DECREASED CIRCULATING ENDOTHELIAL PROGENITOR CELL LEVELS IN PATIENTS WITH HEART FAILURE WITH PRESERVED EJECTION FRACTION

ACC Moderated Poster Contributions
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Background: Heart failure with reduced ejection fraction (HFrEF) is known associated with lower endothelial progenitor cells (EPCs) levels. However, EPCs numbers in patients with heart failure with preserved ejection fraction (HFpEF) have not been reported. The purpose of our study was to explore the relationship between EPCs levels, HFpEF and HFrEF.

Methods: We compared 44 HFpEF patients and 40 HFrEF patients to 69 age- and gender, and comorbidities-matched controls diagnosed by clinical manifestations and echocardiography. Flow cytometry with quantification of EPC markers (defined as CD34+, CD34+KDR+, and CD34+KDR+CD133+) in peripheral blood samples was used to assess circulating EPC numbers.

Results: Patients with HFrEF and HFpEF had a significantly higher incidence of diastolic dysfunction and took more spironolactone and digitalis. HFpEF patients, as HFrEF patients, had significantly decreased circulating EPC levels (all P < 0.05, Figure), enhanced systemic inflammation, and higher N-terminal pro-brain natriuretic peptide levels compared to controls. After adjusting for basic characteristics, HFpEF, as HFrEF, was an independent predictor of decreased EPC numbers (CD34+KDR+[cells/μl] ≤11;) (Odds ratio: 4.23; 95% confidence interval: 2.03 - 9.69, p <0.001).

Conclusions: Our data suggest that HFpEF patients, as HFrEF patients, also have lower circulating EPC numbers than controls, which explain the association between endothelial dysfunction and development of HFpEF.