Cost-effectiveness analysis of three regimens using vinorelbine (Navelbine) for non-small cell lung cancer

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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
Chemotherapy treatment for non-small cell lung cancer (NSCLC).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
European patients with NSCLC who were entered into a large clinical trial. No further details were given.

Setting
Hospital. The study was conducted in Richmond, Virginia, USA.

Dates to which data relate
Effectiveness data relate to studies conducted between 1993 and 1995. Cost data were derived from a study conducted in 1994 and a report in 1995. The price year was not stated.

Source of effectiveness data
The estimates of incremental efficacy in terms of mean survival and differences in toxicity and side effects were derived from a review of existing literature.

Outcomes assessed in the review
The review assessed incremental efficacy in terms of mean survival and differences in toxicity between the alternative treatments.

Study designs and other criteria for inclusion in the review
The authors utilized a large scale randomized trial containing 612 patients.

Sources searched to identify primary studies
Not stated.
Criteria used to ensure the validity of primary studies
Not stated.

Methods used to judge relevance and validity, and for extracting data
Not stated.

Number of primary studies included
The authors made reference to three previous studies.

Methods of combining primary studies
Not stated.

Investigation of differences between primary studies
Not stated.

Results of the review
Vinorelbine plus cisplatin produced an incremental survival of 56 days, and vindesine plus cisplatin resulted in an incremental survival of 19 days. Vinorelbine was found to have a lower toxicity than vindesine although specific results were not provided. Vinorelbine plus cisplatin was found to produce an incremental survival of 37 days when compared with vindesine plus cisplatin.

Measure of benefits used in the economic analysis
The measure of benefit was life days/years gained.

Direct costs
Direct costs included treatment costs: chemotherapy alone, antiemetic drug treatment, hotel charges, laboratory tests, toxic effects and monitoring, and professional services. Costs were determined from specific institutional cost-to-charge ratios and the drug costs of vinorelbine were based on the projected wholesale price. Discounting was not applied. Costs and quantities were not analysed separately. The price year was not stated.

Statistical analysis of costs
Not conducted.

Indirect Costs
Not carried out.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was carried out.

Estimated benefits used in the economic analysis
Vinorelbine plus cisplatin produced an incremental survival of 56 days, and vindesine plus cisplatin resulted in an incremental survival of 19 days. Vinorelbine was found to have a lower toxicity than vindesine although specific results were not provided. Vinorelbine plus cisplatin was found to produce an incremental survival of 37 days when compared with vindesine plus cisplatin.
Vinorelbine plus cisplatin produced an incremental survival of 56 days, and vindesine plus cisplatin resulted in an incremental survival of 19 days. In terms of the side effects of treatments vinorelbine was found to have a lower toxicity than vindesine although specific results were not provided. Vinorelbine plus cisplatin was found to produce an incremental survival of 37 days when compared with vindesine plus cisplatin. The duration of analysis of benefits for each treatment regimen, including the comparator, was until there was disease progression, unacceptable toxic effects, patient refusal, or the patient's condition was stable for a period of 18 months.

Cost results
The total cost per patient per single treatment was:

- vinorelbine alone: $200;
- vindesine plus cisplatin: $801;
- vinorelbine plus cisplatin: $810.

Discounting was not applied.

Synthesis of costs and benefits
Synthesis of costs and benefits was achieved by cost($) per life-year gained. An incremental cost analysis was carried out. When compared with vinorelbine alone, the incremental cost per patient for vinorelbine plus cisplatin was $2,700, which resulted in a cost per year of life gained of $17,700. Vindesine plus cisplatin produced a incremental cost per patient of $1,150 which resulted in $22,100 per life year gained. In comparing vinorelbine plus cisplatin with vindesine plus cisplatin an incremental cost of $1,570 resulted in a cost per year of life gained of $15,500.

Authors’ conclusions
The authors concluded that the long-term efficacy of chemotherapy is less than desired. However, treatments employing combinations which include vinorelbine produced cost-effectiveness results comparable with other therapies accepted in medical practice.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear. The comparator is a widely used health treatment for metastatic NSCLC. You, as a user of this database, should consider whether these are widely used health technologies in your own setting.

Validity of estimate of measure of benefit
The estimates of measure of benefit used in the economic analysis are likely to be internally valid. However, in terms of outcomes, utility measures which included an assessment of quality of life and side effects would have added to the value of the study. The data have not been used selectively.

Validity of estimate of costs
Resources and prices were not reported separately. Adequate details of the methods of quantity/cost estimation were given. However, the authors did not consider either the costs or the efficacy of any secondary chemotherapy or palliative care which may have been administered. This would clearly have influenced the final cost-effectiveness results for each regimen.

Other issues
The authors' conclusions are likely to be justified given the uncertainties in the data. The issue of generalisability to
other settings was addressed as the findings challenge the view that treatments for advanced cancer are not effective or cost-effective if the efficacy seen in clinical trials is replicated in community settings. Results were not presented selectively. However, whilst of value in its own right, the study report of the cost-effectiveness of the three treatments themselves was rather sparse and had some elementary omissions (for example, the price year was not stated, the total comparator costs were not explicitly given, although it is acknowledged that clear incremental costs were given for each strategy).

**Implications of the study**
Further research is required in terms of analysing the costs and efficacy of secondary chemotherapy as well as palliative care and the assessment of quality of life and side effects.

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