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Association Of Pringle Maneuver With Postoperative Recurrence And Survival Following Hepatectomy For Hepatocellular Carcinoma: A Multicenter Propensity Score And Competing-risks Regression Analysis

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Background : The application of Pringle maneuver (PM) during hepatectomy reduces intraoperative blood loss and the need for perioperative transfusion, but its effect on long-term recurrence and survival for patients with hepatocellular carcinoma (HCC) remains controversial. We sought to determine the association between the application of PM and post-hepatectomy oncologic outcomes for patients with HCC.

Methods : Patients who underwent curative hepatectomy for HCC at 9 Chinese hospitals from January 2010 to December 2018 were identified. Using two propensity score methods (propensity score matching [PSM] and inverse probability of treatment weight [IPTW]), cumulative recurrence rate and cancer-specific mortality (CSM) were compared between the patients in the PM and non-PM groups. Multivariate competing-risks regression models were performed to adjust for the effect of non-cancer-specific mortality and other prognostic risk factors.

Results : Of the 2,798 included patients, 2,404 and 394 did and did not adopt PM (the PM and non-PM groups), respectively. The rates of intraoperative blood transfusion, postoperative 30-day mortality and morbidity were comparable between the two groups (all P>0.05). In the PSM cohort by the 1:3 ratio, compared to 382 patients in the non-PM group, 1146 patients in the PM group also had the higher cumulative 5-year recurrence rate and CSM (63.9% and 39.1% versus 55.3% and 31.6%, both P<0.05). Similar results were also yielded in the entire cohort and the IPTW cohort. Multivariate competing-risks regression analyses demonstrated that no application of the PM was independently associated with lower recurrence rate and CSM based on various analytical cohorts (HR, 0.82 and 0.77 in the adjusted entire cohort, HR 0.80 and 0.73 in the PSM cohort, and HR 0.80 and 0.76 in the IPTW cohort, respectively).

Conclusions : The findings suggested that no application of PM during hepatectomy for patients with HCC reduced the risk of postoperative recurrence and cancer-specific death by approximately 20~25%.

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