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## Heart Failure and Cardiomyopathies

### RISK STRATIFICATION FOR SUDDEN CARDIAC DEATH IN PATIENTS WITH HEART FAILURE: ROLE FOR 123-IODINE METAIODOBENZYLGUANIDINE IMAGING AND CARDIAC MAGNETIC RESONANCE IMAGING. A REAL WORLD SINGLE CENTRE EXPERIENCE

Poster Contributions

Poster Hall B1

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**Background:** Implantable cardioverter defibrillator (ICD) is recommended for the prevention of sudden cardiac death (SCD) in patients with heart failure, basing mainly on ejection fraction (EF). However, the latter has low sensibility and specificity. 123-iodine metaiodobenzylguanidine (123-I MIBG) imaging, associated with cardiac magnetic resonance imaging (MRI), seems to identify patients at high risk of SCD, independently from EF. The aim was to assess the role of 123-I MIBG, in association with cardiac MRI, in the prediction of ventricular arrhythmic events causing appropriate ICD shock in patients with heart failure with reduced EF  $\leq 35\%$ .

**Methods:** Thirty six patients admitted to our hospital with heart failure were enrolled. They underwent 123-I MIBG imaging and cardiac MRI. The heart/mediastinum (H/M) ratio  $< 1.6$  was used as cut-off to identify high risk (group 1) versus low risk (H/M  $> 1.6$ , group 2) patients. In both groups, late gadolinium enhancement (LGE), number and extension of myocardial segments with scars were evaluated by cardiac MRI. All patients underwent ICD implantation according to current guidelines. At 6 months follow-up, ventricular arrhythmic events and appropriate ICD therapy were assessed.

**Results:** Twenty six patients were included in group 1 and 10 patients in group 2. The groups were comparable in term of baseline characteristics, including EF  $\leq 35\%$ , apart for the etiology. In group 1, the H/M ratio was  $1.39 \pm 0.14$  and  $1.75 \pm 0.15$  in group 2 ( $p < 0.01$ ); SS was  $23.1 \pm 10.9$  in the group 1 and  $13.5 \pm 10.3$  in group 2 ( $p < 0.05$ ). At cardiac MRI, group 1 and 2 showed LGE (67% vs 30%,  $p < 0.05$ ); myocardial scar segments were  $1.9 \pm 1.6$  in group 1,  $0.7 \pm 1.3$  in group 2 ( $p < 0.05$ ). At 6 months follow-up, ventricular arrhythmia causing appropriate ICD therapy were 23% in group 1 and 10% in group 2 ( $p < 0.05$ ).

**Conclusion:** Our data confirm the importance of 123-I MIBG for the risk stratification for SCD among patients with heart failure with reduced EF. Intriguingly, LGE and presence and extension of myocardial scarring at cardiac MRI were also associated with life-threatening ventricular arrhythmia. 123-I MIBG and cardiac MRI are valid tools to better identify patients at high risk for SCD beyond the mere value of EF.