Meeting abstract

2021 Cardiac magnetic resonance stress perfusion and late enhancement in patients with coronary bypass graft

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Introduction
The combination of stress perfusion and late enhancement in the cardiac magnetic resonance (CMR) diagnosis has established for diagnosis of myocardial ischemia. However, little is known about its diagnostic accuracy in patients with coronary artery bypass graft (CABG).

Aim
To evaluate the diagnostic accuracy of stress perfusion and late enhancement in patients with with CABG in a multicenter trial.

Methods
110 with CABG were included in three German centers to the study and underwent stress perfusion (140 μg/kg/min adenosine, 0.1 mmol/kg Gadolinium-based contrast agent bolus) (3–5 short axis slices, dependent on heart beat, matrix 2.8 × 2.8 mm) and late enhancement (10 min. after a second contrast agent bolus of 0.1 mmol/kg). CMR images were assessed visually using the 16-segments model. Myocardial ischemia was defined as resgional hypoenhancement in stress perfusion with absent late enhancement. All patients underwent coronary angiography. A significant stenosis was defined by QCA in case of ≥ 70% of coronary artery or bypass graft narrowing in vessels ≥ 2 mm diameter.

Results
A relevant vessel stenosis or occlusion was present in 71 (65%) CABG patients. PCI was performed 314 ± 231 and CABG 423 ± 275 days before CMR examination. Sensitivity was 0.73, specificity 0.77 and overall accuracy 0.75 per patient.

Conclusion
CMR is feasible and suitable for detecting relevant vessel stenosis in patients who previously were treated by CABG, though diagnostic accuracy is reduced in comparison to patients without CABG. This could be due to different flow and perfusion kinetic. Furthermore, presented evaluation method may be inadequate, since collaterals and different perfusion territories are not taken into consideration.