

INPLASY

Effect of hyperthermic intraperitoneal chemotherapy on patients with advanced colorectal cancer: a systematic review and meta-analysis

INPLASY202470065

doi: 10.37766/inplasy2024.7.0065

Received: 16 July 2024

Published: 16 July 2024

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ADMINISTRATIVE INFORMATION

Support - This study has no financial support.

Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202470065

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 16 July 2024 and was last updated on 16 July 2024.

INTRODUCTION

Review question / Objective The aim of this study was to examine the efficacy of hyperthermic intraperitoneal chemotherapy (HIPEC) in patients with high-risk colorectal cancer with or without peritoneal metastases, and to compare the difference in efficacy between groups with and without HIPEC. Patients in both groups underwent potentially curative surgery. The study focused on patient survival, recurrence, complications, and other outcomes. The study methods chosen included randomised controlled trials and high quality non-randomised controlled trials.

Condition being studied Colorectal cancer (CRC) persists as a significant global health concern, accounting for over 900,000 new cases annually and causing nearly 500,000 deaths worldwide. Peritoneal carcinoma (PC) is the second most common cause of death in patients with CRC. Important risk factors for peritoneal metastases are locally advanced disease (T4 stage) and tumour perforation, mucinous and signet ring cell

histology, etc. The contribution of HIPEC in the prevention and therapeutic management of PC remains to be clearly elucidated.

METHODS

Participant or population Patients with locally advanced colon cancer undergoing potentially curative surgery.

Intervention Any kind of therapeutic or preventive HIPEC in combination of potentially curative surgery is eligible regardless of the agents, dosage and timing used.

Comparator Curative operative strategies for managing advanced CRC.

Study designs to be included Randomized control trials and high-quality nonrandomised study.

Eligibility criteria Patients with advanced CRC, with and without peritoneal carcinoma who underwent potentially curative resection were

included. Animal experiments, publications that repeat the same experiment, case-control studies and studies with poor methodology will be excluded.

Information sources pubmed, EMBASE, The Cochrane Library, Web of science.

Main outcome(s) The primary outcomes included overall survival, recurrence rate, and complications.

Quality assessment / Risk of bias analysis For randomised controlled trials, we used the Cochrane Risk of Bias Assessment Tool to assess the risk of bias, and for high-quality cohort studies, we used the Newcastle-Ottawa Scale (NOS).

Strategy of data synthesis RevMan 5.3 was used to perform statistical analysis. The odds ratio (OR) was calculated for dichotomous data. We will use a random effects model, because differences in duration, frequency, and dose of HIPEC measures are unavoidable. Heterogeneity between studies will be examined using the Cochran Q statistic and the I^2 measure. Results are presented in a forest plot.

Subgroup analysis We will perform subgroup analyses of HIPEC for the treatment of peritoneal metastases or the prevention of peritoneal metastases, randomised controlled trials or non-randomised controlled trials, and the location of the colorectal cancer primary.

Sensitivity analysis In case of heterogeneity greater than 80%, we performed a sensitivity analysis and excluded studies with significant heterogeneity from the analysis.

Country(ies) involved China.

Keywords complications, colorectal cancer, HIPEC, recurrence, survival.

Contributions of each author

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