INPLASY

Robotic versus laparoscopic pelvic lateral lymph node dissection in advanced rectal cancer: a systemic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 November 2023 and was last updated on 15 November 2023.

INTRODUCTION

Review question / Objective Our analysis aims to enhance the current understanding and stimulate a more informed discourse regarding the most effective surgical approach for managing pelvic lateral lymph node metastasis by comprehensively reviewing existing literature and data.

Rationale Comparative studies of robotic versus laparoscopic pelvic lateral lymph node dissection are still inconclusive regarding the short- and long-term outcomes.

Condition being studied The PICO (population, intervention, comparison, outcome) setting of the current meta-analysis included:(1)P: patients with rectal cancer (2) I: robotic pelvic lateral lymph node dissection (3)C: laparoscopic pelvic lateral lymph node dissection (4)O: peri-operative outcome.

METHODS

Search strategy Two authors(YCC, WTZC) searched the database of PubMed, Embase, Web of Science for systemic review of comparing laparoscopic versus robotic PLLND in patients with rectal cancer. The following keywords and/or medical subject headings (MeSH) terms in all possible combinations were searched: (robotic OR robotics(MeSH) OR robot) AND (laparoscopy(MeSH), laparoscopic) AND (rectal cancer OR rectal neoplasms(MeSH) or rectal adenocarcinoma) AND (lateral lymph node dissection OR lateral pelvic lymph node dissection OR lymph node excision(MeSH)). The last search was conducted on 29 September 2023. The reference list of all retrieved studies were manually accessed.

Participant or population Laparoscopic or robotic pelvic lateral lymph node dissection for rectal cancer.

Intervention Robotic pelvic lateral lymph node dissection for rectal cancer.

Comparator aparoscopic pelvic lateral lymph node dissection for rectal cancer.

Study designs to be included retrospective studies, prospective RCTs, and well-designed non-RCTs.

Eligibility criteria (1) comparative study of robotic vs. laparoscopic PLLND (2) patients diagnosed with rectal cancer (3) study design including retrospective studies, prospective RCTs, and well-designed non-RCTs (4) Pooled analysis amenable to the meta-analysis software (5) article published in English language.

Information sources Two authors (YCC, WTZC) searched the PubMed, Embase, and Web of Science databases for a systematic reviews comparing laparoscopic versus robotic PLLND in patients with rectal cancer. The following keywords and/or medical subject headings (MeSH) terms were searched in all possible combinations: (robotic OR robotics (MeSH) OR robot) AND (laparoscopy (MeSH), laparoscopic) AND (rectal cancer OR rectal neoplasms(MeSH) or rectal adenocarcinoma) AND (lateral lymph node dissection OR lateral pelvic lymph node dissection OR lymph node excision(MeSH)). The last search was conducted on 29 September 2023. The reference list of all retrieved studies was manually accessed.

Main outcome(s) Number of pelvic lateral lymph node harvest.

Additional outcome(s) Perioperative outcome.

Quality assessment / Risk of bias analysis We used the modified Newcastle Ottawa Scale (NOS) for Quality assessment.

Strategy of data synthesis We calculated odds ratios (ORs) and differences in means with 95% confidence intervals (CIs) for dichotomous and continuous variables. The current meta-analysis was performed with a random-effects model implemented using Comprehensive Meta-Analysis software (version 3, Biostat, Englewood, NJ, United States). A two-tailed p-value of less than 0.05 was considered statistically significant. We calculated the Cochrane Chi² test (Q-test), the I2, the Tau² and 95% predictive interval (PI) for the assessment of heterogeneity [19]. We did not conduct any sensitivity analysis or construct a funnel plot (to detect publication bias) because only five studies were included in this meta-analysis.

Subgroup analysis We did not perform subgroup analysis.

Sensitivity analysis We did not perform sensitivity analysis.

Language restriction English.

Country(ies) involved China.

Keywords Laparoscopic;robotic;pelvic lateral lymph node dissection;rectal cancer.

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