

O-56

Laparoscopy for rectal cancer reduces short-term mortality and morbidity. Results of a systematic review and meta-analysis.

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Objective

To evaluate differences in safety of laparoscopic rectal resection for cancer, compared with open surgery.

Summary Background Data

While definitive long-term results are not yet available, the global safety of laparoscopic surgery for rectal cancer treatment remains controversial.

Methods

A systematic review from 2000 to 2011 was performed searching the MEDLINE and EMBASE databases (PROSPERO Registration number: CRD42012002406). We included randomized and prospective controlled clinical studies comparing laparoscopic and open resection for rectal cancer. Primary endpoints were 30 days mortality and overall morbidity. Then a metanalysis was conducted by a fixed-effect model, performing a sensitivity analysis by a random-effect model. Relative risk (RR) was used as an indicator of treatment effect; a RR less than 1.0 was in favor of laparoscopy. Publication bias was assessed by funnel plot, heterogeneity by the I^2 test and subgroup analysis on local and systemic complications.

Results

Twenty-three studies, representing 4539 patients, met the inclusion criteria; 8 were randomized for a total of 1746 patients. Mortality was observed in 1.0% of patients in the laparoscopic group and in 2.4% of patients in the open group. The overall RR was 0.46 (95%CI 0.21-0.99, $p=0.048$). The raw

incidence of overall complications was lower in the laparoscopic group (31.8%) compared to the open group (35.4%). The overall RR was 0.83 (95%CI 0.76-0.91, $p < 0.001$).

Conclusions

Based on evidence of both randomized and prospective controlled series, mortality and morbidity RR, including subgroup analysis, were significantly lower after laparoscopy compared to open surgery.