Laparoscopic vs inguinal hernia repairs: outcomes and costs

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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
Laparoscopic hernia repair.

Type of intervention
Treatment.

Economic study type
Cost effectiveness analysis.

Study population
Patients with hernia.

Setting
The settings were a large full-service urban hospital and small limited-service rural hospital. The economic study was conducted in Minneapolis, Minnesota, USA.

Dates to which data relate
Effectiveness and resource use data were referred from a study report published in 1994. The price year was 1995.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively but not on the same patient sample as that used in the effectiveness study.

Study sample
No power calculations were reported. Patients categories included:

Group I, conventional tissue repair, 40 repairs;

Group II, conventional mesh repair, 66 repairs;

and Group III, laparoscopic mesh repair, 10 repairs.

The inguinal-femoral repair using polypropylene mesh was also reported as having 232 procedures performed.
Study design
Case series. The duration of follow-up was 60, 50, 44 and 46 months, respectively, for the conventional tissue repair, conventional mesh repair, laparoscopic mesh repair, and inguinal-femoral polypropylene mesh repair procedures.

Analysis of effectiveness
It was not clear whether the analysis was based on intention to treat or treatment completers only.

Effectiveness results
The recurrence rates were reported as follows:

- Group I, 23% (n=9);
- Group II, 6% (n=4);
- Group III, 33% (n=3);
- Group IV, 0% (n=0).

Measure of benefits used in the economic analysis
The measure of benefits used in the economic analysis was recurrence rates.

Direct costs
Quantities of resource use were not reported separately from prices. Physician, institution and pharmacy costs were considered, relating to 1992. The sources of costs were a large urban and a small rural hospital.

Indirect Costs
Wage replacements, supervisor's training time, worker replacement costs, loss of productivity and efficiency were considered and a multi-million dollar international Minneapolis corporation was the source of data for the costs of absence from work and potential savings to the corporation generated by the employee's prompt return to productivity (1995 costs).

Currency
US dollars ($).

Sensitivity analysis
Not performed.

Estimated benefits used in the economic analysis
Recurrence rates:

- conventional tissue repair, 23%;
- conventional mesh repair, 6%;
- laparoscopic mesh repair, 33%.

Cost results
The costs (per patient) to the corporation were:

conventional mesh repair - $7,260 for factory workers and $5,960 for office workers

laparoscopic mesh repair - $4,110 for factory workers and $4,775 for office workers.

There were savings of $3,150 for factory workers and $1,185 for office workers, when using laparoscopic mesh repair.

Synthesis of costs and benefits
Not combined since the intervention was shown to be the dominant strategy.

Authors' conclusions
Although laparoscopic inguinal herniography with mesh adds to the direct cost of the surgical procedure, such costs are more than offset by the indirect savings of the 'health care experience' caused by the patient's predictably prompt return to unrestricted employment and resumption of productivity. Further savings, in terms of the surgical event itself, can be affected by promoting such surgery in more cost efficient surroundings, such as the office surgical suite.

CRD Commentary
The effectiveness study only reported outcomes for the intervention in terms of relapse. The internal validity of such estimates of measure of benefit is weak given the limitations implicit in the design thus employed and the lack of proper analysis of differences in patient characteristics between groups. The cost analysis was undertaken on a different patient sample from that considered in calculating relapse rates. The conclusions reached by the authors are not justified given the uncertainties in the data. The present study focussed more on the cost analysis side of the assessment, something which was reflected in the unlikely validity of the outcomes reported.

Implications of the study
Further, better designed studies are needed before any definite conclusions can be reached regarding the efficiency (cost-effectiveness) of the strategies in question for treating hernias. In particular, randomized controlled trials are desirable for that purpose.

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