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Efficacy and safety of PD-1/PD-L1 and CTLA-4 immune checkpoint inhibitors in the treatment of Malignant pleural mesothelioma :a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - No financial support.

Review Stage at time of this submission - Data analysis.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202520045

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 8 February 2025 and was last updated on 8 February 2025.

INTRODUCTION

Review question / Objective The aim of this study is to investigate the efficacy and safety of PD-1/ PD-L1 inhibitors combined with ctla-4 inhibitors in the treatment of malignant pleural mesothelioma.

Condition being studied Malignant pleural mesothelioma is a rare yet highly aggressive tumor characterized by an insidious onset and dismal prognosis. The five-year survival rate for patients with this condition is less than 10%.

METHODS

Participant or population People with Malignant pleural mesothelioma.

Intervention PD-1/PD-L1 and CTLA-4 inhibitors combination therapy.

Comparator The efficacy and safety of PD-1/PD-L1 and CTLA-4 immune checkpoint inhibitors in the treatment of Malignant pleural mesothelioma.

Study designs to be included Prospective and retrospective trials.

Eligibility criteria (1): adults (≥ 18 years) had a histologically proven diagnosis of malignant pleural mesothelioma ; (2): a PD-1/PD-L1 and a CTLA-4 inhibitors were given to one of the study arms; and (3): outcomes of interest in terms of efficacy (i.e. median overall survival [mOS], median progression-free survival [mPFS], 1-year overall survival [1-y OS], 1 year progression-free survival [1-year PFS], objective response rate [ORR], disease control rate [DCR], complete response [CR], partial response [PR], stable disease [SD], progressive disease [PD]), and safety (i.e. AEs and \geq grade 3 AEs) were reported.

Information sources Pubmed, Embase, The Cochrane Library.

Main outcome(s) Median overall survival [mOS], median progression-free survival [mPFS], 1-year overall survival [1-y OS], 1 year progression-free survival [1-year PFS], objective response rate [ORR], disease control rate [DCR], complete response [CR], partial response [PR], stable disease [SD], progressive disease [PD], AEs and \geq grade 3 AEs.

Quality assessment / Risk of bias analysis The quality of each study was meticulously evaluated using the methodological index for non-randomized studies (MINORS).

Strategy of data synthesis We use STATA 18.0 version. A random-effect model was applied if obvious heterogeneity was present ($I^2 > 50\%$), otherwise, a fixed-effect model was chosen.

Subgroup analysis We consider a subgroups analysis, by region, sample size, research scale, research methods and number of treatment lines.

Sensitivity analysis Stata software sensitivity analysis, by deleting one after effect of changes to reflect the sensitive of the article.

Country(ies) involved China.

Keywords Malignant pleural mesothelioma, PD-1/PD-L1, CTLA-4, Immune checkpoint inhibitors.

Contributions of each author

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Author 2 - Dandan Song.

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