Laparoscopic vs Open Appendectomy in Older Patients

Abstract

Hypothesis: The results of a meta-analysis of individual studies comparing laparoscopic vs. open appendectomy in older patients may guide the choice of surgical approach.

Design: meta-analysis

Setting: Academic research

Patients: MEDLINE, EMBASE, Web of Science, and Cochrane databases were searched for comparative studies of older patients with a diagnosis of acute appendicitis.

Main Outcome Measures: Primary outcomes were postoperative mortality and overall morbidity. Secondary outcomes were operative time, length of hospital stay, postoperative wound infection, and intra-abdominal collection. Using the lowest threshold from the articles included, older patients were defined as those older than 60 years.

Results: Analyzed were 6 studies comprising 15852 appendectomies (4398 laparoscopic and 11454 open procedures). Laparoscopic appendectomy was associated with significant reductions in postoperative mortality (pooled odds ratio, 0.24; 95%CI, 0.15-0.37), postoperative complications (pooled odds ratio, 0.61; 95%CI, 0.50-0.73), and length of hospital stay (weighted mean difference, -0.54 days; 95%CI, -0.64 to -0.37 days) (p<.05 for all). No significant group differences were observed in operative time, postoperative wound infection, or intra-abdominal collection.

Conclusion: In older patients, laparoscopic appendectomy is associated with reduced postoperative mortality and morbidity, although randomized data are required to infer causality. A health economic analysis with quality-of-life metrics is needed to investigate potential benefits of the reduced length of hospital stay observed following laparoscopic appendectomy in this cohort.

Critical appraisal

Acute appendicitis in the elderly is a distinct diagnostic and therapeutic challenge. This meta-analysis showed that in older patients (> 60 years old), laparoscopic appendectomy is associated with reduced mortality and morbidity compared with open appendectomy.
1) The strength of this study resides in its sound methodology: adequate information on the populations studied and outcomes, inclusion of relevant studies (however, only in English), quality assessment of each study according to the criteria of Oxford Centre for evidence-based Medicine levels of evidence. There was no heterogeneity and no major biases in the selected studies.

2) Postoperative morbidity and mortality were significantly lower in the older patients who had laparoscopic appendectomy compared to open appendectomy. However, the authors did not calculate the number needed to treat (NNT). The NNT (the number of patients that one has to treat via laparoscopy (vs. open) in order to avoid one patient with a complication) was 12. The NNT (the number of patients that one has to treat via laparoscopy (vs. open) in order to avoid one death) was 57. These are clinically significant results.

3) Finally, the authors’ conclusions are supported by the design of this study but we need randomized trials comparing laparoscopic appendectomy to open appendectomy only for the strata of patients older than 60 years old.

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