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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

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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**

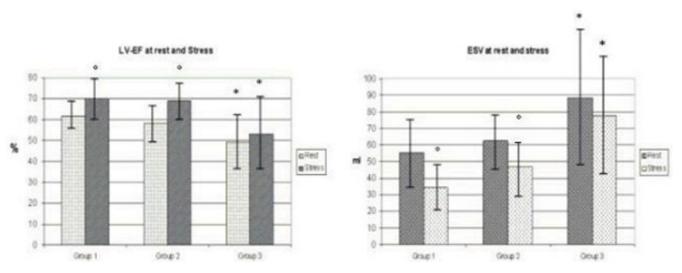
At rest, group 1 and 2 did not differ significantly regarding left ventricular (LV) function and volumes whereas group 3 showed a significantly lower LV ejection fraction (EF) ( $61.6\% \pm 7.2$  and  $58.3\% \pm 9.2$  vs.  $49.3\% \pm 12.3$ ; p = 0.002) and higher endsystolic volumes (ESV) (55.3 ml  $\pm$  22,0 and 62.3 ml  $\pm$  15.7 vs. 88.6 ml  $\pm$  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.

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**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.

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