Background: Transarterial chemoembolization (TACE) is effective for hepatocellular carcinoma (HCC). Considerable amounts of radiocontrast agent are used for TACE and may induce renal dysfunction.

Method: This study prospectively investigated the incidence and risk factors of acute renal failure (ARF), defined as an increase of serum creatinine level >1.5 mg/dl after TACE.

Results: ARF developed in 12 (8.6%) of 140 patients after TACE. Univariate analysis showed that number of treatment sessions (2.3±1.4 vs 1.3±1.6, \(P=0.013\)), Child–Pugh class B (50% vs 21%, \(P=0.035\)) and the occurrence of severe postembolization syndrome (75% vs 30%, \(P=0.020\)) were significantly associated with the development of ARF. Multivariate logistic regression analysis disclosed that the proportional increased risk of ARF was 65% for each additional TACE therapy (odds ratio [OR]: 1.65, 95% confidence interval [CI]: 1.13–2.41, \(P=0.010\)). Other independent risk factors were Child–Pugh class B (OR: 12.82, 95% CI: 2.44–67.29, \(P=0.003\)) and severe postembolization syndrome (OR: 6.64, 95% CI: 1.60–27.49, \(P=0.009\)). Four (33%) of the patients with ARF developed irreversible renal function impairment, and diabetes mellitus was the only associated factor (\(P=0.067\)) in this group.

Conclusions: ARF after TACE is closely associated with number of treatment sessions, severity of cirrhosis and development of severe postembolization syndrome. Effective preventive measures should be undertaken especially in high-risk patients.