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Meeting abstract

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1013 Impaired left ventricular function at rest and stress in patients with severe coronary artery disease after heart transplantation detected by dobutamine stress magnetic resonance imaging

Constanze Merten*, Sonja Refle, Stephanie Lehrke, Dirk Lossnitzer, Thomas Dengler, Hugo A Katus, Evangelos Giannitsis and Henning Steen

Address: University Hospital Heidelberg, Heidelberg, Germany
* Corresponding author

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Introduction

Transplant coronary artery disease (TCAD) importantly affects long-term survival in patients after heart transplantation (HTX). Usually annual coronary angiography is used to assess presence and severity of TCAD.

Purpose

We sought to use rest and dobutamine stress cardiac magnetic resonance imaging (DS-CMRI) as a non-invasive technique to evaluate functional impairment due to significant TCAD.

Methods

54 patients at a mean interval of 7.2 years (range 0.9 to 16.8 ys) after HTX underwent rest and DS-CMRI. According to coronary angiography results patients were divided into 3 groups (1 = normal coronary arteries (CA), n = 29; 2 = CA stenosis < 75%, n = 15; 3 = significant CA stenosis > 75%, n = 10).

Results

At rest, group 1 and 2 did not differ significantly regarding left ventricular (LV) function and volumes whereas group 3 showed a significantly lower LV ejection fraction (EF) (61.6% ± 7.2 and 58.3% ± 9.2 vs. 49.3% ± 12.3; p = 0.002) and higher endsystolic volumes (ESV) (55.3 ml ± 22,0 and 62.3 ml ± 15.7 vs. 88.6 ml ± 40.9; p = 0,004). Enddiastolic volumes did not differ significantly between groups. At stress, LVEF only increased significantly in group 1 and 2 (61.6% vs. 70% and 58.3% vs. 69,0%, respectively, p < 0,01) compared to rest, but not in patients with severe TCAD (49.3% vs. 52,9%, p = NS). Similarly, ESV decreased significantly in group 1 and 2, but not in group 3. The differences between groups observed for EF and ESV at rest remained significant at maximal stimulation (cf. Figure 1).

Conclusion

Patients with severe TCAD revealed impaired LV function at rest and during dobutamine stress compared to patients without or with only mild coronary artery stenosis. Additionally, a reduced functional reserve was non-invasively detected by DS-CMRI in patients with significant TCAD.

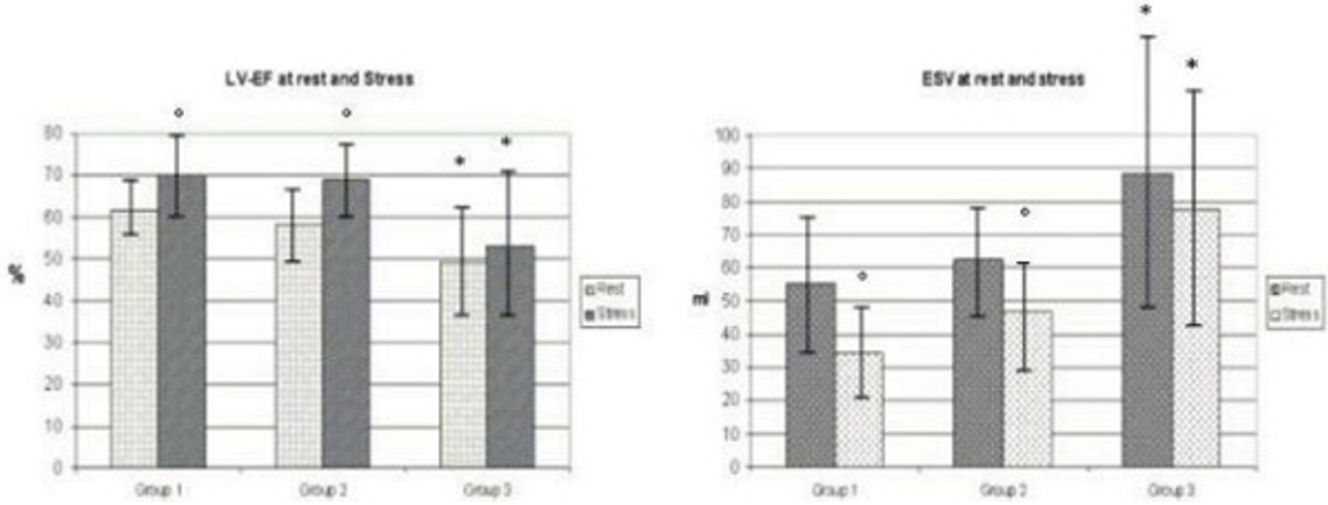

Figure 1
Left ventricular ejection fraction and endsystolic volume at rest and stress. *p < 0.005 vs group 1 and 2; *p < 0.01 vs. rest.