

Abstracts and presentations are embargoed for release at date and time of presentation or time of AHA/ASA news event. Information may not be released before then. Failure to honor embargo policies will result in the abstract being withdrawn and barred from presentation.

Core 1. Cardiovascular Imaging

Session Title: Magnetic Resonance Imaging: Heart III

Abstract 12481: Myocardial Scar Tissue in Patients with Coronary Artery Disease and Preserved Left Ventricular Function - Lessons Learned from Delayed Enhancement-MRI

Christian Mahnkopf; Marcel Mitlacher; Stefan Holzmann; Manfred Dücker; Philip Halbfass; Steffen Schnupp; Konstantin Zintl; Anil M Sinha; Johannes Brachmann
Dept of Cardiology, Klinikum Coburg, Coburg, Germany

Background:

In patients with coronary artery disease (CAD), the restricted blood supply to the myocardium can lead into myocardial injury. Delayed enhancement MRI (DE-MRI) allows the accurate detection and visualization of myocardial scar tissue.

Objective: The aim of this study was the determination of myocardial scar tissue in patients with CAD with preserved left ventricular (LV) function without regional wall motion abnormalities (RWMA) in transthoracic echocardiography (TTE) using DE-MRI.

Methods and Results:

582 patients (458 males, Age: 65.2 ± 12.0 years) were examined for viability determination using DE-MRI. All patients had a history of CAD. 83 of these patients (14,3%; 61 male; Age: 66.3 ± 12.4 years) were found with normal LV function without RWMA in TTE. Out of these eighty-three patients 45 patients (54.2%) suffered from an acute coronary syndrome (elevated Troponin, NSTEMI, STEMI) shortly before the MRI examination while 8 patients were found with a history of ACS further in the past. Myocardial scar tissue was found in 57 patients (68.7%), whereas 26 patients (31.3%, Figure 1) showed no myocardial enhancement using DE-MRI. The number of patients with transmural scar was significantly higher than patients with subendocardial scar (36 (63.2%) vs. 21 (36.8%); $p=0.005$; Figure 2). Incidence of myocardial scar tissue was independent of the number of diseased coronary vessels (Figure 3).

Conclusion:

From our preliminary results, a significant numbers of patients with CAD, preserved LV function and without regional wall motion abnormalities can suffer from myocardial scar tissue. Transthoracic echocardiography may underestimate myocardial injury in these patients. Thus, MRI examinations of the heart for determination of myocardial viability should be considered in these patients to assess the extent of myocardial injury.

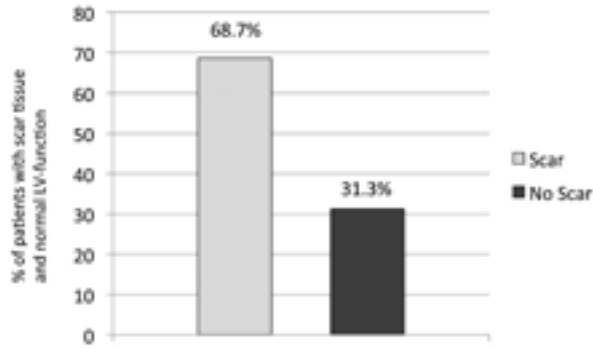


Figure 1: % of patients with scar tissue and normal LV-Function

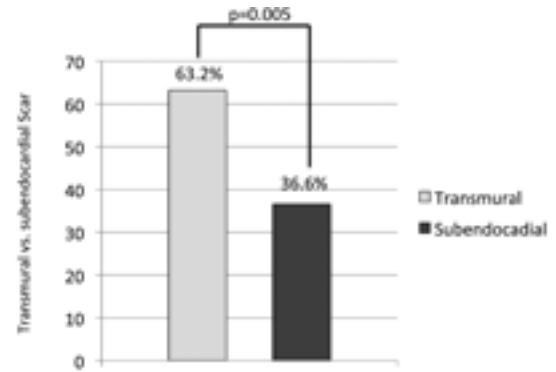


Figure 2: % of appearance of transmural and subendocardial scar tissue

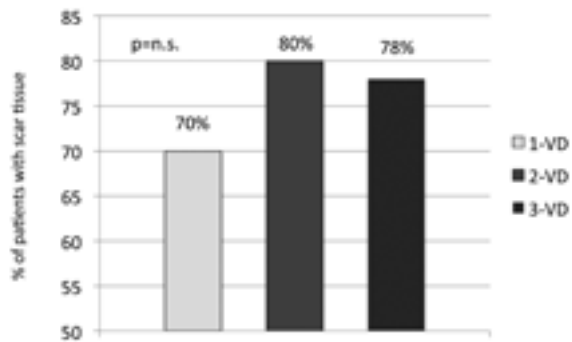


Figure 3: % of patients with scar tissue in coronary one-, two-, and three vessel disease (VD)

Author Disclosures: C. Mahnkopf: None. M. Miltacher: None. S. Holzmann: None. M. Dúcker: None. P. Halbfass: None. S. Schnupp: None. K. Zintl: None. A.M. Sinha: None. J. Brachmann: None.