INPLASY PROTOCOL

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None declared.

Comparison of the prognosis of robotic-assisted total gastrectomy, laparoscopic total gastrectomy, and conventional open total gastrectomy: A network meta-analysis

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Review question / Objective: The incidence of gastric cancer is increasing every year and the prognosis is extremely poor, which seriously affects human life and health. The only way to cure gastric cancer is surgical treatment, and da Vinci robotics is now widely used in the treatment of gastric cancer, but there are no large studies to prove the safety and feasibility of da Vinci robot-assisted total gastrectomy. The present study accurately assesses the advantages and disadvantages of da Vinci robotic-assisted total gastrectomy in the treatment of gastric cancer. P: Patients with gastric cancer; I: Robotic total gastrectomy; C: laparoscopic total gastrectomy, conventional open total gastrectomy; O: incidence of postoperative complications, operative time, length of hospital stay; S: RCT or cohort study.

Condition being studied: With the worldwide popularity of robotic surgical assist systems, the technology of minimally invasive surgery has been further enhanced. The da Vinci robot has now entered the field of gastric cancer treatment, and some studies have demonstrated the feasibility and safety of robotic distal gastrectomy, but no studies have yet demonstrated the merits of robotic-assisted total gastrectomy, and this study incorporates several aspects of outcome indicators to demonstrate the feasibility of robotic-assisted total gastrectomy.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 29 December 2021 and was last updated on 29 December 2021 (registration number INPLASY2021120133).

INTRODUCTION

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METHODS

Participant or population: Stomach cancer patients.

Intervention: Robotic-assisted total gastrectomy Robot-assisted distal gastrectomy.

Comparator: Conventional open total gastrectomy, laparoscopic-assisted total gastrectomy.

Study designs to be included: Randomised controlled trials or cohort studies.

Eligibility criteria: Inclusion criteria: literature based on randomised controlled trials (RCTs) and cohort studies; studies in patients with preoperative endoscopic examination for gastric cancer or postoperative pathological and cytological confirmation of gastric cancer; study outcome indicators including at least one of the rates of postoperative abdominal infection, postoperative abdominal bleeding, postoperative pneumonia, postoperative anastomotic fistula and total postoperative complications, time to surgery, and length of hospital stay; studies including robotic total gastrectomy, laparoscopic total gastrectomy and at least two of the traditional open total gastrectomy procedures. Exclusion criteria: types of literature such as reviews, meta-analyses, non-comparative studies, conference reports, etc.; literature where outcome indicators were not available; studies that included only a single surgical procedure or studies that included no comparisons between surgical procedures; studies that included subjects with other malignancies or subjects who could not tolerate total gastrectomy; studies that included too small a sample of subjects or studies with poor experimental design.

Information sources: PubMed, Embase, Cochrane Library, Ovid.

Main outcome(s): Incidence of postoperative abdominal infection, postoperative abdominal bleeding, postoperative pneumonia, postoperative anastomotic fistula and total postoperative complications, duration of surgery, length of hospital stay.

Quality assessment / Risk of bias analysis: The JADAD scale and the NOS scale.

Strategy of data synthesis: Direct meta-analysis was performed using Review Manager 5.4 software. Heterogeneity tests were performed, with heterogeneity ignored for $I^2 \leq 50\%$ and a fixed effects model used; $I^2 > 50\%$, with significant heterogeneity, and a random effects model used. Forest plots were drawn for a two-by-two comparison of the three surgical modalities. A net meta-analysis was performed using R-Studio software (calling JAGS 4.3.0). A net relationship plot and forest plot were drawn and effect sizes were expressed as ratio (OR) for dichotomous information and mean difference (MD) for continuous information, and 95% confidence intervals (95% CI) were calculated for both separately.

Ranking probability plots were plotted and their surface under the cumulative ranking (SUCRA) was calculated to rank the superiority of effect for each outcome indicator.

Subgroup analysis: Subgroups were divided according to age, location, gender, use of interventions and family environment of the study participants.

Sensitivity analysis: If, after deleting one of these documents, the combined results of the remaining documents are not significantly different from those without deletion, this means that the sensitivity analysis has been passed.

Country(ies) involved: China.

Keywords: gastric cancer; laparoscopically assisted gastrectomy; robot-assisted gastrectomy.

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