THE SURVIVAL ADVANTAGE OF FEMALE GENDER IN SYSTOLIC HEART FAILURE IS RESTRICTED TO FEMALES WITHOUT CORONARY ARTERY DISEASE

Background: Female gender confers a survival advantage in heart failure (HF), but it is unclear whether characteristics such as obesity or coronary artery disease (CAD) underlie this favorable mortality for females.

Methods: We identified 4334 patients (26.6% female) with systolic HF who underwent cardiopulmonary testing 1995 to 2011. A multivariable Cox proportional hazard model was constructed to examine associations between gender, CAD status, BMI, other baseline characteristics and all-cause mortality.

Results: Compared to males, females were younger (52.2±12.3 vs 54.4±11.9), lower in BMI (27.8±6.3 vs 28.6±5.3 kg/m2), had higher ejection fractions (22.8±9.1 vs 21.6±8.7%) and lower CAD prevalence (28.1 vs 54.8%), all p<0.0001. Unadjusted mortality at 81.6±59 months was 39.1% (32.0 females vs 41.7% males, p<0.0001). After adjustment for demographics, comorbidities, drugs and VO₂ max (overall model $\chi^2$ 725.5), there was a significant interaction between gender and CAD status ($\chi^2$ 23.5, p<0.0001) as illustrated by Figure 1. Figure 2 illustrates the weaker interaction between gender and BMI ($\chi^2$ 3.10, p=0.078), whereby increasing BMI associates with increased adjusted mortality risk in males, but not females, with systolic HF.

Conclusions: The protective effect of female gender on adjusted mortality in systolic HF is absent in females with CAD. Lower CAD prevalence and possibly less negative impact of adiposity in females with HF are two mechanisms by which females may attain a survival advantage.