What have we achieved in ovarian cancer: a comparison of survivals and resources in two different periods
Bertelsen K, Kruhoffer A

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
Treatment strategies for epithelial ovarian cancer in two distinct time periods. In the first period, standard chemotherapy was given as a single alkylating agent and pelvic irradiation was used. In the second, cisplatin-containing polychemotherapy was used in advanced cases, with debulking surgery, and second-look laparotomy.

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients with histologically confirmed epithelial ovarian cancer.

Setting
Hospitals. The economic study was carried out in Denmark.

Dates to which data relate
Effectiveness and resource use data were collected for all patients from the date of diagnosis (earliest April 1973) to the date of death or to November 1992, whichever occurred first. 1992 prices were used.

Source of effectiveness data
Effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was undertaken retrospectively on the same patient sample as that used in the effectiveness study.

Study sample
Power calculations were not used to determine the sample size. The study sample consisted of 206 patients in each study group. The median age was 61 years versus 62 years. Patients with non-epithelial ovarian cancers were excluded from the analysis.

Study design
Retrospective cohort study. The study was based in one of the four oncologic centres of the Danish Ovarian Cancer
Group (DACOVA); the centre included a number of hospitals in the same county. Follow-up periods were from date of diagnosis to date of death or November 1992, whichever occurred first.

Analysis of effectiveness
The principle (intention to treat or treatment completers only) used in the analysis of effectiveness was not explicitly specified. The primary health outcome was length of survival following a diagnosis of epithelial ovarian cancer. There was no age difference between the two time periods. Staging information was only available in the second time period and so it was not known whether stage distribution was different in the two periods.

Effectiveness results
Survival for the period 1981-86 was better overall than survival for the period 1973-78. Median survival in the first period was 353 days compared to 493 days in the second; the authors stated that this was statistically significant but gave no p-value. The five-year survival rate for the period 1973-78 was 27.5% versus 26.7% for the period 1981-86. The 10-year survival rate for the period 1973-78 was 21.7%, while the figure was not known for the period 1981-86, at the time of the study.

Clinical conclusions
Median survival for ovarian cancer had improved from the period 1973-78 to the period 1981-86, but an improvement in long-term survival was not observed.

Measure of benefits used in the economic analysis
Life-years gained were used as the measure of benefit.

Direct costs
Costs were not discounted. Quantities in the form of bed-days were reported separately from the costs. The average price of a bed-day was used to derive costs. This figure included nursing and medicine staff, costs for medicine, food, diagnostic procedures and rent for buildings and machinery, and the costs for out-patient visits. The number of bed-days per individual patient was known and multiplied by this average cost per bed-day. Only health service costs were used.

The source of the cost data was the main hospital of the county which had calculated yearly the price of a bed per day for its various departments during the period 1981-86. This price included all the costs mentioned above plus follow-up after treatment. For the other hospitals in the county, either a specific price per bed-day for the hospital (but not for the various departments) or a price per bed-day based on the number of beds and physicians in the departments, as compared to the hospital as a whole, were used. For the period 1973-78 information on costs was not available; the prices for the 1981-86 period were used to estimate the price of a bed-day in the earlier period. The quantity data (i.e. the number of bed-days) were available for each individual patient from the local cancer registry. Costs were reflated to 1992 prices using the consumer price index.

Indirect Costs
Not considered.

Currency
US dollars ($). A conversion was presumably made from Danish kroner, although this was not reported

Sensitivity analysis
No sensitivity analysis was carried out.
Estimated benefits used in the economic analysis
It was reported that the total life-years gained was 30.22 years. Excluding patients aged over 70 years, the total life-years gained amounted to 18.07 years. Duration of benefits was from date of diagnosis to date of death or November 1992, whichever occurred first.

Cost results
Results were not presented in original currency. The total cost of the bed-days spent on ovarian cancer in the period 1981-86 was $3,885,609. The total cost in the period 1973-78 was $2,710,375; a difference in costs between the two periods of $1,175,234. If only patients younger than 70 years were considered, then the difference was still approximately $1,018,000.

Synthesis of costs and benefits
The cost per additional life-year gained was used as the measure of cost-effectiveness. The cost per extra year of life for all age groups was $36,493. The cost per additional year of life was $65,030 when those aged over 70 years were excluded from the analysis.

Authors' conclusions
There has been an improvement in median survival for patients with advanced ovarian cancer but an increase in long-term survival was not demonstrated. The increase in median survival is probably caused by platinum-containing polychemotherapy and more aggressive surgery. Treatment at the present time will use less resources than in the two time periods studied, as patients nowadays receive fewer cycles of chemotherapy, and the introduction of CA125, routine ultrasound and CT scanning has reduced the need for second-look laparotomy. The cost per extra year of life gained is reasonable compared to other medical procedures.

CRD COMMENTARY - Selection of comparators
The reason for the choice of the comparator is clear.

Validity of estimate of measure of benefit
The internal validity of the estimates of effectiveness can not be guaranteed due to the retrospective nature of the study design.

Validity of estimate of costs
Quantities of resources were only reported separately from the prices in terms of a general measure (bed-days). Adequate details of the methods of cost estimation were given.

Other issues
The issue of generalisability to other settings or countries was partially addressed by noting that the difference between the Dutch and Swiss results and the Danish results in terms of survival rate “could be caused by differences in registration, pathology, classification and statistical variation because of the rather small number of patients in the present study”.

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