

Meta-Analysis Review

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Meta-Analysis of Randomized Clinical Trials Comparing Open and Laparoscopic Anti-Reflux Surgery

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Abstract

OBJECTIVES: The aim of this study was to conduct a meta-analysis of randomized evidence to determine the relative merits of laparoscopic anti-reflux surgery (LARS) and open anti-reflux surgery (OARS) for proven gastro-esophageal reflux disease (GERD).

METHODS: A search of the Medline, Embase, Science Citation Index, Current Contents, and PubMed databases identified all randomized clinical trials that compared LARS and OARS and that were published in the English language between 1990 and 2007. A meta-analysis was carried out in accordance with the QUOROM (Quality of Reporting of Meta-Analyses) statement. The six outcome variables analyzed were operating time, hospital stay, return to normal activity, perioperative complications, treatment failure, and requirement for further surgery. Random-effects meta-analyses were carried out using odds ratios (ORs) and weighted mean differences (WMDs).

RESULTS: Twelve trials were considered suitable for the meta-analysis. A total of 503 patients underwent OARS and 533 had LARS. For three of the six outcomes, the summary point estimates favored LARS over OARS. There was a significant reduction of 2.68 days in the duration of hospital stay for the LARS group compared with that for the OARS group (WMD: -2.68, 95% confidence interval (CI): -3.54 to -1.81; $P < 0.0001$), a significant reduction of 7.75 days in return to normal activity for the LARS group compared with that for the OARS group

(WMD: -7.75 , 95% CI: -14.37 to -1.14 ; $P=0.0216$), and finally, there was a statistically significant reduction of 65% in the relative odds of complication rates for the LARS group compared with that for the OARS group (OR: 0.35, 95% CI: 0.16–0.75; $P=0.0072$). The duration of operating time was significantly longer (39.02 min) in the LARS group (WMD: 39.02, 95% CI: 17.99–60.05; $P=0.0003$). Treatment failure rates were comparable between the two groups (OR: 1.39, 95% CI: 0.71–2.72; $P=0.3423$). Despite this, the requirement for further surgery was significantly higher in the LARS group (OR: 1.79, 95% CI: 1.00–3.22; $P=0.05$).

CONCLUSIONS: On the basis of this meta-analysis, the authors conclude that LARS is an effective and safe alternative to OARS for the treatment of proven GERD. LARS enables a faster convalescence and return to productive activity, with a reduced risk of complications and a similar treatment outcome, than an open approach. However, there is a significantly higher rate of re-operation (79%) in the LARS group.

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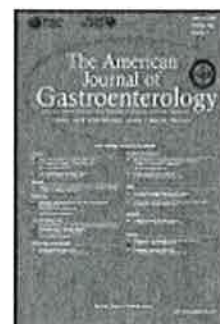
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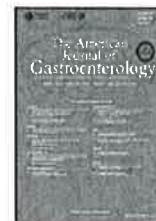
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