INPLASY

Synchronous Surgery Combined Preoperative Chemotherapy Benefits Patients Suffering Pancreatic Ductal Adenocarcinoma with Liver Metastases: A Systematic Review and Meta-analysis

INPLASY2024100064

doi: 10.37766/inplasy2024.10.0064

Received: 15 October 2024

Published: 15 October 2024

Zhao, PC; Wang, ZH; Xue, K; Huang, X; Liu, XF; Tian, BL.

Corresponding author:
Pengcheng Zhao

zhaopc0711@163.com

Author Affiliation:
Department of General Surgery, Division of Pancreatic Surgery, West China Hospital, Sichuan University, People's Republic of China.

ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2024100064

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 October 2024 and was last updated on 15 October 2024.

INTRODUCTION

Review question / Objective P: PDAC patients with hepatic metastases. I: Synchronous resection of the primary and metastatic tumors plus preoperative chemotherapy. C: Synchronous resection of the primary and metastatic tumors without chemotherapy. O: Overall survival.

Condition being studied Pancreatic ductal adenocarcinoma (PDAC) is one of the most aggressive malignant digestive system tumors, and surgical resection is taken as the only curative therapy. However, more than half of the patients are unable to have the opportunity to undergo surgery because of distant metastases. The most common site of metastasis is the liver, which accounts for approximately 80% of PDAC cases with distant metastases, and palliative chemotherapy seem to be the only option. Historically, resection of recurrent or metastatic pancreatic cancer seemed to be inconceivable. However, in recent years, pancreatectomy combined with synchronous or metachronous metastasectomy has been considered for selected patients with UR-M PDAC. Moreover, synchronous resection the primary and metastatic tumors has gained wide acceptance as a curative treatment in colorectal cancer and pancreatic neuroendocrine tumor patients with liver metastases. Hence, the aim of our study is to evaluate the clinical value of surgical resection of PDAC with synchronous metastases and to confirm the prognostic factors of PDAC patients with simultaneous liver metastasis.

METHODS

Search strategy (((pancreatic neoplasms[MeSH Terms]) OR (((Pancreatic[Title/Abstract]) OR (pancreas[Title/Abstract])) AND ((adenocarcinoma[Title/Abstract]) OR (carcinoma[Title/Abstract]) OR (cancer[Title/Abstract]) OR (neoplasm*[Title/Abstract]) OR (tumor[Title/Abstract])))) AND (((((((metastasis[Title/Abstract]) OR (metastases[Title/Abstract])) OR (metastatic[Title/Abstract])) OR (M1[Title/Abstract]))

OR (oligometastasis[Title/Abstract])) OR (oligometastatic[Title/Abstract])) OR (oligometastases[Title/Abstract])) OR (stage IV[Title/Abstract]))) AND (((((((resection[Title/Abstract]) OR (resections[Title/Abstract])) OR (surgery[Title/Abstract])) OR (operation[Title/Abstract])) OR (operations[Title/Abstract])) OR (hepatectomy[Title/Abstract])) OR (hepatectomies[Title/Abstract])).

Participant or population Patients are diagnosed with PDAC with synchronous liver metastases.

Intervention PDAC patients with liver metastases underwent simultaneous resection of primary and metastatic tumor with preoperative chemotherapy.

Comparator PDAC patients with liver metastases underwent simultaneous resection of primary and metastatic tumor without preoperative chemotherapy.

Study designs to be included Retrospective studies.

Eligibility criteria Inclusion criteria: (1) all patients were diagnosed with PDAC with synchronous liver metastases; (2) primary tumor and metastases were simultaneously resected with or without preoperative chemotherapy; (3) survival data can be collected in the literature; (4) Newcastle-Ottawa Quality Assessment Scale (NOS) score ≥ 6.
The exclusion criteria were as follows: (1) neuroendocrine tumor and other pathological types; (2) metachronous liver metastasis; (3) studies with incomplete survival data; (4) abstracts, case reports, editorials, letters, systematic reviews, and comments; (5) studies that enrolled the overlapped or same population; and (6) duplicate studies.

Information sources The PubMed, Embase, and Cochrane Library databases were searched for eligible articles.

Main outcome(s) Overall survival, median survival time, HR with 95%CI.

Additional outcome(s) OR.

Quality assessment / Risk of bias analysis Newcastle-Ottawa Quality Assessment Scale.

Strategy of data synthesis The heterogeneity of the pooled effect was assessed using Cochran's Q test and the Higgins I^2 statistic. Q test pvalue 50% was considered significant heterogeneity, and a random-effect model was applied to estimate the pooled HR. While heterogeneity was not significant (Q test p value > 0.1 or I^2 < 50%), a fixed-effect model was used.

Subgroup analysis No subgroup analysis.

Sensitivity analysis Sensitivity analysis was applied to reduce and explain heterogeneity among the studies. Whether omitting any individual studies had significant effect on the pooled HR.

Country(ies) involved China.

Keywords pancreatic ductal adenocarcinoma, liver metastases, synchronous resection, chemotherapy, meta-analysis.

Contributions of each author

Author 1 - Pengcheng Zhao - Author 1 conceived of and designed the study, and was responsible for the collection and assembly of the data, data analysis, and interpretation. Author 1 was also involved in writing and revising the manuscript.
Email: zhaopc0711@163.com
Author 2 - Ziheng Wang - Author 2 conceived of and designed the study, and was responsible for the collection and assembly of the data, data analysis, and interpretation. Author 2 was also involved in revising the manuscript.
Email: 1543922717@qq.com
Author 3 - Kang Xue - Author 3 was involved in the collection and assembly of the data, data analysis, and interpretation.
Email: xk1987cq@163.com
Author 4 - Xing Huang - Author 4 was responsible for the data analysis and interpretation. Author 4 was also involved in writing and revising the manuscript.
Email: hxing_harry@yahoo.net
Author 5 - Xiaofeng Liu - Author 5 was responsible for the collection and assembly of the data.
Email: phoenixliu2022@163.com
Author 6 - Bole Tian - Author 6 was the corresponding author. he conceived of and designed the study, and interpreted the results. Author 6 was also involved in revising the manuscript.
Email: hxtbl0338@163.com