INPLASY PROTOCOL

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Corresponding author:
Jianqin Lai

1017405526@qq.com

Author Affiliation:
Jinan University.

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None declared.

Systematic review and meta analysis of the short-term efficacy and safety of single-port versus conventional multi-port laparoscopic surgery in the treatment of colorectal cancer

Lai[1], JQ; Xia, LJ[2]; Bao, Z[3]; Gong, J[4]; Cao, J[5].

Review question / Objective: **The main purpose of this study is to systematically evaluate the published high-quality RCT of single-port laparoscopic surgery (SILS) and traditional multi-port laparoscopic surgery (CMLS) in the treatment of colorectal cancer to objectively evaluate the safety and efficacy of SILS in colorectal cancer surgery.**
Condition being studied: **In China, colorectal cancer is the fourth most common malignancy and is on the rise. Colorectal cancer is the second most common malignancy after lung cancer in western developed countries. At present, surgical treatment is the first choice for the treatment of colorectal tumors, and laparoscopic surgery has become the mainstream of colorectal surgery.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 October 2021 and was last updated on 06 October 2021 (registration number INPLASY2021100019).

INTRODUCTION

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common malignancy after lung cancer in western developed countries. At present, surgical treatment is the first choice for the treatment of colorectal tumors, and laparoscopic surgery has become the mainstream of colorectal surgery.

METHODS

Participant or population: All patients had colon or rectal cancer confirmed by colonoscopy and were randomly assigned to single-port laparoscopic colorectal cancer surgery or conventional multi-port colorectal cancer surgery.

Intervention: Single-port laparoscopic surgery (SILS) refers to the surgical procedure in which the laparoscope and operating instruments are placed through a small incision in the abdominal wall.

Comparator: Conventional multiport laparoscopic colorectal surgery requires surgery with 3-5 trocars and requires an ancillary incision for specimen extraction.

Study designs to be included: Randomized controlled trial.

Eligibility criteria: 1. Published RCTs comparing SILS with CMLS for colorectal cancer; 2.At least one outcome measure is reported in the literature.

Information sources: A comprehensive search of PubMed, Embase, Cochrane Library, Web of Science and ClinicalTrials.gov.

Main outcome(s): Operation time, intraoperative blood loss, total length of surgical incision, conversion rate, number of dissected lymph nodes, tumor size in pathological specimens, length of pathological specimens, tumor and distal resection margin, postoperative first exhaust time, postoperative day 1 resting state pain score, postoperative hospital stay, incidence of postoperative complications and incidence of postoperative anastomotic leakage, incidence of postoperative wound infection, incidence of postoperative intestinal obstruction, incidence of secondary surgery.

Quality assessment / Risk of bias analysis: The included RCT studies were uniformly evaluated for quality using the bias evaluation tool recommended by the Cochrane Collaboration Uniform Workbook.

Strategy of data synthesis: RevMan 5.4.1 statistical software was used for statistical analysis of all included literatures. Measurement data are described by mean difference (MD). If the original data extracted is in the form of median (range), the mean and standard deviation are calculated by the method provided by Hozo et al. [17]. Enumeration data were described using odds ratio (OR). Pooled statistics with 95% confidence intervals (CI) were calculated. Mantel-Haenszel test was used to test the heterogeneity of the included studies, and the corresponding calculation model was selected according to the results of heterogeneity test. The fixed-effect model was used for the studies with good homogeneity ($P > 0.05$, $I^2 \leq 50\%$), and the random-effect model was used for the studies with heterogeneity ($P < 0.05$, $I^2 > 50\%$). The source of heterogeneity was found by analysis and sensitivity analysis. P value<0.05 was considered statistically significant.

Subgroup analysis: Analysis according to different types of postoperative complications。The analysis is to group the included original studies according to a certain factor, then calculate the pooled effect size within each group, and observe whether the difference in the pooled effect size between each group is statistically significant. From this, it was judged whether there was an interaction between the grouping factors and the pooled effect size.

Sensitivity analysis: Sensitivity analysis refers to an uncertain analysis technique that studies the degree to which a certain change in the relevant factors has an effect on a certain or a group of key indicators

from the perspective of quantitative analysis. The essence is to explain the law of the influence of key indicators by these factors by changing the values of relevant variables one by one. Some studies with low quality or different efficacy evaluation criteria and inclusion and exclusion criteria were excluded, and then combined analysis was performed. When specific studies (studies with low quality and different inclusion and exclusion criteria) were excluded, the combined effect size before and after treatment did not change significantly, indicating that the results of Meta analysis were relatively stable; if large differences or even diametrically opposite conclusions were found, it suggested that the stability of Meta analysis results was poor, and caution should be taken when interpreting the results and concluding.sensitivity analysis was performed by removing the included individual studies one by one.

Country(ies) involved: China.

Keywords: Single-port laparoscopy; conventional multi-port laparoscopy; colorectal cancer; efficacy.

Contributions of each author:

Author 1 - Jianqin Lai.
Email: 1017405526@qq.com
Author 2 - Zhen Bao.
Email: baozhenjnu@126.com
Author 3 - Jie Cao.
Email: doctor_caojie@126.com
Author 4 - Jin Gong.
Email: gongjin153@163.com
Author 5 - Longjie Xia.