Chemotherapy in gastric cancer: an economic evaluation of the FAM (5-fluorouracil, adriamycin, mitomycin C) versus ELF (etoposide, leucovorin, 5-fluorouracil) regimens

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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
The use of ELF (etoposide, leucovorin, 5-fluorouracil) regimen in the treatment of gastric cancer. The use of FAM (5-fluorouracil, adriamycin, mitomycin) for the same condition was explicitly stated as a comparator.

Type of intervention
Treatment.

Economic study type
Cost-utility analysis.

Study population
Patients with advanced gastric adenocarcinoma.

Setting
Department of Oncology, University Hospital of Tromso, Norway. The economic study was conducted in Norway.

Dates to which data relate
Effectiveness data were collected between September 1987 and September 1993. Resource use data refer to 1993.1993 prices were used.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
36 patients (16 women, 20 men) were hospitalised for advanced gastric adenocarcinoma between 1987 and 1993. Patients had a median age of 56 years (range 31 - 81 years).10 patients did not receive any chemotherapy because of poor health condition or because they refused treatment, and they were excluded from the study. All patients treated before April 1992 received FAM chemotherapy (17). After this date, patients (9) were treated with ELF chemotherapy because of promising reports concerning its effectiveness. No power calculations were used to determine sample size.

Study design
Case series.

**Analysis of effectiveness**
Analysis was based on treatment completers. The main health outcome used in the analysis was the median survival after the two chemotherapy procedures. Quality of life was also assessed by 4 medical oncologists treating gastric cancer using an upgraded version of the EuroQol questionnaire and a mean health index was calculated (0=deceased, 1= perfect health).

**Effectiveness results**
The median survival was 5 months (range 2 - 14 months) for FAM and 6 months (range 4 - 15 months) for ELF patients.

**Clinical conclusions**
There were no significant clinical differences between the two chemotherapy procedures.

**Measure of benefits used in the economic analysis**
The main health outcome used in the analysis was the median survival after the two chemotherapy procedures. Quality of life was also assessed by 4 medical oncologists treating gastric cancer using an upgraded version of the EuroQol questionnaire and a mean health index was calculated (0=deceased, 1= perfect health).

**Direct costs**
Direct health service costs were considered, including costs of chemotherapy and antiemetic therapy, costs of hospital stay, cost of a visit to the GP. Travelling costs were also considered (covered by Norwegian public assurance).

**Indirect Costs**
Loss of production was not calculated, as most advanced gastric patients are out of work, and the differences (if any) between the FAM and ELF groups would be minimal.

**Currency**
UK pounds Sterling () - (1 = 10.68 Norwegian Kroner).

**Sensitivity analysis**
Not performed.

**Estimated benefits used in the economic analysis**
The median survival was 5 months (range 2 - 14 months) for FAM and 6 months (range 4 - 15 months) for ELF patients. The health index obtained from the EuroQol questionnaire was multiplied by the median survival time for the FAM and ELF regimens, obtaining a value of QALY (0.2917 for FAM and 0.39 for ELF).

**Cost results**
The monthly costs of FAM and ELF treatment were calculated to be 553 and 2979, respectively.

**Synthesis of costs and benefits**
The cost of one year saved was 123,834, while the cost of one QALY employing the ELF compared to the FAM.
regimen was 104,334.

Authors’ conclusions
The standard ELF regimen was too expensive in the treatment of gastric cancer.

CRD Commentary
This was an interesting study that assessed quality of life in a very important group of patients (those with disseminated adenocarcinoma). However, it has some drawbacks. Sample size was probably too small for statistically significant effects to be detected (i.e. the study had low power). Also, the study methodology did not exclude bias: patients were assigned to intervention/comparator based on chronological criteria, not randomly. As for measuring effectiveness, quality of life was assessed by oncologists, not by the patients themselves (which could have changed the quality of life measure). More information would have been desirable on the costing methodology, although it seems to have been reasonable. A sensitivity analysis was needed in order to evaluate uncertainty in estimated parameters.

Assessing quality of life is a very complex issue, and thus the measures given here need to be cautiously assessed (particularly since the questionnaires were not answered by the patients themselves). Finally, a case series study is subject to bias that only a properly conducted randomised controlled trial can eliminate.

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