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Teh-Ia Huo, Jaw-Ching Wu, Pui-Ching Lee, Full-Young Chang, Shou-Dong Lee

**Abstract: 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 ( $2.3 \pm 1.4$  vs  $1.3 \pm 1.6$ ,  $P=0.013$ ), 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.