Early laparoscopy versus active observation in acute abdominal pain: systematic review and meta-analysis

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CRD summary
This review compared early laparoscopy to active observation in patients with acute undifferentiated abdominal pain and concluded that support (or otherwise) for the effectiveness of the procedure was not possible. Given the shortcomings in the review process, heterogeneity across studies and poor study quality, the authors' conclusions should be interpreted with caution.

Authors' objectives
To compare early laparoscopy to active observation in patients with acute undifferentiated abdominal pain.

Searching
MEDLINE was searched from 1966 to December 2007. Handsearches of conference proceedings from five named societies were undertaken. Cochrane Central Register of Controlled Trials (CENTRAL) and Current Controlled Trials were searched. Search terms were reported. Reference lists of relevant studies were searched for additional articles.

Study selection
Randomised controlled trials (RCTs) that compared laparoscopy within 24 hours of admission with active observation in patients with acute abdominal pain were eligible for inclusion. Eligible studies had to report at least one outcome. Included outcomes comprised: failure to establish a diagnosis; complications; readmission to hospital with recurrent abdominal pain; and length of hospital stay. In half of the included trials, study participants were restricted to women.

Study abstracts selected by one reviewer were checked by a second reviewer for inclusion.

Assessment of study quality
Methodological quality was assessed using the Jadad scale, a 5-point scale evaluating randomisation, blinding and intention-to-treat (maximum score is 5). The authors did not state how many reviewers performed the validity assessment.

Data extraction
Data for dichotomous outcomes were extracted to calculate odds ratios (OR). Means and standard deviations were extracted for the continuous outcome.

The authors stated neither how the data were extracted for the review nor how many reviewers performed the extraction.

Methods of synthesis
Pooled odds ratios and weighted mean differences (WMDs) and their 95% confidence intervals (CI) were calculated using a Der Simonian and Laird random-effects model. Statistical heterogeneity was assessed using the Cochran Q test with significant heterogeneity defined as p<0.05. Publication bias was assessed using Egger's test and funnel plots.

Results of the review
Four RCTs (n=811, range 65 to 522) were included in the review. The quality score was 1 for all four studies.

Compared with active observation, early laparoscopy significantly reduced the number of patients discharged without a final diagnosis (OR 0.13, 95% CI 0.03 to 0.51; four studies). The early laparoscopy group reported fewer complications (three studies), fewer readmissions (two studies) and a modest reduction in length of hospital stay (three studies); these findings were not statistically significant. There was significant heterogeneity across all four comparisons.
Authors' conclusions
Insufficient evidence was available to recommend the routine use of early laparoscopy in patients with acute undifferentiated abdominal pain.

CRD commentary
The review question and inclusion criteria were clear. A limited literature search was undertaken. It was unclear whether language restrictions were placed on the search and whether unpublished studies were sought; language bias could have been present and some studies may have been missed. The selection of studies for the review was undertaken by one reviewer; therefore, methods were not used to reduce error and bias for study selection. It was unclear how many of the authors were involved in data extraction and quality assessment. Appropriate criteria were used to assess the quality of the included studies and all achieved a Jadad score of 1. Suitable methods were used for the meta-analysis. Significant heterogeneity was present for all comparisons. An assessment of publication bias was undertaken, but not reported for each comparison and so was of limited usefulness. Given the between-study heterogeneity and poor quality of the included studies, the authors' conservative conclusion appeared appropriate. The review process was poorly reported, which made the potential for missed studies, error and bias unclear.

Implications of the review for practice and research
Practice: The authors did not state implications for practice.
Research: The authors stated that large clinical trials are required to determine the role of laparoscopy in this clinical situation.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.