Efficacy and cost-effectiveness of autologous bone marrow transplantation in metastatic breast cancer: estimates using decision analysis while awaiting clinical trial results

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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
High dose chemotherapy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis, and cost-utility analysis.

Study population
Women with metastatic breast cancer who have no bone marrow involvement or comorbidity.

Setting
The study was carried out in the USA.

Dates to which data relate
Price relates to 1990.

Source of effectiveness data
Review of studies

Modelling
Epidemiological cohort model (model of survival and disease).

Measure of benefits used in the economic analysis
Life-years gained and QALYs. Health state description was defined by stage of disease and treatment process. Clinician and other health worker values were used to assess the health states. VAS was used as the valuation tool.

Direct costs
Direct costs were to the health service and included: all relevant procedures, costs of progressive disease and terminal care to 5 years. Price information relates to 1990.
US dollars ($). In the DH Register of Cost-effectiveness Studies, the original results were converted to UK pounds sterling (£) using GDP purchasing power parities, and reflated to 1991 using the NHS pay and prices index.

**Sensitivity analysis**
Sensitivity analysis was carried out using the method of single parameter variation.

**Estimated benefits used in the economic analysis**
Outcome duration was life long and treatment side-effects were included. Intervention yielded 3.56 QALYs. The comparator yielded 1.40 QALYs. Therefore, the incremental QALYs were 2.16. QALYs were discounted at 5%.

**Cost results**
Intervention and comparator cost durations were 5 years.

**Synthesis of costs and benefits**
Costs and benefits discounted at 5%. Incremental cost per life-year gained for high dose chemotherapy with autologous bone marrow transplantation (ABMT): was 18800. Incremental cost per QALY: was 17900. The range of incremental cost per life-year gained: was 8790 lowest value, and 29200 highest value. Sensitive parameters were early recurrence and late recurrence rates after ABMT and survival tail beyond 5 years. Assuming life expectancy for five year survivors of 10 or 5 years gives C/LY values of 38100 and 52500 respectively.

**CRD Commentary**
(This commentary was not written by CRD, but by the authors of the DH Register.) 1) There is poor quality evidence concerning the critical parameters in this model and so it's findings are speculative, awaiting better trial data. 2) The assumption of normal life expectancy (30 additional years) for survivors to 5 years appears optimistic. 3) These are based on charges using cost-to-charge adjustments. 4) There were no health omissions.

**Bibliographic details**

**PubMedID**
1552641

**Other publications of related interest**
Comment in: JAMA 1992;268(12):1536-7

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Antineoplastic Combined Chemotherapy Protocols /therapeutic use; Bone Marrow Transplantation /economics; Breast Neoplasms /economics /therapy; Clinical Trials as Topic; Cost-Benefit Analysis; Decision Support Techniques; Female; Humans; Markov Chains; Middle Aged; Neoplasm Metastasis; Quality of Life; Sensitivity and Specificity

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