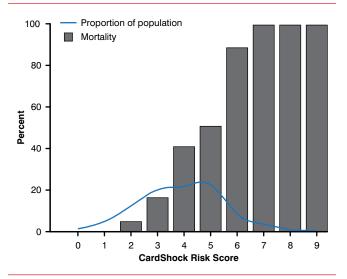


Figure 1. CardShock Score: Mortality Distribution by Score



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The investigators compared the CardShock scoring system with the Sleeper score, which was developed in the Should We Emergently Revascularize Occluded Coronaries for Cardiogenic Shock Trial Registry [SHOCK] to predict mortality in CS complicating MI [Sleeper LA et al. *Am Heart J* 2010]. Although the predictor variables are similar (eg, age, clinical evidence of hypoperfusion, prior coronary artery bypass graft, and left ventricular function), Dr. Lassus argued that the CardShock score had an advantage of greater simplicity. The area under the receiver operating characteristic score for the CardShock risk score was 0.86 as compared with 0.76 for the Sleeper score when applied to the CardShock cohort.

The in-hospital mortality rate of CS remains very high in the contemporary era, and there is utility in the early identification of those patients at highest risk of death. Using clinical variables readily available on presentation, the CardShock risk score is able to identify those with low- (0 to 2 points), medium- (3 to 5 points), and high-risk (6 to 9 points) of short-term mortality with reasonable discrimination.

Exercise Training Not Offered to Half of Surveyed European Patients With HF

Written by Brian Hoyle

The results of the 41-country Exercise Training in Heart Failure study (ExTra HF), involving more than 76,000 patients, support an argument for the establishment of a therapeutic tool to improve exercise capacity, quality of life, and health outcome in patients with heart failure (HF).

The study findings were presented by Massimo F. Piepoli, MD, PhD, Guglielmo da Saliceto Hospital, Piacenza, Italy.

Exercise is recommended for HF patients by organizations such as the European Society of Cardiology [Piepoli MF et al. *Eur J Heart Fail* 2011]. Yet, a 2010 survey in Europe revealed that <20% of HF patients received exercise-based cardiac rehabilitation [Piepoli MF et al. *Eur J Prevent Cardiol* 2010]. To explore this disconnect, the ExTra HF study was conducted at 167 cardiac centers (143 general cardiac centers, 24 rehabilitation centers) in 41 European countries, involving 76,214 patients. A 12-item web questionnaire completed from June 2013 to February 2014 queried whether centers involved in HF rehabilitation included exercise training and, if not, why. ExTra HF researchers also sought to compare the exercise options being provided and to promote a benchmark program.

Of the 167 centers, 99 (59.3%) incorporated exercise training, accounting for 38 304 patients (51% of total). The remaining 68 centers (40.7%), representing 36,910 patients (49%), did not. Reasons for not implementing exercise programs varied and included lack of resources (24.3% of the 68 centers), lack of exercise program in local guidelines/pathways (13.4%), patient referral to other centers (13.0%), provision of exercise program by general practitioner or outpatient department (11.1%), and the absence of exercise therapy for HF patients in the contract between the responding center and the relevant national health service.

Exercise that was delivered soon after hospital discharge (76.8% of cases), in the longer term as a maintenance program (48.5%), and in the hospital before discharge (41.4%) mainly involved increasing aerobic endurance, mostly via stationary bicycles, walking, and treadmills. Other frequently included exercise modalities were dynamic resistance training (71.4%) and balance/coordination training (73.6%).

Exercise programs were most often delivered by rehabilitation specialists (66.7%), physiotherapists (66.7%), cardiac rehabilitation nurses (64.6%), and dieticians (61.6%). Psychologists delivered training in 49.5% of the cases, exceeding the prevalence of cardiac rehabilitation specialists (45.5%). Responsibility for the exercise programs lay predominantly with cardiologists (~33%), cardiac rehabilitation specialists (~30%), and cardiac rehabilitation nurses (~18%).

The data revealed a lack of access to exercise programs for nearly half the HF patients. Exercise for this population is a class 1, level A recommendation by the European Society of Cardiology. When exercise is provided, a number of types are used, in the absence of any guidance standard. Dr. Piepoli and the other investigators opined that a standardized therapeutic tool be adopted, designed to improve aerobic exercise capacity, quality of life, and outcome for HF patients.