GDF-15 and sST2 as biomarkers for arrhythmic death in non-ischemic heart failure

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Background. Growth differentiation factor (GDF)-15 and soluble ST2 (sST2) are established prognostic markers in acute and chronic heart failure. Assessment of these biomarkers might improve arrhythmic risk stratification of patients with non-ischemic, dilated cardiomyopathy (DCM) based on left ventricular ejection fraction (LVEF).

Purpose. We studied the prognostic value of GDF-15 and sST2 for prediction of arrhythmic death (AD) and all-cause mortality in patients with DCM.

Methods. We prospectively enrolled 52 patients with DCM and LVEF=50%. Primary endpoints were time to AD or resuscitated cardiac arrest (RCA) and secondary endpoint was all-cause mortality.

Results. The median follow-up time was 7 years. A cardiac death was observed in 20 patients, where 10 patients had an AD and two patients had a RCA. One patient died a non-cardiac death. GDF-15, but not sST2, was associated with increased risk for the AD/RCA with a hazard ratio (HR) of 2.1 (95% CI=1.1-4.3; p=0.031). GDF-15 remained an independent predictor of AD/RCA after adjustment for LVEF with adjusted HR of 2.2 (95% CI=1.1-4.5; p=0.028). Both GDF-15 and sST2 were independent predictors of all-cause mortality (adjusted HR=2.4; 95% CI=1.4-4.2; p=0.003 vs. HR=1.6; 95% CI=1.05-2.7; p=0.030). In a model including GDF-15, sST2, LVEF and NYHA functional class, only GDF 15 was significantly associated with the secondary endpoint (adjusted HR=2.2; 95% CI=1.05-5.2; p=0.038).

Conclusion. GDF-15 is superior to sST2 in prediction of fatal arrhythmic events and all-cause mortality in DCM. Assessment of GDF-15 could provide additional information on top of LVEF and help identifying patients at risk of arrhythmic death.