

INPLASY PROTOCOL

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None declared.

Effect of Prehabilitation in Colorectal Cancer Surgery: A Systematic Review and Meta-analysis

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Review question / Objective: Colorectal cancer increases with age, and elderly patients are associated with a poorer prognosis after colorectal surgery. Since comorbidity and frailty are associated with clinical outcomes, several strategies are introduced to improve clinical outcomes according to correct those. Despite efforts to improve the clinical outcome after surgery, patients with colorectal surgery still frequently experience complications. While Enhanced Recovery After Surgery has standardized principals, prehabilitation program varied among studies. The prehabilitation program according to the study showed differences in patient selection criteria, exercise, nutritional support, and methods of the outcome measurement. Therefore, various results have been reported regarding the effect of prehabilitation. The effectiveness of prehabilitation is still controversial. The aim of this study was to confirm the updated overall spectrum and measure the effect of prehabilitation in patients with colorectal cancer surgery.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 October 2022 and was last updated on 03 October 2022 (registration number INPLASY2022100015).

INTRODUCTION

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according to correct those. Despite efforts to improve the clinical outcome after surgery, patients with colorectal surgery still frequently experience complications. While Enhanced Recovery After Surgery has standardized principals, prehabilitation program varied among studies. The prehabilitation program according to the study showed differences in patient

selection criteria, exercise, nutritional support, and methods of the outcome measurement. Therefore, various results have been reported regarding the effect of prehabilitation. The effectiveness of prehabilitation is still controversial. The aim of this study was to confirm the updated overall spectrum and measure the effect of prehabilitation in patients with colorectal cancer surgery.

Condition being studied: Comorbidity and frailty in colorectal cancer patients was common and the prevalence increased with ageing. The comorbidities and frailty were important prognostic factor for worse survival in colorectal cancer. The prevalence of sarcopenia in colorectal cancer reported approximately 13-50% according to increasing age, sarcopenia was also associated with poorer outcomes after colorectal surgery. In some studies, the use of immunonutrition in perioperative period improved clinical outcomes. Recently, strategy to manage the risk of surgery through perioperative rehabilitation was introduced. The prehabilitation often included physical, nutritional and psychologic recovery program. Despite efforts to improve the clinical outcome after surgery, patients with colorectal surgery still frequently experience complications. The prehabilitation program according to the study showed differences in patient selection criteria, exercise, nutritional support, and methods of the outcome measurement. Therefore, various results have been reported regarding the effect of prehabilitation. The effectiveness of prehabilitation is still controversial.

METHODS

Participant or population: Patients who have been diagnosed with colorectal cancer and have undergone surgery.

Intervention: Prehabilitation.

Comparator: We compared the effects of prehabilitation with those of no prehabilitation comparing the effects of prehabilitation with those of no prehabilitation.

Study designs to be included: The design of the studies to be included in this systematic review and meta-analysis was not specific and a full range of designs was considered. However, reviews, case reports, commentaries, letters, and animal studies were excluded.

Eligibility criteria: The detailed inclusion criteria for the network meta-analysis were studies with (1) patients aged ≥ 18 years; (2) diagnosis of colorectal cancer; (3) patients who received colorectal cancer surgery; (4) randomized trials and non-randomized trials, comparing the effects of prehabilitation with those of no prehabilitation; (5) using 6-minute walk test (6MWT), length of stay (LOS) for a hospitalization, postoperative incidence of complication (Clavien-Dindo scale [CD] grade ≥ 3), or Comprehensive Complication Index (CCI), for outcome measurements; and (6) written in English. Review articles, case reports, letters, and studies with insufficient data or results were excluded.

Information sources: The relevant articles were systematically searched using PubMed, Embase, Cochrane Library, and Scopus databases up to August 30th, 2022.

Main outcome(s): The main outcomes were 6MWT, LOS, incidence of complication [CD grade ≥ 3], and CCI.

Quality assessment / Risk of bias analysis: Quality assessment of each study and level of evidence was established in accordance with the grading of recommendations assessment, development and evaluation (GRADE) methodology. The bias assessment for each randomized trial was conducted by method of risk of bias (ROB). For non-randomized trials, Newcastle-Ottawa Quality Assessment Scale was used for quality assessment.

Strategy of data synthesis: Two independent reviewers excluded articles after reading the titles and abstracts (MCC and YJC), and full-text assessments were conducted to exclude those that did not fulfill the inclusion criteria. The reviewers attempted to resolve any disagreements

through consensus. If necessary, the opinion of a third reviewer (SHK) was considered to resolve the disagreement. All data were extracted independently by two reviewers (MCC and YJC) using a standard data collection form. If the designated outcome variables were unavailable or incomplete in the published articles, the corresponding authors were contacted for the original data.

Subgroup analysis: Not applicable.

Sensitivity analysis: The studies were excluded one by one, and then the meta-analysis was performed in the remaining studies.

Country(ies) involved: Republic of Korea.

Keywords: Colorectal cancer; Prehabilitation; meta-analysis.

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