INPLASY

Hyperfractionated versus conventional thoracic radiotherapy in concurrent chemoradiotherapy for limited stage small cell lung cancer: A meta-analysis of randomized clinical trials

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ADMINISTRATIVE INFORMATION

INTRODUCTION

Review question / Objective The aim of this systematic review and meta-analysis was to evaluate the effectiveness and safety of hyperfractionated thoracic radiotherapy (HyperTRT) versus conventional thoracic radiotherapy (ConvTRT) for limited stage small cell lung cancer (LS-SCLC).

Condition being studied All patients were ones with LS-SCLC.

METHODS

Participant or population Patients with limited stage small cell lung cancer.

Intervention Hyperfractionated thoracic radiotherapy combined with chemotherapy.

Comparator Conventional thoracic radiotherapy combined with chemotherapy.

Study designs to be included Phase 3 or phase 2 randomized controlled trials.

Eligibility criteria The eligibility criteria were as follows: (1) studies concerning patients diagnosed with LS-SCLC; (2) studies comparing HyperTRT and ConvTRT; (3) studies reporting the outcomes of survival and/or adverse effects of radiotherapy; (4) RCTs. The exclusion criteria were as follows: (1) studies with unclear efficacy indicators, and without control group; (2) retrospective studies, review, case report, meta-analysis and guideline; (3) repetitive studies; (4) non-English publications.

Information sources A literature search was conducted by comprehensively screening PubMed, Web of Science, EMBASE and Cochrane Library databases before May 2023 to collect randomized clinical trials (RCT) of HyperTRT and ConvTRT for LS-SCLC.

Main outcome(s) A meta-analysis was performed to synthetically evaluate overall survival (OS), progression-free survival (PFS), and toxicity.

Quality assessment / Risk of bias analysis The quality of the included studies was assessed using the Cochrane Risk of Bias Tool (2.0) for RCTs, which is based on the following five domains: risk of bias arising from the randomization process, risk of bias owing to deviations from the intended interventions, risk of bias from missing outcome data, risk of bias in the measurement of the outcome, and risk of bias in the selection of the reported results.

Strategy of data synthesis This meta-analysis was performed using the statistical software Review Manager 5.3. Engauge Digitizer software was used to extract the survival data the Kaplan Meier curves of each study that did not provide hazard ratio (HR). Statistical heterogeneity and inconsistency will be evaluated using the statistic inconsistency index (I^2). An I^2 value greater than 50% is generally considered to indicate a substantial level of heterogeneity, and the random-effect model will be used. Otherwise, a fixed-effect model will be applied for data analysis.

Subgroup analysis Subgroup analyses of clinical outcomes will be performed depending on the patient's use of different radiotherapy techniques.

Sensitivity analysis Sensitivity analysis will be performed using the Review Manager 5.3 software through observing the changes in outcomes after deletion of trials one by one.

Country(ies) involved China.

Keywords limited-stage small cell lung cancer, Hyperfractionated radiotherapy, effectiveness, toxicity, meta-analysis.

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