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Influence Of Left Ventricular Diastolic Dysfunction On Postoperative Renal Function After Hepatic Resection

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Background : Maintaining a low central venous pressure during hepatic resection is an effective method to minimize intraoperative blood loss. After completion of the hepatic resection, large amounts of fluid is administered to compensate the potential hypoperfusion of abdominal organs. However, this strategy would influence on postoperative renal function of patients with left ventricular (LV) diastolic dysfunction (DD) who are prone to become a fluid overload after volume adjustment.

Methods : A total of 190 patients with preserved LV ejection fraction who underwent hepatic resection between March 2015 and February 2021 were analyzed. LVDD was defined by the American Society of Echocardiography and the European Association of Cardiovascular Imaging 2016 recommendations: LVDD (group A, n=37), normal LV diastolic function (group B, n=127), or indeterminate decision (n=26).

Results : Postoperative acute kidney injury (10.8% vs. 0.8%, P=0.002) and pleural effusion or edema (48.6% vs. 29.9%, P=0.035) were significantly increased in group A, compared to group B. Significant increments of serum creatinine at postoperative day 1 (0.78±0.23 vs. 0.68±0.2, P=0.017) and day 3 (0.72±0.31 vs. 0.61±0.17, P=0.005) and decrements of daily urine outputs at postoperative day 1 (1560±607 vs. 1898±891, P=0.032) and day 2 (1746±964 vs. 2126±848, P=0.021) were observed in group A, than group B, in spite of similar daily fluid balances. LVDD was the only significant risk factor for acute kidney injury (odds ratio, 20.155; 95% confidence interval, 1.739-233.623, P=0.016).

Conclusions : Perioperative changes of volume status have negative impact on early postoperative renal function in patients with LVDD after hepatic resection.

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