CARDIOLOGY

Myocardial Stiffness: Important Predictor of Survival in CHF

Increased myocardial stiffness may be a better predictor of survival in patients with congestive heart failure (CHF) than are other factors, such as left ventricular ejection fraction (LVEF), according to a small study by researchers from Kobe University Graduate School of Medicine and Hyogo Brain and Heart Center at Himeji, Japan.

In a previous study, the researchers showed that baseline B-type natriuretic peptide (BNP), a well-known marker of cardiac survival, is strongly related to LV myocardial stiffness. To the best of their knowledge, their current study is the first to assess the prognostic value of passive myocardial stiffness in determining survival chances in CHF.

They measured echocardiographic and hemodynamic variables over a mean of 23 months in 37 patients, with the main endpoint being combined death or first readmission for CHF. Two patients died of cardiac events and 8 were readmitted for CHF.

Diastolic chamber stiffness and diastolic myocardial stiffness were higher in patients with events. Predischarge plasma BNP was also significantly higher in the patients with events compared with those without (363.0 vs 144.9).

The study found that conventional echocardiographic and hemodynamic parameters did not significantly contribute to the predictive power of BNP and myocardial stiffness. They found no differences between the patients who died or who were readmitted and the others in terms of LV fractional shortening, LV mass index, end-diastolic stress, and other hemodynamic indices.

The researchers conclude that the primary factor responsible for recurrent decompensation depends on passive myocardial stiffness, regardless of hemodynamic and neurohormonal conditions. Further studies are needed, though, they add, to develop an easier method to calculate myocardial stiffness in vivo.

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