Laparoscopic versus open distal pancreatectomy: a clinical and cost-effectiveness study
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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.

CRD summary
The study estimated the cost-effectiveness of laparoscopic versus traditional surgical removal of part of the pancreas (distal pancreatectomy) for patients in the UK. The authors concluded that the laparoscopic technique was feasible and safe without a negative impact on cost. The level of detail provided in the study was insufficient to be confident about the validity of the results, so the authors’ conclusions should be considered with caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
The study estimated the cost-effectiveness of traditional versus laparoscopic surgical techniques for patients who underwent distal pancreatectomy in the UK.

Interventions
Traditional open distal pancreatectomy surgery (which involved an L-shape or subcostal incision) was compared with a laparoscopic distal pancreatectomy surgery (which involved five ports with minimal incisions).

Location/setting
UK/Secondary care.

Methods
Analytical approach:
A retrospective analyses of prospectively collected data of patients who underwent distal pancreatectomy in a single UK hospital was undertaken. The authors did not state the perspective, but it appeared to be that of the hospital.

Effectiveness data:
The effectiveness evidence came from patients at Southampton University Hospitals NHS Foundation Trust. Patients were assessed for indication, feasibility and the type of resection required before a decision was made on the type of surgical approach they received. Comparative analysis of patient demographics were presented; there was no statistically significant differences. There were significant intraoperative differences in blood loss and splenic artery and vein percentage preserved. The primary effectiveness outcomes were the length of hospital stay, morbidity, pancreatic leak, complication rates, the need for postoperative intervention and 90-day mortality.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
No summary measure of benefit was presented. The postoperative primary effectiveness outcomes were presented with the average total costs (including and excluding readmission).

Cost data:
The costs included the length of hospital stay, operations and managing complications, and associated staff costs. The resource use was from prospective data collection on the same patient population that provided the clinical outcomes. Costs were determined using standard tariffs set by the hospital (the setting of the study) and were reported in UK £.
Analysis of uncertainty:
The authors did not report any sensitivity analyses.

Results
Postoperative results suggested a reduction in the total length of hospital stay for laparoscopic distal pancreatectomy (seven days) than with open distal pancreatectomy (11 days; p=0.007), but there were no statistically significant differences in any of the other clinical outcomes.

The overall total cost of open distal pancreatectomy was £16,675 (95% confidence interval 7,209 to £60,235) compared with £11,292 (95% confidence interval 6,508 to 30,632) for laparoscopic distal pancreatectomy (including readmissions), but this difference in cost was not statistically significant.

Authors’ conclusions
The authors concluded that laparoscopic distal pancreatectomy was feasible and safe, with no negative impact on cost.

CRD commentary
Interventions:
The two alternative surgical techniques were described in detail and appeared to represent the available surgical options in the study setting. These options may be applicable to other settings; other surgical methods may also have been valid comparators.

Effectiveness/benefits:
The source of effectiveness data was highly relevant to the study setting, but the data were based on a study of poor methodological design, which was likely to lack validity. The patient sample size was small and it was not clear if the sample was of sufficient power to detect statistical differences, so that those observed may be by chance. It was not clear whether methods to deal with the bias and confounding associated with observational studies were used in the analysis. Overall, the internal validity of the analysis was likely to be low.

Costs:
The authors did not explicitly state the perspective of the analysis, although as only direct costs to one hospital were included, it appeared that this was the perspective taken. The resource use data were relevant to the study setting, as were the cost data. No details of resource use and unit costs were presented. It was unclear how generalisable the costs used were (even within the UK). More detailed reporting of these data would have enhanced generalisability. The methods used to analyse cost data and account for possible skewed data were not reported. The authors did not specify the price year; it appeared that no discounting was performed, which may be applicable given the apparently short-term horizon of the study. The reporting of cost data was poor.

Analysis and results:
A comparative approach was appropriate to compare the relative costs and effectiveness of the alternative surgical techniques. The time horizon of the analysis was not stated explicitly, but it appeared that it covered the period until discharge for costs and up to 90 days postoperatively for the mortality outcomes. It was not clear or discussed whether this time horizon would be sufficient to capture all differences in costs and outcomes. The sensitivity of results and conclusions to variations in data were not tested by the authors, so the robustness of the results and conclusions was unclear. The authors discussed some limitations of their analysis.

Concluding remarks:
The level of detail provided in the study was insufficient to be confident about the validity of the results. As a consequence, the authors’ conclusions should be considered with caution.

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