Early ERCP in acute gallstone pancreatitis without cholangitis: a meta-analysis
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CRD summary
The authors concluded that there was a trend towards increased mortality with early endoscopic retrograde cholangiopancreatography with or without endoscopic sphincterotomy in patients with acute gallstone pancreatitis without cholangitis. Given the small number of studies and differences between studies, the authors' conclusions may not be reliable and should be interpreted with caution.

Authors' objectives
To evaluate the effects of early endoscopic retrograde cholangiopancreatography (ERCP) on morbidity and mortality of patients with acute gallstone pancreatitis without cholangitis.

Searching
MEDLINE, EMBASE, The Cochrane Library, AMI, LILACS and Health Research and Development Information Network were searched to January 2008 using reported search terms. Reference lists of selected studies were screened. Authors of retrieved trials were contacted for details of additional studies and unpublished information. No restrictions were applied with respect to language, publication status and date.

Study selection
Randomised controlled trials (RCTs) were eligible if they compared early ERCP with or without endoscopic sphincterotomy versus conservative treatment within at most 72 hours of admission in patients with acute gallstone pancreatitis without cholangitis. Studies had to assess mortality or morbidity.

Studies enrolled patients within 72 hours of admission or symptom onset. Patients ranged in age from 15 to 96 years. Studies differed in their criteria for patient selection: one study excluded patients with obstructive jaundice and another included these patients, but excluded patients with cholangitis. Most patients were female in all studies.

The authors did not state how many reviewers performed the selection.

Assessment of study quality
Validity was assessed using the Jadad scale (randomisation, blinding and withdrawals). Studies that scored 3 or more out of 5 were considered to be high quality.

The authors did not state how many reviewers assessed validity.

Data extraction
For each study, rates of mortality, morbidity and adverse events were extracted and used to calculate relative risks (RRs) and 95% confidence intervals (CIs). For some studies the reported overall incidence was not used to take account of the number of patients with cholangitis at baseline.

The authors did not state how many reviewers assessed validity.

Methods of synthesis
Pooled relative risks and 95% CIs were calculated using a fixed-effect model. Heterogeneity was assessed using the $I^2$ statistic. Subgroup analysis was used to examine the influence of severity of pancreatitis. Potential reasons for heterogeneity were discussed and examined. The authors stated it was not possible to assess publication bias due to the small number of studies.

Results of the review
Three RCTs were included (n=462). Studies scored 2 or 3 out of 5 for quality. Two RCTs used adequate randomisation methods; none were double-blind. All studies had complete follow-up.

There was no statistically significant difference between ERCP and conservative treatment in morbidity or mortality; both analyses were based on three studies. Significant heterogeneity was found for both analyses ($I^2$ 65% and 54%). Results were similar for patients with mild and severe pancreatitis.

After exclusion of one study with relatively low quality and enrolment of patients within 72 hours of admission (the other two studies were in patients within 72 hours of symptom onset), studies were homogeneous.

There was no statistically significant difference between treatments for morbidity. There was a nonsignificant trend favouring conservative treatment for mortality. Both analyses were based on two studies.

Authors' conclusions
There was a trend towards increased mortality from early ERCP with or without endoscopic sphincterotomy in patients with acute gallstone pancreatitis without cholangitis.

CRD commentary
The review question was clearly stated and inclusion criteria were appropriately defined. Several relevant sources were searched and attempts were made to minimise publication and language biases. Methods used to select studies, assess validity and extract data were not described and so it was not known whether efforts were made to reduce reviewer errors and bias. Study validity was assessed and results were reported. Appropriate methods were used for the meta-analyses. Heterogeneity was assessed and potential reasons for the heterogeneity were discussed and explored. Some limitations of the evidence were discussed and included the possibility of non-significant findings due to small numbers of patients. Given the small number of studies and differences between studies, the authors' conclusions may not be reliable and should be interpreted with caution. Recommendations for future research appeared appropriate.

Implications of the review for practice and research
**Practice:** The authors suggested that until further data were available it "may be prudent not to perform early ERCP with or without endoscopic sphincterotomy in patients with acute gallstone pancreatitis unless there is at least a slight suspicion of cholangitis or persistent ampullary obstruction".

**Research:** The authors stated that adequately powered multicentre RCTs were needed to examine the effects of early ERCP or endoscopic ultrasound on complications of acute gallstone pancreatitis in patients diagnosed with acute gallstone pancreatitis plus confirmed choledocholithiasis with without obstructive jaundice and/or acute cholangitis who presented within a defined period after disease onset. A meta-analysis of individual patient data may be an alternative.

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