Cardiac magnetic resonance assessment of diastolic dysfunction in acute coronary syndrome

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Abstract

Chest pain is an important presenting symptom. However, few cases of chest pain are diagnosed as acute coronary syndrome (ACS) in the acute setting. This results in frequent inappropriate discharge and major delay in treatment for patients with underlying ACS. The conventional methods of assessing ACS, which include electrocardiography and serological markers of infarct, can take time to manifest. Recent studies have investigated more sensitive and specific imaging modalities that can be used. Diastolic dysfunction occurs early following coronary artery occlusion and its detection is useful in confirming the diagnosis, risk stratification, and prognosis post-ACS. Cardiac magnetic resonance provides a single imaging modality for comprehensive evaluation of chest pain in the acute setting. In particular, cardiac magnetic resonance has many imaging techniques that assess diastolic dysfunction post-coronary artery occlusion. Techniques such as measurement of left atrial size, mitral inflow, and mitral annular and pulmonary vein flow velocities with phase-contrast imaging enable general assessment of ventricular diastolic function. More novel imaging techniques, such as T2-weighted imaging for oedema, T1 mapping, and myocardial tagging, allow early determination of regional diastolic dysfunction and oedema. These findings may correspond to specific infarcted arteries that may be used to tailor eventual percutaneous coronary artery intervention.

Keywords

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1 of 4

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Showing 30 of 57 **View All in Cited References page**