would have been a cost-utility analysis, as quality of life is foremost in palliation. b) The quoted cost per week survival may be a misleading concept, as it suggests that the drug has produced a certain number of weeks of survival. The figures in fact reflect cost of palliation per week of survival in the two patient groups. c) Calculation of the final costs is unsound. If we use the results given in table 5, placebo cost per patient is cheaper than strontium. d) Some costs which are normally classified as direct costs in the standard methodology have been termed by the authors as indirect costs. e) The study suffers from not giving price date.

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