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Title Page

Efficacy and Safety of Radiofrequency Ablation for Lung Cancers: A Systematic Review and Meta-Analysis

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Abstract

Objective: To evaluate the efficacy and safety of radiofrequency ablation(RFA) for patients with lung cancers using meta-analysis.

Method and materials: Literature search (PubMed, Embase, Web of science and China National Knowledge Infrastructure) was undertaken until August 2017 to identify sufficient studies evaluating the efficacy and safety of RFA. Pooled proportions of estimates were calculated by performing the random effect model, including technical success rate, recurrence rate, local tumor progression rate and complications.

Result: A total of 25 eligible studies were collected, giving a sample size of 1989 patients with 3025 lung tumors. In the present series, the pooled technical success rate was 96%(95%CIs: 93%~100%). Further, we observed pooled recurrence rate of 35%(95%CIs: 12%~59%) following RFA. Additionally, the pooled rate of local tumor progression was 26%(95%CIs: 20%~32%). One hundred and ninety major complications of RFA were reported in 20 studies, giving a pooled proportion of 6% (95%CIs: 3%~8%) for major RFA complications. Pooled rate of minor complications was 27% (95%CIs:14%~41%).

Conclusion: In this meta-analysis, RFA was found to be a safe and efficient treatment for the patients with lung cancers. The efficacy and safety of RFA for lung cancer deserve future investigation in further well-designed randomized controlled trials.

Keywords: Radiofrequency Ablation; Safety; Efficacy; Lung Cancer

Abbreviations

RFA: radiofrequency ablation; OS: overall survival; NSCLC: non-small cell lung cancer; CSS: cause-specific survival; HCC: hepatocellular carcinoma

Introduction

Lung cancer has increased in incidence and is now the leading cause of cancer death in China[1]. Despite various basic and clinical research, the improvement in the 5-year overall survival(OS) rate of the lung cancer patients is still slow, ranging from 14% to 18% since 1975[2]. Due to the inconspicuous symptoms in the early-phase,