Comparison of laparoscopic cholecystectomy for acute cholecystitis within and beyond 72 h of symptom onset during emergency admissions

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
This study evaluated the costs and outcomes of early and late laparoscopic cholecystectomy for acute cholecystitis. The authors concluded that surgery could be safely performed at an early or late stage, but early treatment was less complex, shortened hospital stay, and was less expensive. There were limitations in the study design and reporting. It was unclear whether the results reflected differences in treatment or differences between the patients. The results cannot be considered to be reliable.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study evaluated the costs and outcomes of early and late laparoscopic cholecystectomy for acute cholecystitis.

Interventions
Early intervention was compared with late intervention. Early surgery was conducted within 72 hours of symptom onset, while late surgery was conducted after 72 hours. Cholecystectomies were performed by two surgeons who specialised in laparoscopic surgery. Patients who were discharged and then re-admitted were not included in the late surgery group. All patients received intravenous broad-spectrum antibiotics.

Location/setting
China/in-patient care.

Methods
Analytical approach:
The economic evaluation was conducted as part of a small retrospective clinical study of patients having laparoscopic cholecystectomy, between February 2004 and December 2009 (133 patients). The perspective of the economic evaluation was not stated.

Effectiveness data:
Age, gender, and pathologic type of cholecystitis, as well as clinical outcomes, were compared for statistical significance. The clinical effectiveness outcomes included surgery duration, overall and postoperative hospital stay, and wound infections. All the effectiveness data were from the retrospective study.

Monetary benefit and utility valuations:
Not relevant.

Measure of benefit:
The clinical effectiveness outcomes were the measures of benefit.

Cost data:
The total costs for surgery and in-patient stay were reported for each intervention. These costs were in Chinese yuan (CNY).

Analysis of uncertainty:
The outcomes were compared to identify statistically significant differences.

**Results**
The average duration of surgery was 44.1 minutes (SD 5.32) for early surgery, and 66.4 minutes (SD 3.05) for late surgery; this difference was statistically significant (p<0.05). On average, early surgery patients stayed 7.5 days (SD 1.41) and late surgery patients stayed 12.1 days (SD 1.25) in hospital; this difference was statistically significant (p<0.05).

There were no statistically significant differences in postoperative hospital stay and in wound infections.

On average, the costs were CNY 6,692 (SD 794) for early surgery, and CNY 8,378 (SD 802) for late surgery; this difference was statistically significant (p<0.05).

**Authors’ conclusions**
The authors concluded that laparoscopic cholecystectomy could be safely performed at an early or late stage, but early treatment was less complex, shortened the hospital stay, and was less expensive.

**CRD commentary**

**Interventions:**
The interventions were clearly described, including the surgeons’ abilities and techniques. The authors discussed the various definitions of the time frames for laparoscopic cholecystectomy.

**Effectiveness/benefits:**
The observational, retrospective nature of the clinical data left it open to bias. While some patient characteristics were compared for statistical differences, comorbidities were not and some delays in surgery were caused by comorbidities. Any differences between the two groups in comorbidities were unclear, making the results uncertain. The time horizon appears to have covered the period of first hospitalisation and surgery. It was unclear if any adverse events occurred after discharge.

**Costs:**
While the study perspective was not stated, all the costs related to the hospital where surgery took place, so a hospital perspective can be assumed. The costs were presented only as totals, so it was not clear what types of cost were included. The study appears to have analysed only the direct costs of the surgery and initial hospitalisation. It was not clear if patients who had the operation were at risk of later complications. The price year was not reported, which limits the comparability and transferability of the results to other settings.

**Analysis and results:**
The results were generally clearly reported, but had limitations. The study was retrospective, and open to confounding and bias. The authors conducted a thorough discussion of the literature on laparoscopic cholecystectomy. They recognised that their definition of late surgery differed from other definitions, and that the period between these late definitions was an area for further research. They noted that there were no conversions to open surgery in their study, and both their surgeons preferred laparoscopic surgery. There could be differences in surgeon skills in other settings, reducing the generalisability of the results.

**Concluding remarks:**
There were limitations in the study design and reporting. It was unclear whether the results reflected differences in treatment or differences between the patients. The results cannot be considered to be reliable.

**Funding**
Not stated.

**Bibliographic details**
PubMedID
22806207

DOI
10.1007/s00268-012-1709-7

Indexing Status
Subject indexing assigned by NLM

MeSH
Cholecystectomy, Laparoscopic; Cholecystitis, Acute /diagnosis /surgery; Emergency Treatment; Female; Humans; Male; Middle Aged; Patient Admission; Retrospective Studies; Time Factors

AccessionNumber
22013015141

Date bibliographic record published
02/05/2013

Date abstract record published
15/04/2014