Cost-effectiveness analysis of paclitaxel and cisplatin versus cyclophosphamide and cisplatin as first-line therapy in advanced ovarian cancer: a European perspective

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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
First-line chemotherapy for patients with advanced ovarian cancer.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Women with advanced ovarian cancer.

Setting
Hospital. The study was carried out in Germany, Italy, France, Spain, the Netherlands and the United Kingdom.

Dates to which data relate
Effectiveness data were collected from a study previously published in 1997. The dates to which resource use data related and the price year were not reported.

Source of effectiveness data
Effectiveness data were derived from a single study (GOG 111 study).

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness analysis. The costing was carried out prospectively alongside the effectiveness analysis.

Study sample
386 women were treated with cisplatin plus either cyclophosphamide (n=202) or paclitaxel (n=184) for advanced ovarian cancer. No power calculations were reported. Patients had to have histologically confirmed stage III epithelial ovarian cancer with residual masses larger than 1 cm after surgery or stage IV disease. No patient had received prior chemotherapy or radiation therapy for ovarian cancer and all patients had a GOG performance status score of 0, 1, or 2. Other inclusion criteria included normal baseline blood counts and normal renal and hepatic function. Patients with a history of cardiac arrhythmias and those receiving anti-arrhythmic drugs were not eligible for inclusion.
Study design
This was a retrospective cohort study carried out at two centres.

Analysis of effectiveness
The authors did not report whether the analysis of the clinical study was based on the intention to treat principle or whether groups were comparable in terms of demographic characteristics. The primary health outcomes used included the percentage of patients responding to therapy, the median progression-free survival, and the median overall survival.

Effectiveness results
73% of PC recipients responded to therapy compared with 60% of CC recipients, (p=0.01). The median progression-free survival was 18 months among PC recipients compared with 13 months among CC recipients, (p<0.001). The median overall survival was 38 months among PC recipients compared with 24 months among CC recipients, (p<0.001).

Clinical conclusions
PC therapy is a safe and effective therapy in patients with advanced ovarian cancer.

Modelling
No modelling was undertaken.

Measure of benefits used in the economic analysis
The measure of benefits was life years saved. The specific life expectancy of PC and CC treated patients was calculated using the declining exponential approximation of life expectancy (DEALE) approach from the disease-specific mortality rate and the mortality rate of the standard population of a given age and gender.

Direct costs
It was not reported whether costs were discounted. Quantities and costs were not reported separately. Direct costs included costs of medication, hospitalisation, consultations, laboratory tests, and investigations. The quantity/cost boundary adopted was that of the health service. The estimation of quantities and costs was based on actual data. Resource consumption was determined quantitatively on the basis of structured face-to-face interviews with experts. Information on chemotherapy dosage, number of treatment cycles and their toxicity profile was derived from the GOG 111 study. Additional interviews and literature searches yielded prices for drugs and other resources. Chemotherapy prices and costs of co-medication were obtained from telephone interviews with hospital pharmacists and official drug price lists. The costs of hospital or day clinic stay and costs of laboratory tests/investigations were obtained from interviews and hospital price lists. The price year was not stated.

Statistical analysis of costs
Not reported.

Indirect Costs
Not included.

Currency
US dollars ($).
Sensitivity analysis
A sensitivity analysis was conducted on the costs of medication and hospitalisation and specific life expectancy.

Estimated benefits used in the economic analysis
Specific average life expectancy in the PC and CC treatment groups was 3.848 and 2.565 years, respectively. The incremental life expectancy among PC recipients was 1.283 years.

Cost results
For CC patients, total costs varied between $4,926 in the UK and $12,578 in Germany. For PC patients, total costs varied between $13,038 in the UK and $24,487 in Germany. Incremental costs varied between $8,112 in the UK and $11,909 in Germany.

Synthesis of costs and benefits
Incremental cost-effectiveness or PC compared with CC varied between $6,395 per life year saved in Spain and $11,420 per life year saved in Italy.

Authors' conclusions
The cost-effectiveness of PC compares favourably with other oncological interventions. Health care decision makers should consider paclitaxel, in combination with cisplatin, as a cost-effective first-line therapy for patients with advanced ovarian cancer.

CRD COMMENTARY - Selection of comparators
rationale for the choice of the comparator was clear.

Validity of estimate of measure of benefit
Given that long-term adverse events of cytotoxic drug therapy can diminish a patient's quality of life, the frequency of adverse events and quality-adjusted life years (QALYs) could also have been examined as a measure of benefits. The authors did not discuss whether disease-specific mortality rates derived from the GOG 111 study were generalisable to the six European countries.

Validity of estimate of costs
Only direct costs were included. The cost analysis was limited by the fact that cost estimates were determined by expert opinion based on interviews with a limited number of physicians. The costs related to long-term adverse events of cytotoxic therapy were not included.

Other issues
The authors' conclusions were justified on the basis of the sensitivity analysis. Appropriate comparisons were made with other studies. The study is extremely useful in demonstrating the methodological issues surrounding the generalisability of economic evaluations to other settings by taking into account cost variations and their impact on cost-effectiveness among six European countries.

Implications of the study
The cost-effectiveness of carboplatin-paclitaxel combination therapy for patients with advanced ovarian cancer should be examined.

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Berger K, Fischer T, Szucs T D. Cost-effectiveness analysis of paclitaxel and cisplatin versus cyclophosphamide and
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Other publications of related interest
1. Elit L M, Gafni A, Levine M N. Economic and policy implications of adopting paclitaxel as first-line therapy for

III)


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Subject indexing assigned by NLM

MeSH
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& dosage /economics; Cost-Benefit Analysis; Cyclophosphamide /administration & dosage /economics; Europe;
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