
Although left ventricular (LV) dilation has been assumed to be deleterious, the physiologic significance of severe LV dilation in advanced heart failure and its impact on survival have not been defined. LV end-diastolic dimension was measured by M-mode echocardiography in 382 patients with class III or IV heart failure symptoms (mean LV ejection fraction 20 +/- 8%) referred for evaluation for cardiac transplantation. All patients underwent right-sided heart catheterization, and received vasodilator and diuretic therapy adjusted to hemodynamic goals. Although 183 patients with massive LV dilation by LV index > 4 cm/m2 (LV index = LV end-diastolic dimension/estimated body surface area) had a similar severity of hemodynamic impairment to that of 199 patients with only moderate dilation (LV index < or = 4 cm/m2), with baseline mean cardiac index of 2 liters/m/m2 and mean pulmonary arterial wedge pressure of 26 mm Hg in both groups, their actuarial 2-year survival without transplantation was much lower (49 vs 75%; p = 0.004). In the Cox proportional-hazards model, LV index predicted total and sudden death, independent of etiology of heart failure, ejection fraction and other parameters of disease severity. Follow-up echocardiograms (mean 13 +/- 6 months) in 80 heart failure survivors without transplantation showed an increase in mean LV ejection fraction (22 +/- 8% to 26 +/- 13%), but no change in mean LV index in either the massive or moderately dilated groups. Thus, massive LV dilation is an independent contributor to poor outcome in patients with advanced heart failure, and may be stabilized by aggressive vasodilator and diuretic therapy.