Mortality and predictors of death in women and men with congestive heart failure with preserved, mildly reduced, and reduced ejection fraction

Heart Institute (InCor), University of Sao Paulo Medical School, Sao Paulo, Brazil

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Background: Congestive heart failure (CHF) is one of the leading causes of death from cardiovascular disease and years lived with disability. Studies showed that women had better survival than men despite higher hospitalizations in women. However, little is known about differences in mortality and predictors of death in women and men with heart failure with preserved (HFpEF), mildly reduced (HFmrEF), and reduced ejection fraction (HFrEF).

Methods: From February 2017 to September 2020, we analyzed the mortality and the predictors of death in women and men with CHF (Framingham criteria). Baseline data included clinical characteristics and echocardiographic findings. Statistical analyses were performed with the Kaplan-Meier (K-M) method and the Cox proportional hazards methods to analyze death rates and search for predictors of death for women and men.

Results: We studied 12,015 patients, mean of 63.8±14.3 years, 6637 (55%) males. Females were older (64.9±14.8 vs. 62.8±13.8 years; p<0.0001), had a higher baseline mean left ventricular ejection fraction (LVEF) (49.8±18.9% vs. 42.6±15.4%; p<0.001), and a lower left ventricular diastolic diameter (LVDD) (54.1±9.0 vs. 60.1±9.6 mm; p<0.001). Over a 3-years follow-up period, 1543 (23.2%) men and 1051 (19.5%) women of the cohort died (K-M: log-rank p<0.0001). Cumulative incidence of death was higher in men (K-M: log-rank p=0.0002) with HFrEF but similar for HFmrEF and HFpEF (Figure 1). Cox regression for death adjusted for age, ischemic, idiopathic, hypertension, Chagas, valve, previous myocardial infarction, diabetes, previous stroke, chronic kidney disease (CKD), atrial fibrillation, and LVEF showed that CKD, previous stroke, and diabetes were the main predictors of death for all phenotypes of LVEF in women and men.

Conclusion: Women had a better prognosis than men in HFrEF but similar mortality for HFmrEF and HFpEF. Control of diabetes and preventing stroke and CKD could significantly reduce the death rate in women and men with all CHF phenotypes.

Figure 1