

# **Radiofrequency Ablation vs. Transarterial Catheter Embolization for Hepatocellular Carcinoma: A Comparative Study Based on Child-Pugh Scores**

## **Introduction**

Hepatocellular carcinoma (HCC) treatment choice is influenced by various factors, including the patient's liver function, which can be assessed by the Child-Pugh score. Radiofrequency ablation (RFA) and transarterial catheter embolization (TACE) are two common treatment options for patients with relatively preserved liver function (Child-Pugh score  $< 6$ ). This study aimed to compare the efficacy and safety of RFA and TACE in this specific patient population, focusing on outcomes such as overall survival, complications, and laboratory values.

## **Methods**

We used a large multi-national database to identify patients with localized primary HCC who underwent either RFA or TACE. Patients were stratified based on Child-Pugh scores and whether they received systemic therapy within one year of ablation. The primary outcomes included overall survival, mortality, and complications. Statistical analysis was performed using commercially available statistical analysis software, including risk ratio, Student's t-test, chi-square test, log-rank test, and hazard ratio.

## **Results**

In patients with Child-Pugh scores of 5-6 who did not receive systemic therapy, RFA was associated with significantly lower mortality (34.0% vs. 85.3%), longer median survival time (1,419 days vs. 438 days), and fewer complications compared to TACE. Similar results were observed in patients with Child-Pugh scores  $< 5$ , with RFA demonstrating superior survival outcomes and a lower complication rate.

In patients with Child-Pugh scores of 5-6 who received systemic therapy, RFA continued to show a lower mortality rate (41.1% vs. 75.6%) and longer median survival time (809 days vs. 193 days) compared to TACE. RFA was also associated with better liver function, as evidenced by lower ALT and AST levels.

## **Discussion**

This study provides evidence supporting improved outcomes of RFA over TACE in patients with preserved liver function (Child-Pugh scores  $< 6$ ) who have HCC. RFA was associated with lower mortality rates, longer survival times, and fewer complications compared to TACE.

Our findings align with previous research highlighting RFA's effectiveness in patients with good liver function and small tumors. However, the study also identified a slightly higher incidence of pleural effusion associated with RFA, emphasizing the need for careful patient selection and post-procedure monitoring.

While this study focused on comparing RFA and TACE as monotherapies, it is essential to acknowledge the potential benefits of combining both modalities in certain cases. Future research should investigate the optimal combination strategies and patient selection criteria for maximizing treatment efficacy.

## **Conclusion**

This study reinforces the notion that RFA is a preferable treatment option for patients with HCC and preserved liver function. The significant differences in mortality rates and survival times underscore the importance of considering liver function when choosing a treatment modality. As the field of HCC management continues to advance, further research is needed to refine treatment algorithms and improve patient outcomes.

**MANUSCRIPT SUBMITTED. FULL LENGTH PAPER  
PENDING PUBLICATION.**