BETA-1 ADRENERGIC RECEPTOR GENE POLIMORPHISM IN HEART FAILURE: A GENDER SPECIFIC CLINICAL AND PROGNOSTIC ROLE?

ACC Poster Contributions
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Background: In heart failure (HF) pts, gender is associated with different clinical profiles and adrenergic receptor polymorphisms (ARP) are disease modifiers. Aim of the study was to assess gender-related interactions between Arg389Gly beta-1 ARP, clinical/functional characteristics and outcomes of pts with systolic HF.

Methods: From January 2001 to December 2007, 472 pts with dilated cardiomyopathy were genotyped for Arg389Gly beta-1 ARP and underwent clinical, echocardiographic and functional evaluation by cardiopulmonary exercise test. We evaluated total and cardiovascular (CV) mortality and CV and HF hospitalization.

Results: No significant differences according to gender were observed in distribution of genotypes and demographic or clinical characteristics. Females (Fs) (n=105) vs males (Ms) (n=367) had a lower prevalence of ischemic disease (31 vs 199, p=0.04) and a higher EF (36.6±10.5 vs32.2±10.6%, p=0.001). Fs with the Arg389Arg homozygosis (n=35), compared to Fs with Arg389Gly+Gly389Gly (n=40) genotype, showed a worse NYHA class (2.5±0.6 vs 2.2±0.5, p=0.0247) and a trend towards a lower EF, a higher total (22.9% vs 7.5%, p=0.05) and CV (14.3% vs7.5%, p=0.05) mortality. On the contrary, there were no differences among gene polymorphisms in Ms pts. Arg389Arg and Arg389Gly Fs had a higher EF vs Arg389Arg and Arg389Gly Ms (respectively 35.6±9.9 vs 31.6±10.9% p=0.04, 38.3±11.1 vs 33.1±9.8%, p=0.009). Moreover, Arg389Arg Fs vs Arg389Arg Ms showed a trend towards a higher total and CV mortality (22.9% vs 16.1% and 14.3% vs12.5%). In pts with idiopathic dilated cardiomyopathy (IDC) (n=212), Arg389Arg Fs (n=20) showed a trend towards a worse NYHA class, a lower EF and a worse peak VO2, compared to Arg389Gly+Gly389Gly Fs (n=24). Moreover, Arg389Gly Fs vs Arg389Gly+Gly389Gly showed a greater prevalence of CV (30%vs25%) and HF hospitalizations (20%vs16%) and a significant higher total (25% vs 4.2%, p=0.006) and CV (10% vs 4.17%, p=0.046) mortality.

Conclusions: Beta 1 Arg389Gly ARP is related to a higher impairment in systolic function as well as to functional capacity and NYHA class and to a worse prognosis in Fs pts. These results will require a validation in a larger sample size.