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Trans-arterial radioembolization versus chemoembolization for hepatocellular carcinoma: a systematic review and meta-analysis

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ADMINISTRATIVE INFORMATION

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Review Stage at time of this submission - Preliminary searches.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 August 2023 and was last updated on 03 August 2023.

INTRODUCTION

Review question / Objective In this meta-analysis, we aim to evaluate the clinical efficacy and safety of trans-arterial radioembolization versus trans-arterial chemoembolization for inoperable hepatocellular carcinoma.

Condition being studied Several locoregional treatments, including trans-arterial chemoembolization (TACE), percutaneous ablation (PA), computed tomography (CT)-guided I-125 seeds insertion, have been used for treating inoperable HCC . Among these locoregional treatments, TACE is the most common used method. TACE can be used as the standard treatment for Barcelona Clinic Liver Cancer (BCLC) stage A or B HCC. Furthermore, TACE can also be used as the baseline treatment for the PA and CT-guided I-125 seeds insertion for HCC.
In recent years, trans-arterial radioembolization (TARE) using yttrium-90 integrated in glass matrix or resin microspheres has been regarded as an alternative therapy to TACE for inoperable HCC. Compared with TACE, TARE has shown increased time-to-progression, better quality-of-life, a neoadjuvant role prior to resection, and high antitumoral activity in patients with portal vein invasion. However, the clinical efficacy of TARE in the treatment of HCC still need to be confirmed.

METHODS

Search strategy (((transarterial chemoembolization) OR (TACE)) AND ((transarterial radioembolization) OR (TARE))) AND ((hepatocellular carcinoma) OR (HCC)).

Participant or population HCC patients.

Intervention TARE.

Comparator TACE.

Study designs to be included Comparative studies.

Eligibility criteria Inclusion criteria: patients were diagnosised as unresectable HCC; compared TARE with TACE mono therapy; compared efficacy and/or safety between TARE (Y90) and TACE. We excluded comments, editorials, systematic reviews or studies only in abstracts from our final analysis. Besides, there was no limitation for publication language.

Information sources PubMed, Web of science, Wanfang.

Main outcome(s) Treatment response.

Quality assessment / Risk of bias analysis The quality of nocohort studies included in this meta-analysis was assessed using a modified Newcastle Ottawa scale, which graded the quality of a study from 0 to 9 points, depending on patient selection, comparability of TARE and TACE, and exposure assessment. Articles exceeding 6 points were considered as high quality.

Strategy of data synthesis All statistical analyses were performed using Review Manage. The hazards ratio (HR) was used to evaluate the OS. Risk ratio (RR) was applied for tumor response, 1, 3, 5-year OS rates and clinical complications. Mean difference was used to evaluate the hospitalization time days. Afterward, 95% confidence intervals (CIs) were also calculated to indicate the precision of above effect measures. Pooled estimates of HR, RR or mean difference were calculated using the fixed-effects model if no substantial heterogeneity existed, otherwise, the random-effects model was used. Defined as variation between individual studies, heterogeneity was assessed with the Q-test and the I 2 statistic. Low level of heterogeneity was defined as I 2 value ≤ 50 %. The publication bias was evaluated using a funnel plot.

Subgroup analysis None.

Sensitivity analysis Yes.

Country(ies) involved China.

Keywords HCC, TACE, TARE.

Contributions of each author
Author 1 - Wenxiao Lu.
Author 2 - Feng-Fei Xia.
Author 3 - Fu-Lei Gao.