Prognostic Significance of Mitral Regurgitation

Identified Using Color Doppler Echocardiography Early After Acute Myocardial Infarction

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Background: Echocardiographic evidence of mitral regurgitation (MR) is frequently noted early after acute myocardial infarction (MI). Despite this, there are very few data regarding the clinical correlates and prognostic significance of MR in this setting. The current study addresses these issues.

Methods: Between January 1999 and July 2001, 793 patients admitted to St Mary’s Hospital, Rochester, Minnesota with acute MI had a clinically indicated transthoracic echocardiogram during their index admission. The severity of MR could be accurately assessed in 737 (93%) patients. Mitral regurgitation was graded on a 5 point scale. Patients were followed up a median of 19 months later. The study end-point was death from all causes.

Results: In 320 (43%) patients no/trivial MR was detectable, in 320 (43%) mild MR (grade 1) was present, in 74 (10%) it was moderate (grade 2), in 15 (2%) it was moderate to severe (grade 3) and in 4 (1%) it was severe (grade 4). The prevalence of MR increased with age and it was more common in women and in patients with a history of diabetes, hypertension, prior MI or previous revascularization. It was less prevalent in current smokers and those with ST-elevation MI. Patients who underwent percutaneous coronary intervention during their index admission were less likely to have MR, whereas this was more common in patients with multivessel coronary disease. Patients with MR had worse left ventricular (LV) systolic function, more LV dilatation and more clinical evidence of left heart failure. Vital status was available for 708 patients (96%), of whom 165 (23%) died during follow-up. Patients with moderate or greater MR had worse survival than those with no MR (risk ratio 3.0, 95% CI 1.9 - 4.5, p < 0.001) or those with no or mild MR (risk ratio 2.3, 95% CI 1.6 – 3.2, p < 0.001). Even mild MR predicted a worse survival, when compared to no MR (risk ratio 1.7, 95% CI 1.2-2.4, p = 0.004). However, MR was not independently predictive of outcome.

Conclusion: Mitral regurgitation, identified by color Doppler echocardiography, early after acute MI is associated with a poorer survival. However, this is determined not by the MR per se but by related factors – such as increased age and worse LV systolic function.

Dilated Inferior Vena Cava: A Marker of Poor Survival

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Background: Inferior vena cava (IVC) size and response to respiration are known to be associated with right atrial (RA) pressure but their long term prognostic value is unclear.

Methods: We retrospectively identified 5477 consecutive patients undergoing echocardiography at one of the three Veterans Affairs laboratories with a mean follow up of 533 ± 443 days. Patients were categorized in one of three groups: IVC size ≤ 2 cm at RA-junc-
tion, IVC size > 2 cm with ≥ 50% collapse and IVC size > 2 cm with <50% collapse. Kaplan-Meier and proportional hazards methods were used for survival analysis.

Results: IVC with normal collapse was present in 742 (13%) patients and patients with dilated IVC with abnormal collapse was present in 232 (4%) patients. Compared to normals, patients with dilated IVC were older (68.8 ± 12.0 vs 66.2 ±12.9 years) and had tricuspid regurgitation (TR) of at least moderate severity (70% vs. 9%) and lower left ventricular ejection fraction (LVEF) (38.7 ±16.7 vs 55.9 ±10.8 %) and higher pulmonary artery sys-
tolic pressure (41.2 ±13.8 vs. 29.3 ± 9.5 mm Hg). Patients with a dilated IVC had worse survival than those with no dilatation (Figure). When adjusted for age, LVEF, pulmonary artery systolic pressure and significant (moderate and severe) TR, patients with dilated IVC with normal collapse (risk ratio = 1.27, p<0.05) and dilated IVC without collapse (risk ratio=1.90, p<0.001) had significantly poorer survival than those normal IVC. Conclu-
sions: Dilated IVC with or without collapse is associated with a poor prognosis.