

INPLASY PROTOCOL

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Corresponding author:
Hongliang Liu

liuhl75@163.com

Author Affiliation:
Chongqing University Cancer
Hospital, Chongqing University

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Oncologic and long-term outcomes of enhanced recovery after surgery in cancer surgeries -- a systematic review

Pang, Q¹; Duan, L²; Jiang, Y³; Liu, H⁴.

Review question / Objective: Oncologic and long-term outcomes of enhanced recovery after surgery in cancer surgeries.

Condition being studied: Clinical evidence has proved that ERAS not only improves clinical outcomes and quality of care, but also significantly reduces the cost of hospitalization. The short-term benefits of ERAS is postulated to be associated with its long-term benefits, but this has not been fully verified for cancer surgeries.

Information sources: The Pubmed, Cochrane Library, Embase, and web of Science databases.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 May 2021 and was last updated on 28 May 2021 (registration number INPLASY202150099).

INTRODUCTION

Review question / Objective: Oncologic and long-term outcomes of enhanced recovery after surgery in cancer surgeries.

Rationale: Clinical evidence has proved that enhanced recovery after surgery (ERAS) can improve short-term clinical

outcomes after various types of surgeries, but the long-term benefits have not yet been examined, especially with respect to cancer surgeries. Therefore, a systematic review of the current evidence was conducted.

Condition being studied: Clinical evidence has proved that ERAS not only improves

clinical outcomes and quality of care, but also significantly reduces the cost of hospitalization. The short-term benefits of ERAS is postulated to be associated with its long-term benefits, but this has not been fully verified for cancer surgeries.

METHODS

Participant or population: Patients for cancer surgeries.

Intervention: Enhanced recovery after surgery(ERAS).

Comparator: Non-ERAS.

Study designs to be included: Prospective or retrospective studies. We construct the framework of this systematic review in accordance with the 2009 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.

Eligibility criteria: The Pubmed, Cochrane Library, Embase, and web of Science databases were searched from Jan 2000 to April 2021. The key terms were "ERAS" or "enhanced recovery" or "fast track", "oncologic outcome", "recurrence", "metastasis", "long-term outcomes", "survival", "cancer surgery", and various combinations of these key terms were used. The reference lists of the included studies were checked for potentially eligible articles. The languages of the full-text articles were restricted to English and Chinese. The inclusion criteria included studies comparing ERAS and conventional care, comparing different levels of adherence to ERAS, examining alterations of one single item within the ERAS protocol, studies with adult patients (>18 years old) undergoing cancer surgery, studies describing oncologic outcomes (return to intended oncologic treatment after surgery (RIOT), recurrence, metastasis and cancer-specific survival) or long-term outcomes (overall survival and quality of life), and prospective or retrospective studies. Exclusion criteria included studies of pediatric surgery, studies describing only short-term

outcomes, studies without full text, review articles or case reports.

Information sources: The Pubmed, Cochrane Library, Embase, and web of Science databases.

Main outcome(s): Main outcomes included oncologic outcomes (RIOT, recurrence, metastasis, and cancer-specific survival).

Additional outcome(s): Long-term overall survival and quality of life.

Quality assessment / Risk of bias analysis: The methodological quality was evaluated by the Newcastle-Ottawa Scale (NOS) for cohort studies and by the Jadad score for RCTs. The highest NOS score was of 9 stars and the highest Jadad score was 7.

Strategy of data synthesis: Meta-analysis was conducted using Stata 12.0 software (STATA, College Station). The effect size for continuous data was expressed as the standard mean difference (SMD) with a 95% confidence interval (CI). The effect size for dichotomous outcomes was expressed as the risk ratio (RR) with 95% CI. The χ^2 test and the I² value were used to determine the level of heterogeneity.

Subgroup analysis: In the case of heterogeneity ($P < 0.1$ or $I^2 \geq 50\%$), a random effect model was used, and subgroup analysis was performed whenever possible to identify the sources of heterogeneity and to test the robustness of uncertainty. In the case of homogeneity ($P \geq 0.1$ or $I^2 < 50\%$), a fixed effect model was used. Publication bias was evaluated using Egger's test, and there was no significant publication bias if $P > 0.05$.

Sensitivity analysis: In the case of heterogeneity ($P < 0.1$ or $I^2 \geq 50\%$), if subgroup analysis could not be performed, sensitivity analysis was performed to test the robustness of uncertainty in the meta-analysis.

Language: Chinese and English.

Country(ies) involved: China.

Keywords: enhanced recovery after surgery, cancer surgery, long-term outcome, oncologic outcome.

Contributions of each author:

Author 1 - Qianyun Pang.

Email: pqy047417@163.com

Author 2 - Liping Duan.

Author 3 - Yan Jiang.

Author 4 - Hongliang Liu.

Email: liuhl75@163.com