

Laparoscopic versus open transhiatal approach for adenocarcinoma of the esophagogastric junction: a systematic review and meta-analysis



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INTRODUCTION: The incidence of adenocarcinoma of the esophagogastric junction (AEG) is increasing worldwide. Laparoscopic transhiatal approach (LTH) has gained growing popularity in the treatment of AEG. However, its safety and efficacy need to be evaluated.

METHODS AND PROCEDURES: Original studies comparing LTH with open transhiatal approach (OTH) were searched in PubMed and Web of Science. Meta-analysis was performed using RevMan 5.3.

RESULTS: Eight studies involving 2033 patients were eligible. Compared with OTH, LTH was associated with longer operation time (mean difference [MD] = 28 min, 95% *CI* [18, 39], $P < 0.001$, Fig. 1A) while less blood loss (MD = -100 ml [-133, -66], $P < 0.001$, Fig. 1B), and harvested similar number of lymph nodes (MD = 0.30 [-1.18, 1.77], $P = 0.69$, Fig. 1C).

There were no differences in time to ambulation (MD = -0.79 days [-1.77, 0.20], $P = 0.12$, Fig. 2A) or time to first flatus (MD = -0.71 days [-1.87, 0.44], $P = 0.23$, Fig. 2B); however, LTH was associated with shorter postoperative hospital stay (MD = -1.60 days [-2.29, -0.91], $P < 0.001$, Fig. 2C). The mortality after surgery was comparable for LTH and OTH (risk difference [RD] = -0.00 [-0.01, 0.01], $P = 0.53$).

The incidence of total major complications was similar in LTH (6.1%) and OTH (8.4%) (RD=-0.02 [-0.05, 0.01], $P = 0.12$, Fig. 3); there were no significant differences in the incidence of each complication. Furthermore, LTH achieved similar 2-year overall survival (OS) rate (risk ratio [RR] = 1.17 [0.86, 1.60], $P = 0.31$, Fig. 4A) while higher 5-year OS rate (RR = 1.43 [1.18, 1.73], $P = 0.0003$, Fig. 4B) and significant improvement of OS (univariable hazard ratio = 0.65 [0.50, 0.84], $P = 0.0009$, Fig. 4C; multivariable hazard ratio = 0.59 [0.44, 0.80], $P = 0.0006$, Fig. 4D).

CONCLUSION: LTH is feasible and safe for AEG, and may provide more favorable short-term outcomes and potential long-term survival benefit, which needs to be confirmed by randomized trials.

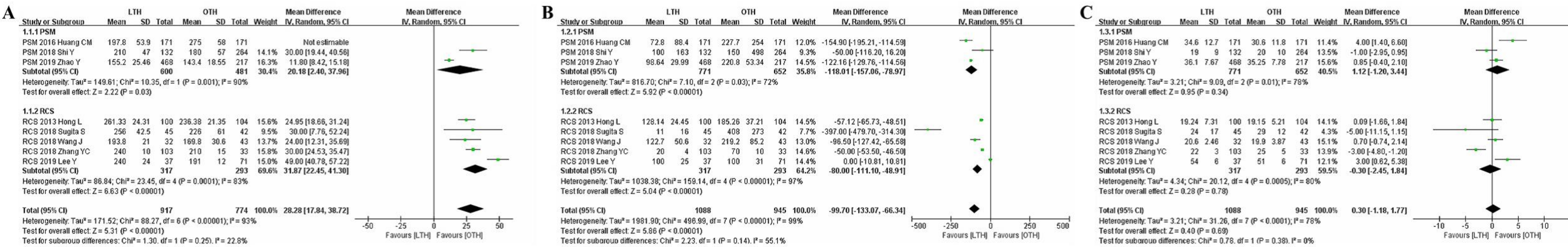


Fig. 1 Surgical outcomes. A: operation time; B: blood loss; C: number of lymph nodes

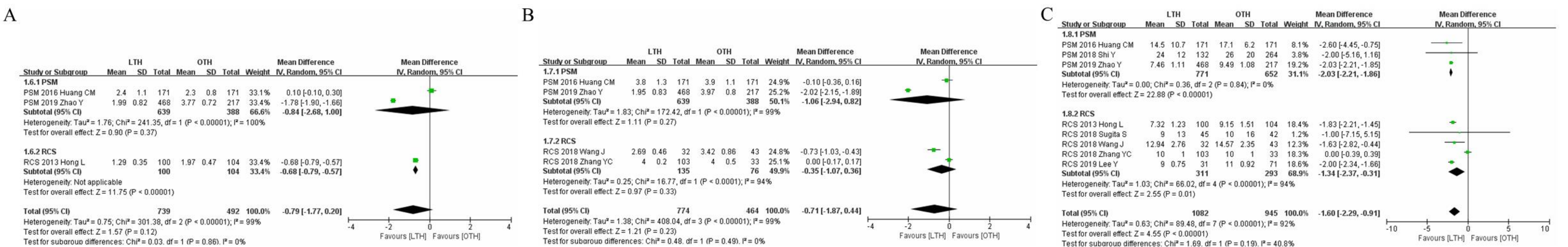


Fig. 2 Postoperative recovery. A: time to ambulation; B: time to first flatus; C: postoperative hospital stay

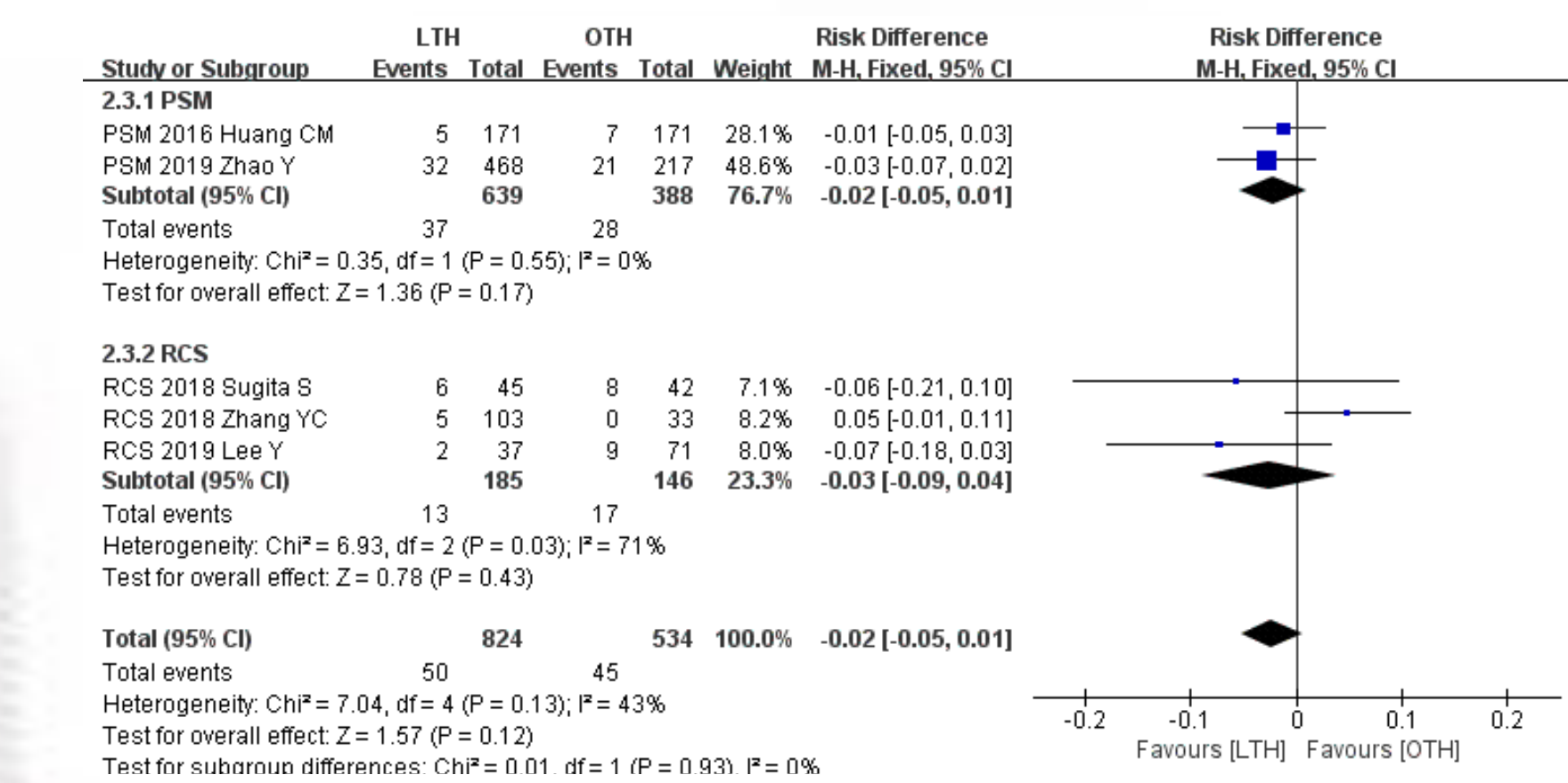


Fig. 3 Total major complications

