INPLASY

Comprehensive Evaluation of PD-1 and PD-L1 Inhibitors for Pancreatic Ductal Adenocarcinoma: A Protocol of a Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

Support - Taiwan Society of Ultrasound in Medicine.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 22 May 2024 and was last updated on 22 May 2024.

INTRODUCTION

Review question / Objective The objective of this systematic review and meta-analysis is to evaluate the effectiveness and safety of programmed cell death protein 1 (PD-1) or programmed cell death ligand 1 (PD-L1) inhibitors in the treatment of pancreatic ductal adenocarcinoma (PDAC), focusing on overall survival, progression-free survival, objective response rates, and incidence of severe adverse events.

Rationale PDAC is highly aggressive and typically presents significant treatment challenges, including resistance to standard chemotherapy and radiotherapy. Given the emerging role of immune checkpoint inhibitors in oncology, this review aims to synthesize existing RCT data to clarify the effectiveness of PD-1 and PD-L1 inhibitors specifically for PDAC.

Condition being studied The PICO (population, intervention, comparison, and outcome) settings were as follows. Population: Adults diagnosed with PDAC. Intervention: Treatment with PD-1 or PD-L1 inhibitors. Comparators: Active comparator including but not limited to chemotherapy, target therapy or placebo. Outcomes: Overall survival, progression-free survival, objective response rates, and severe adverse events (grade 3 or higher).

METHODS

Search strategy A comprehensive literature search was conducted in databases such as PubMed, Embase, Cochrane Library, ClinicalTrials.gov, and Web of Science. The search covered studies published from database inception until April 2024, focusing on keywords like "pancreatic cancer," "PD-1," "PD-L1," "immune checkpoint inhibitors," and related terms. Two authors would search and screen the results independently.

Participant or population Adult human participants with a diagnosis of PDAC.

Intervention Treatment with PD-1 or PD-L1 inhibitors.

Comparator Active comparator including but not limited to chemotherapy, target therapy or placebo.

Study designs to be included Randomized controlled trials (RCTs).

Eligibility criteria (1) RCTs investigating the efficacy and safety of PD-1/PD-L1 inhibitors in patients with PDAC. (2) Studies reporting on at least one of the specified outcomes. (3) Exclusion criteria include non-randomized studies, studies not reporting relevant outcomes, and studies with incomplete data.

Information sources The literature review will involve comprehensive searches of electronic databases such as PubMed, Embase, the Cochrane Library, ClinicalTrials.gov, and Web of Science. Additional sources will include the reference lists from selected studies and pertinent review articles to ensure comprehensive coverage.

Main outcome(s) The focus will be on measuring overall survival and progression-free survival. These will encompass the objective response rates and the frequency of severe adverse events (Grade 3 or higher).

Quality assessment / Risk of bias analysis The quality of the studies included will be evaluated using the Cochrane Collaboration's tool designed for assessing risk of bias in randomized trials. This comprehensive assessment will examine several key domains: random sequence generation, allocation concealment, the blinding of participants and personnel, the blinding of outcome assessment, the completeness of outcome data, selective reporting, and the presence of any other potential biases.

Strategy of data synthesis A random-effects model will be employed to aggregate the effect sizes using Comprehensive Meta-Analysis software (version 3, Biostat, Englewood, NJ, USA). Statistical significance will be determined by a two-tailed p-value of less than 0.05. Hedges' g will be utilized to quantify the effect sizes of the study outcomes. To assess the extent of heterogeneity among the studies, the I^2 statistic and Cochran's Q test will be used.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction No language restrictions will be imposed to avoid language bias and to ensure a comprehensive retrieval of available data. The study will include data from global studies without geographical restrictions.

Country(ies) involved Taiwan.

Keywords Pancreatic ductal adenocarcinoma, immune checkpoint inhibitor, PD-1, PD-L1, cancer, oncology, prognosis.

Contributions of each author

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