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CARDIAC FUNCTION AND HEART FAILURE

PERIPHERAL COLLAGEN MARKERS PREDICT ALL-CAUSE MORTALITY AND CARDIOVASCULAR HOSPITALISATION IN PATIENTS WITH HEART FAILURE AND PRESERVED EJECTION FRACTION: RESULTS OF THE I-PRESERVE COLLAGEN SUB-STUDY

ACC Poster Contributions
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Background: Heart failure with preserved ejection fraction (HFPEF) is a common and increasing public health problem without known effective therapy. Myocardial fibrosis is a key pathological feature of HFPEF. Peripheral collagen breakdown products could reflect this excess fibrosis. It is currently not known, however, whether these markers are predictive of outcome in HFPEF.

Methods: This preplanned sub-study of I-PRESERVE measured plasma levels of procollagen type I amino-terminal peptide (PINP), PIIINP and osteopontin in 313 patients with HFPEF. Measurements were performed at baseline and six months following randomisation to placebo (PBO) or irbesartan 300mg/day (IRB). The relation of baseline collagen markers to the I-PRESERVE primary endpoint (all-cause death and cardiovascular hospitalisation) was evaluated by univariate and multivariate analysis.

Results: Increased plasma levels of collagen markers at baseline were associated with increased frequency of the study primary endpoint for all collagen markers. For each 1µg/L increase in PINP, the hazard ratio (HR) for the primary endpoint was 1.007, 95% CI (1.003-1.010) p<0.0001; for PIIINP 1.151 (1.062-1.246) p=0.0006; for each 1 nmol/L increase in osteopontin, the HR was 1.009 (1.003-1.014), p=0.0011. On multivariate analysis (using categorical analysis with separation > or < median), only PIIINP remained significant, with a HR of 1.750 (1.077-2.846) p=0.024. PIIINP provided additional information to proBNP and NYHA class. After 6 months treatment collagen markers tended to fall in both the PBO and IRB groups (PINP: -3.2+1.9 vs -0.7+2.0 µg/L, P=NS; PIIINP: -0.4+0.1 vs -0.1+0.1 µg/L, p=0.0185; osteopontin -5.6+2.1 vs -3.6+2.2 ng/mL, P=NS).

Conclusions: Increased peripheral collagen turnover markers at baseline predicted increased mortality and cardiovascular hospitalisations in a HFPEF population. This association was particularly strong for PIIINP. These findings suggest that pathological fibrosis in the heart may contribute to adverse clinical outcomes in HFPEF patients.