INPLASY

Prophylactic cranial irradiation in patients with extensive stage small-cell lung cancer: a protocol of systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

Support - None.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2025100030

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 9 October 2025 and was last updated on 9 October 2025.

INTRODUCTION

Review question / Objective This meta-analysis will evaluate the efficacy of PCI in extensive stage SCLC patients, The overall survival (primary outcome) and incidence of brain metastasis、progression-free survival (secondary outcome) of extensive stage SCLC patients with PCI treatment will be compared to those without PCI.

Condition being studied The median survival of patients with extensive stage SCLC remains poor at 9 months.Further, brain metastases could compromise the quality of life and survival time in patients with extensive stage SCLC in that many of the patients died of intra-cerebral progression.Therefore, PCI should be recommended for these patients to reduce the incidence of brain metastases. However, the data on the efficacy and safety of PCI for patients with extensive stage SCLC remains limited and inconclusive. In this study, we aim to evaluate the efficacy and safety of PCI in patients with extensive stage SCLC.

METHODS

Participant or population Patients with diagnosis of extensive stage SCLC.

Intervention Prophylactic cranial irradiation(PCI).

Comparator No prophylactic cranial irradiation(PCI) for extensive stage SCLC patients.

Study designs to be included Randomized controlled trials (RCT) and cohort studies.

Eligibility criteria We will exclude letters, editorials, commentaries, case reports, conference abstracts, meta-analyses, and reviews in literature screening. Literatures written in languages other than English will be excluded. Studies that only involved patients with limited stage SCLC were excluded.

Main outcome(s) Hazard Ratio (HR) and 95% confidence interval (CI) for overall survival (OS) between extensive stage SCLC patients with or without PCI.

Quality assessment / Risk of bias analysis The eligible studies will be evaluated by the Newcastle–Ottawa Scale (NOS). Based on the NOS rating scale, a study that receives a score of >6 will be considered high quality.Egger's tests and funnel plots will be used to assess publication bias, and trim-and-fill method will be used to evaluate pooled HR after potential bias was adjusted.

Strategy of data synthesis Forest plot will be used to analyze pooled HR and RR of OS and BMR for patients with PCI vs. those without PCI . Statistical heterogeneity across studies will be assessed using Q statistics and I2 test. An analysis of data will be conducted using a fixed effect model if the I2 value is less than 50%, indicating a relatively low degree of heterogeneity. Otherwise, random effect model will be used. All statistical analyses will be conducted in STATA 15.0.

Subgroup analysis No subgroup ananlysis.

Sensitivity analysis Sensitivity analysis will be performed to validate the stability of the pooled results. Each eligible study included in the metaanalysis will be omitted one at a time, and the pooled HR will be reevaluated in order to find out if there are any individual studies that contributed to heterogeneity. Studies that may cause significant change of the HR or RR will be discussed among several reviewers and we'll carefully assess the quality of these studies and exclude some of them if necessary.

Country(ies) involved China.

Keywords PCI for extensive stage SCLC,prophylactic cranial irradiation, small cell lung cancer,overall survival, meta-analysis, brain metastases, survival rates.

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