

INPLASY PROTOCOL

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Corresponding author:
Yu-Fei Fu

fuyufei1985@163.com

Author Affiliation:
Xuzhou Central Hospital.

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None declared.

Imaging-guided radiofrequency ablation for adrenal metastatic tumors: a systematic review and meta-analysis

Liu, W¹; Fu, YF²; Ma, WM³.

Review question / Objective: Imaging-guided radiofrequency ablation (RFA) is commonly employed for the treatment of patients diagnosed with adrenal metastasis (AM), but comprehensive analyses are essential to validate the efficacy and safety of this approach. The present meta-analysis was designed to evaluate the safety, efficacy, and long-term outcomes associated with the imaging-guided RFA treatment of AM.

Condition being studied: The adrenal glands are a common site of tumor metastasis, and such AM is often associated with poor patient outcomes. While adrenalectomy can improve the survival of patients with isolated AMs, patients with some comorbidities are ineligible for this procedure. Imaging-guided RFA is often implemented as an alternative to adrenalectomy, with several studies having reported these two techniques to exhibit comparable levels of clinical efficacy for benign adrenal tumors, with RFA additionally being associated with reduced intraoperative blood loss, a shorter operative duration, and more rapid postoperative recovery.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 December 2022 and was last updated on 13 December 2022 (registration number INPLASY2022120050).

INTRODUCTION

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METHODS

Participant or population: Patients with adrenal metastasis.

Intervention: Imaging-guided RFA.

Comparator: None.

Study designs to be included: (a) Studies which focused on computed tomography (CT) or ultrasound (US) guided RFA for AM; (b) One study should contain more than 10 patients;(c) One study should contain at least one of the following endpoints: technical success rate of PA, local hemorrhage rate, pneumothorax rate, hypertension crisis rate, local recurrence rate, 1-year overall survival (OS) rate, and 3-year OS rate;(d) Languages: not limited.

Eligibility criteria: (a) Studies which focused on computed tomography (CT) or ultrasound (US) guided RFA for AM;(b) One study should contain more than 10 patients;(c) One study should contain at least one of the following endpoints: technical success rate of PA, local hemorrhage rate, pneumothorax rate, hypertension crisis rate, local recurrence rate, 1-year overall survival (OS) rate, and 3-year OS rate;(d) Languages: not limited.

Information sources: Relevant studies in the PubMed, Embase, and Wanfang databases published as of November 2022 were identified.

Main outcome(s): Local recurrence rate.

Quality assessment / Risk of bias analysis: The Newcastle-Ottawa scale was used to evaluate observational study quality.

Strategy of data synthesis: Random-effects models were used for all pooled analyses owing to the presumption of heterogeneity, with weighting being performed in accordance with the inverse variance of these studies. Heterogeneity was assessed with the Q test and the I² statistic, with I² > 50% corresponding to high levels of heterogeneity. Sources of heterogeneity were investigated with meta-regression and subgroup analyses. Egger's test was used to assess publication bias, with P < 0.05 as the threshold of significance. Stata 12.0 was used for all pooled analyses.

Subgroup analysis: Yes.

Sensitivity analysis: Yes.

Country(ies) involved: China.

Keywords: adrenal, metastasis, RFA.

Contributions of each author:

Author 1 - Wei Liu.

Author 2 - Yu-Fei Fu.

Author 3 - Wei-Ming Ma.