Heart Failure and Cardiomyopathies

BIOMARKER PROFILES IN HEART FAILURE PATIENTS WITH A PRESERVED AND REDUCED EJECTION FRACTION

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Background: Different pathophysiological pathways have been suggested between heart failure patients with a reduced ejection fraction (HFrEF) and a preserved ejection fraction (HFpEF). To understand these differences, we studied a large panel of biomarkers with regard to differences in biomarker levels and their relation to outcome in HFpEF and HFrEF.

Methods: We analyzed 31 biomarkers from different pathophysiological domains (inflammation; oxidative stress; remodeling; cardiomyocyte stretch; angiogenesis; arteriosclerosis; anemia and renal function) in 460 patients before discharge after heart failure hospitalization. The primary endpoint was all-cause mortality at 3 years.

Results: Patients were 71.0±11.0 years old, 38% were female, and 23% had HFpEF (LVEF > 40%). In total, 186 patients died (40.2% HFrEF vs. 41.1% HFpEF; p=0.869). Multivariable logistic regression showed higher levels of atherosclerosis-marker ESAM, NT-proBNP and pro-ANP to be associated with HFrEF (all p<0.01). NT-proBNP was the only biomarker that had prognostic value in both HFrEF and HFpEF, whereas oxidative stress and angiogenesis markers had predictive value only in HFpEF. No single marker was exclusively predictive for HFrEF.

Conclusion: Biomarker profiles differ in HFpEF and HFrEF, indicating differences in pathophysiological pathways. Biomarkers of oxidative stress and angiogenesis had incremental predictive value over a clinical risk model in HFpEF, but no markers had added value in HFrEF.