

INPLASY PROTOCOL

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**Review Stage at time of this
submission:** Piloting of the
study selection process.

Conflicts of interest:
None declared.

INTRODUCTION

Review question / Objective: This systematic review and meta-analysis aimed to assess the impact of fatty pancreas on postoperative pancreatic fistula (POPF) after pancreaticoduodenectomy (PD).

Impact of fatty pancreas on postoperative pancreatic fistula after pancreaticoduodenectomy: a systematic review and meta-analysis

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Condition being studied: Postoperative pancreatic fistula (POPF) is a major complication and its most frequently reported risk factors tend to be anatomic features of the pancreatic remnant, such as a soft pancreatic texture. They hypothesized that fat infiltration intuitively increases the softness of the gland, and therefore, might be a risk factor of POPF development. Therefore, the percentage of fatty infiltration of the pancreas constituting a risk for POPF after PD still needs to be defined.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 April 2023 and was last updated on 19 April 2023 (registration number INPLASY202340068).

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therefore, might be a risk factor of POPF development. Therefore, the percentage of fatty infiltration of the pancreas constituting a risk for POPF after PD still needs to be defined.

METHODS

Search strategy: PubMed, embase, cochrane and scopus.

Participant or population: Patients undergoing pancreaticoduodenectomy.

Intervention: No.

Comparator: Prevalence of POPF (Fatty pancreas group vs. No fatty pancreas group).

Study designs to be included: Retrospective or prospective cross-sectional studies, randomized controlled trials (RCTs), non-randomized controlled trials and case-control studies.

Eligibility criteria: Inclusion criteria were: (i) retrospective or prospective cross-sectional studies, randomized controlled trials (RCTs), non-randomized controlled trials and case-control studies reporting the impact of fatty pancreas on postoperative pancreatic fistula after pancreaticoduodenectomy and (ii) studies published in the English language. Exclusion criteria were: (i) conference abstracts, review articles and case reports; (ii) publications with mixed populations where the outcomes of patients undergoing DP could not be separated from those undergoing PD.

Information sources: Electronic databases.

Main outcome(s): The outcome measure of this meta-analysis will be the prevalence of postoperative pancreatic fistula (POPF) in individuals with fatty pancreas in comparison with individuals without fatty pancreas.

Additional outcome(s): Associated factors and risk factors of POPF.

Quality assessment / Risk of bias analysis: Risk of bias will be assessed individually for each study in the review. We will use the Newcastle Ottawa scale for assessment of Risk of Bias and the Revised Cochrane Risk-of-Bias Tool for Randomised Trials (RoB 2.0) for RCTs. The quality assessment will be conducted independently by the first two authors (CGH, ZX).

Strategy of data synthesis: We plan to make a systematic synthesis based on the outcomes reported, risk of bias and quality of the studies.

To do that, firstly two reviewers (WR and CGH) will independently perform the study selection process according to a form established a priori. The title and abstract of each retrieved article will be examined to identify those that were likely to include in the revision. Studies appearing eligible based on their abstract or those that will be not excluded based on their title and abstract were read full-text against the inclusion criteria for their final inclusion or exclusion in the systematic review. Disagreements about study selection will be resolved by reaching consensus among reviewers.

Reviewers will create a study specific database in Excel (Microsoft Corp., USA) for data collection for the final selected studies. Data will be extracted from the studies that will be included in the database by one reviewer and will be checked for accuracy by a second reviewer.

We will systematically extract an present the data: author's name, study name, and year of publication of the article, number, age, gender, BMI of the participants...

Apart from this, we will finally extract quantitative data to perform a meta-analysis for study the relationship of pancreatic fat with POPF. Heterogeneity was quantified using the I^2 statistic (the percentage of total variability attributed to between-study heterogeneity). Potential sources of heterogeneity were assessed with meta-regression.

Subgroup analysis: We plan to carry out two subgroups according to grade B/C POPF to identify the possible differences in

both groups, taking into account that the Clinical aspects are different.

Sensitivity analysis: sensitivity analysis will be performed excluding those studies that were categorized as poor in terms of quality. **Assessment of reporting biases:** We will assess publication bias and effects of small studies by creating a funnel plot if there are at least 10 studies in the meta-analysis. We will assess the degree of asymmetry using Egger's test for continuous and dichotomous outcomes (Egger 1997). We will discuss the potential impact of reporting biases on the findings of the review. To minimize the likelihood of introducing publication bias, we will attempt to develop a sufficiently sensitive search strategy.

Language restriction: English.

Country(ies) involved: China.

Other relevant information: None

Keywords: pancreaticoduodenectomy, postoperative pancreatic fistula, fatty pancreas, pancreatic fat.

Contributions of each author:

Author 1 - Guanhua Chen - The author contributed to data extraction, formal screening of search results and drafted the manuscript.

Author 2 - Xuan Zhang - The author provided statistical expertise for data analysis, and contributed to the development of the selection criteria, and the risk of bias assessment strategy.

Author 3 - Rui Wang - The author contributed to data extraction and drafted the manuscript.

Author 4 - Yonghua Chen - The author design and oversight of the study, drafted the manuscript, and read, provided feedback and approved the final manuscript.

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