
Recognition of the complex pathophysiology of heart failure and its high mortality has emphasized the need for prognostic markers that can be used in clinical assessment as well as in the design of mortality trials. Data from the Department of Veterans Affairs Cooperative Vasodilator-Heart Failure Trials (V-HeFT I, 642 patients; V-HeFT II, 804 patients) were therefore examined to determine the influence of prerandomization measurements on subsequent mortality.

METHODS AND RESULTS: Patients entered into these trials were men with cardiac dysfunction and reduced peak exercise capacity. Measurements included in this analysis were left ventricular ejection fraction (EF) measured by radionuclide angiography, peak bicycle exercise oxygen consumption (VO2), cardiothoracic ratio (CTR) measured on a chest x-ray, ventricular arrhythmias assessed in a core laboratory by short-term Holter monitoring, plasma norepinephrine and plasma renin activity measured in a core laboratory only in V-HeFT II, and a variety of diagnostic and demographic data. The variables related only weakly to each other. EF, VO2, and CTR were powerful independent predictors of all-cause mortality in both studies. Ventricular arrhythmia was a significant independent predictor in V-HeFT II but not in V-HeFT I. Plasma norepinephrine but not plasma renin activity measured in V-HeFT II also had independent prognostic value. Other variables did not exert an independent effect on mortality.

CONCLUSIONS: Optimal assessment of the mortality risk in an individual or a group of individuals with heart failure uses measurement of EF, peak VO2, CTR, plasma norepinephrine, and the presence of ventricular arrhythmias.