

Cardiac Reserve Predicts Hepatorenal Syndrome in Patients with Cirrhosis

Cardiac testing could potentially identify at-risk patients who might benefit from early intervention.

Hepatorenal syndrome (HRS) is a serious complication of cirrhosis associated with high morbidity and mortality. Recent studies suggest that cardiac dysfunction may play a role in the pathogenesis of HRS.

To determine whether cardiac dysfunction predicts development of HRS, researchers conducted a retrospective cohort study in 488 consecutive patients with cirrhosis undergoing liver transplantation evaluation in Australia. All patients underwent dobutamine stress echocardiography (DSE) as a part of their workup. Cardiac output (CO) was assessed at baseline and during low-dose dobutamine infusion.

At baseline, 13% had established HRS based on standard criteria. Patients with HRS at baseline had a higher resting CO but mounted a reduced inotropic response on DSE compared with those without HRS. Among those without HRS, during a mean follow up of 1.5 years, a low cardiac reserve (defined as $\Delta\text{CO} < 25\%$) was a significant independent predictor of developing HRS in multivariate analysis (hazard ratio, 3.9).

COMMENT

This study suggests that patients with HRS have subclinical cardiac dysfunction that is revealed during hemodynamic stress. Importantly, low cardiac reserve predicted the development of HRS. If these findings are replicated in prospective studies, cardiac testing might be used to identify patients at high risk for HRS who could benefit from early intervention. — *Atif Zaman, MD, MPH*

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