INPLASY PROTOCOL

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None declared.

Pulmonary function after segmentectomy versus Lobectomy for patients with early stage non-small-cell lung cancer: a meta-analysis

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Review question / Objective: The aim of this study is to perform a meta-analysis to compare segmentectomy and lobectomy for early stage non-small-cell lung cancer on term of pulmonary function reservation.

Condition being studied: The purpose of our study was to compare the pulmonary function after surgery between segmentectomy and lobectomy and verify whether segmentectomy has an advantage over lobectomy on term of pulmonary function reservation.

Main outcome(s): The primary outcomes of interest were FEV1 (forced expiratory volume in 1 second), V1 (FEV1 as percent of predicted), ΔV1, ratio of postoperative to preoperative FEV1.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 12 August 2021 and was last updated on 12 August 2021 (registration number INPLASY202180050).

INTRODUCTION

Review question / Objective: The aim of this study is to perform a meta-analysis to compare segmentectomy and lobectomy for early stage non-small-cell lung cancer on term of pulmonary function reservation.

Rationale: Pulmonary lobectomy with systemic mediastinal lymph node dissection has been a standard surgery for early-stage non-small-cell lung cancer (NSCLC). The randomized trial in 1995 reported by the Lung Cancer Study Group (LCSG) comparing sublobar resection including segmentectomy and wedge resection suggested an increased mortality

and locoregional recurrences in the limited resection group. There are potential biases concerning the results of segmentectomy in the LCSG study. Recently many studies have suggested that the local recurrence rate was the same between sublobar resection and lobectomy in <2 cm IA tumors. With the use of computed tomographic (CT) screening, more and more early stage lung cancer were detected. The anatomic segmentectomy is widely used in clinical practice since it reserves more pulmonary parenchyma theoretically resulting in a better preservation of pulmonary function over lobectomy. However, There are conflicting results that segmentectomy has the advantage of pulmonary function protection over lobectomy.

Condition being studied: The purpose of our study was to compare the pulmonary function after surgery between segmentectomy and lobectomy and verify whether segmentectomy has an advantage over lobectomy on term of pulmonary function reservation.

METHODS

Search strategy: The following search terms were searched in the title/abstract field on PubMed: 'pulmonary function' AND 'segmentectomy' AND 'lobectomy'.

Participant or population: Patients underwent segmentectomy or lobectomy for early stage non-small-cell lung cancer.

Intervention: Segmentectomy or lobectomy.

Comparator: Segmentectomy or lobectomy

Study designs to be included: Randomized controlled trials, controlled trials or cohort studies.

Eligibility criteria: 1. A direct comparison between the segmentectomy and lobectomy for early stage non-small-cell lung cancer; 2. Pulmonary function tests were performed before and after surgery in both groups; 3. Article in EnglishExclusion criteria.

Information sources: PubMed.

Main outcome(s): The primary outcomes of interest were FEV1 (forced expiratory volume in 1 second), V1 (FEV1 as percent of predicted), ΔV1, ratio of postoperative to preoperative FEV1.

Quality assessment / Risk of bias analysis: The Newcastle-Ottawa scale (NOS) was used to access the quality of included studies, with the highest score of 9. The high-quality study was defined as a study with a score ≥ 6.

Strategy of data synthesis: Studies with an I2 statistics of > 50% were considered of a high degree of heterogeneity. If heterogeneity existed, a random-effects model was adopted; otherwise, a fixed-effects model was used. Pooled analysis was performed using the Inverse Variance model and reported as odds ratio (OR) with 95 % CIs. A p value < 0.05 was considered statistically significant.

Subgroup analysis: The subgroup analysis was done based on the number of resected segments and the dividing technique of intersegmental plane.

Sensitivity analysis: The sensitivity analysis was done based on the preoperative pulmonary function.

Language: English.

Country(ies) involved: China.

Keywords: segmentectomy, lobectomy, lung cancer, FEV1, pulmonary function.

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