Biology and physiology

**Hospitalizations in Heart Failure: It's Not What You Think**

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Hospitalization for heart failure (HFH) is a major component of morbidity of this disease. We recently reported that, from the ValHFT data, HFH represented a minority of all hospitalizations (38% of the group [J. Card. Fail. 9:164, 2003]). We have reviewed published hospitalization results in the placebo groups of major trials spanning mild-to-advanced HF to assess the proportion of HFH hospitalizations. We also assessed relative hospitalization rates for HF and all causes (AC) by using published follow-up (FU) (mean in all studies except CHARM and ATLAS) to estimate exposure time.

**Predictors of Mortality in 1,346 Patients With Heart Failure Scheduled for Guideline-Based Treatment**

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The prognosis of patients (P) with heart failure has been shown to improve in controlled studies with ACE inhibitors and/or beta blockers. The extent to which treatment guidelines issued by professional organisations are implantable in daily clinical practice is unknown, as are the effects on prognosis and mortality predictors.

Methods: 1,346 consecutive patients (64 ±10 years, 27% women) with an ejection fraction (EF) < 45% (mean EF 36.3±4%) were enrolled in the study (between 01/98 and 12/00). The eurhythmia of the cardiomyopathy was isometric in 77%, valvular in 6.5% and due to other causes in 16.5% of the cases. 15.5% of the patients had atrial fibrillation. During inpatient rehabilitation resting ECG, exercise testing, Holter monitoring with heart rate (HR) variability, echocardiogram to determine LV diameter, LV filling (E/A), mitral insufficiency and pulmonary hypertension, and a 6-minute walk-test were performed. The drug therapy was noted at the time of discharge. The patients were followed for 731 days.

Results: 89%/10% of the patients received ACE inhibitors/AT-α blockers, 82% beta blockers, 8% amiodarone, 57% diuretics, and 3% digoxis. Overall mortality was 11%, cardiac mortality was 6%. Significant differences were observed in sinus rhythm (83.3% survivors vs. 64.8% nonsurvivors), number of VES (140 vs. 205), heart rate variability (SDANN 71.2 vs. 65.7), systolic diameter on 2-D-echo (LVSD 47.7 vs. 51.5 mm), E/A in the transverse plane (1.46 vs. 1.79), maximum exercise capacity (76.3 W vs. 57.9 W) and 6-minute walk-test (375 m vs. 302 m). Statins and BMI (kg/m²) did not differ. Multivariate analysis showed that age, pulmonary hypertension, atrial fibrilation, mitral insufficiency, higher NYHA grade, necessity of diuretics and digitals, a short distance in the 6-minute walk test, and low exercise capacity were associated with a significantly higher mortality.

Conclusion: Guideline-based therapy could be established in approximately 90% of patients with heart failure and was associated with improved prognosis. While physical fitness was beneficial for the prognosis, therapy-related experience was related to poorer outcome.

**Depression Predicts Mortality and Hospitalization in Patients With Acute Myocardial Infarction Complicated by Heart Failure: Data From The EPHESUS Trial**

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Background: We evaluated depression as a predictor of all-cause mortality and cardiovascular mortality or hospitalization in patients with acute myocardial infarction complicated by heart failure.

Methods: In addition to clinical data, patients in the EPHESUS trial (NEJM 2003;302:2719-2726) completed a Medical Outcomes Study-Depression (MOS-D) questionnaire at baseline. Mean follow-up was 16 months. Primary outcomes were a) all-cause mortality; and b) cardiovascular death or hospitalization. Kaplan-Meier curves were used to examine the unadjusted relationship between depression and outcomes. Cox proportional hazards regression was used to assess the relationship between depression and outcomes, adjusting for baseline clinical variables.

Results: 143/634 patients (22.6%) had significant depressive symptoms at baseline (MOS-D score ≥ 20.6). In an unadjusted analysis, depression was significantly associated with both all-cause mortality and cardiovascular death or hospitalization (Figure). After risk adjustment, depression remained associated with all-cause mortality (HR 1.75, CI 1.15-2.68; p<0.01) and cardiovascular death or hospitalization (HR 1.39; 95% CI 1.02-