Laparoscopic versus open splenectomy for immune thrombocytopenic purpura

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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
Using laparoscopic splenectomy or open splenectomy for immune thrombocytopenic purpura patients (ITP).

Type of intervention
Treatment.

Economic study type
Cost-effectiveness analysis.

Study population
Patients requiring splenectomy for ITP.

Setting
Hospital. The economic study was carried out in South Australia, Australia.

Dates to which data relate
The effectiveness and resource use data corresponded to the period between 1985 and 1993, for the open splenectomy, and 1994-1995, for the laparoscopic splenectomy. The price year was 1995.

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

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

Study sample
A total of 60 patients was included in the study, of whom 47 were included in the control group, and 13 in the intervention. Power calculations were not reported.

Study design
This was a non-randomized study with a historical control carried out at a single centre. The duration of the follow-up had median values of 60 months (range: 12 -120) and 14 months (range: 5 - 21) for the control and intervention groups respectively.
Analysis of effectiveness
It was not clear whether the analysis was based on intention to treat or on treatment completers only. The primary health outcome was the rate of complications after surgery. The incidence of accessory spleen and postoperative stay (days) were also recorded. Groups were shown to be comparable in terms of age, gender, preoperative medical treatment, and surgical indications. However, whilst it was reported that all patients were given pneumococcus vaccination and treated with prednisolone before operation, groups differed in terms of the rate of vaccination against meningococcal and H. influenzae and treatment with azathioprine before operation and history of previous open abdominal operation.

Effectiveness results
The rate of complications was 19% in the control group and 0% in the intervention. The incidence of accessory spleen was 9% and 15%, respectively. The median postoperative stay (days) was 10 (range: 5 - 55) days for the control group versus 2 (range: 1 - 3) days for the intervention group, (P<0.0001).

Clinical conclusions
The incidence of accessory spleens removed with both strategies was identical, and it is unlikely that the issue of laparoscopic identification and resection of these will affect the longer-term clinical outcome of laparoscopic splenectomy for patients with ITP.

Measure of benefits used in the economic analysis
No summary benefit measure was identified in the economic study and only separate clinical outcomes were reported.

Direct costs
The quantities of resource use were not fully reported separately. The analysis included capital, operating and overhead costs incurred at operation and during postoperative care. The quantities of resource use and costs were based on actual data from the clinical study (carried out in Australia). The cost calculations were based on median case (not mean). The perspective adopted in the cost analysis was not explicitly specified. The price year was 1995.

Indirect Costs
Not considered.

Currency
US dollars ($).

Sensitivity analysis
No sensitivity analysis was performed.

Estimated benefits used in the economic analysis
Not applicable.

Cost results
The cost per case was $2,238 for the intervention and $4,224 for the control group. The median costs for the last 5 years of use of the control were in turn $3,874. Thus the intervention was associated with cost savings of $1,986 and $1,633, respectively, when the first and second figures for the control were used.

Synthesis of costs and benefits
Costs and benefits were not combined since the intervention was the dominant strategy.

**Authors' conclusions**
The laparoscopic procedures reported represent the early learning experience of seven surgeons, and it is very likely that operating times and outcomes should improve further with subsequent experience. Laparoscopic splenectomy has compared very favourably with open splenectomy both clinically and as a cost-effective treatment for ITP. Improved outcomes have been achieved when compared with the earlier open experience.

**CRD COMMENTARY - Selection of comparators**
A justification was given for the choice of the comparator. It was regarded as the conventional technique in patients with ITP.

**Validity of estimate of measure of benefit**
The study results are questionable in view of the historical nature of the controls used in the study and the fact that some differences between groups in terms of the treatments and vaccinations received before the operation were not controlled for. The length of follow-up differed between groups, with no discussion of the potential effects of that difference on the results being provided by the authors.

**Validity of estimate of costs**
The cost analysis was based on the median operating times and length of hospital stay, which were reported separately from the costs. Adequate details of the cost calculations were not given.

**Other issues**
Given the lack of randomisation and sensitivity analysis, the results may need to be treated with some caution. The conclusions reached by the authors were not fully justified, given the uncertainties in the data. The issue of generalisability to other settings or countries was not addressed.

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