

# INPLASY

## A Network Meta-analysis of Different Interventional Treatment Strategies for Unresectable Hepatocellular Carcinoma

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Li, CM; Le, XY; Feng, JB.

### Corresponding author:

xingyan le

lexingyan618618@163.com

### Author Affiliation:

Chongqing Emergency Medical Center, Chongqing University Central Hospital, School of Medicine, Chongqing University, Chongqing, China.

### ADMINISTRATIVE INFORMATION

**Support** - The Fundamental Research Funds for the Central Universities of China (Project No.2022CDJYGRH-004).

**Review Stage at time of this submission** - Data analysis.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY202480125

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 27 August 2024 and was last updated on 27 August 2024.

### INTRODUCTION

**Review question / Objective** The optimal clinical management of unresectable hepatocellular carcinoma (uHCC) remains a challenging issue for clinicians. A network meta-analysis was conducted to compare the efficacy and safety of different interventional strategies (transarterial chemoembolization[TACE] alone, hepatic arterial infusion chemotherapy[HAIC] alone, or TACE/HAIC combining local therapies (radiofrequency ablation[RFA], microwave ablation[MWA], high-intensity focused ultrasound[HIFU], percutaneous ethanol injection[PEI], or radiotherapy[RT]) for uHCC.

**Condition being studied** The incidence and mortality of hepatocellular carcinoma (HCC) are increasing globally, while the mortality of most other cancers is decreasing. The main reason is that approximately 80% to 85% of HCC patients progress to unresectable hepatocellular

carcinoma(uHCC). The treatment options for uHCC are limited and the prognosis is poor. Patients with uHCC are not suitable for radical surgery and the overall survival of traditional chemotherapy is only about 6 months. Therefore, the optimal clinical management of uHCC remains a great challenging issue for clinicians.

### METHODS

**Participant or population** (1) advanced HCC with clinical and histopathological evidence; (2) all patients were unable or unwilling to undergo surgical resection; (3) all patients were  $\geq 18$  years old; (4) studies with complete methodology, patient characteristics, efficacy, and survival data; (5) gender and nationality were not limited.

**Intervention** TACE/HAIC combining local therapies includes radiofrequency ablation (RFA), microwave ablation (MWA), high-intensity focused ultrasound

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(HIFU), percutaneous ethanol injection (PEI), and radiotherapy (RT).

**Comparator** TACE alone or HAIC alone.

**Study designs to be included** Randomized controlled trials and propensity score-matched cohort analyses.

**Eligibility criteria** The inclusion criteria were: (1) advanced HCC with clinical and histopathological evidence; (2) all patients were unable or unwilling to undergo surgical resection; (3) all patients were  $\geq 18$  years old; (4) studies with complete methodology, patient characteristics, efficacy, and survival data; (5) gender and nationality were not limited.

Exclusion criteria: (1) animal experiments, self-control, open-ended studies, letters to the editor (2) conference abstracts, reviews, and meta-analyses (3) plus other malignant tumors (4) data could not be combined or missing articles.

**Information sources** PubMed, EMBase, the Cochrane Library, Web of Science, Science Direct, Scopus, and Springer were searched.

**Main outcome(s)** Disease control rate, serious adverse event, 1-year survival data, and 2-year survival data.

**Quality assessment / Risk of bias analysis** All studies were assessed for risk of bias. RCTs were assessed using the Cochrane Risk of Bias 2 tool [10]. Observational studies were assessed using the ROBINS-I tool.

**Strategy of data synthesis** Meta-analysis was performed using R (version 4.2.3) software. We used pairwise comparisons and network meta-analyses to estimate odds ratios (OR) and 95% confidence intervals for dichotomous outcomes, and the binomial likelihood was used for dichotomous outcomes. The study effect sizes were then synthesized using a random-effects network meta-analysis model. Studies for each outcome were ranked using the cumulative ranking area under the curve (SUCRA), with a larger area under the curve indicating that the intervention was more likely to occur in the higher ranking of the outcome measures.

**Subgroup analysis** Subgroup analyses will be carried out according to the results of the studies included.

**Sensitivity analysis** A sensitivity analysis will be performed based on the results of the included

studies. Subgroup analyses will be carried out according to the results of the studies included.

**Country(ies) involved** China.

**Keywords** Hepatocellular carcinoma; Transarterial chemoembolization; Hepatic arterial infusion chemotherapy; Systematic review; Network meta-analysis.

**Contributions of each author**

Author 1 - chuanming li.

Author 2 - xingyan le.

Author 3 - junbang feng.