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Extended abstract

Magnetic resonance imaging of the heart: more than the morphological analysis

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Abstract

Magnetic resonance imaging (MRI) of the heart is one of the key non-invasive techniques in modern cardiology. In the last period it developed from the useful research method into a clinically evidence-based, safe and comprehensive diagnostic test. The development of the technology has resulted in its wider application in various fields of cardiology, in evaluation of regional and global systolic function of the heart, perfusion and tissue characterization of the heart muscle, evaluation of pericardial disease, heart tumor and follow-up of patients with congenital heart disease and diseases of the aorta. In ischemic heart disease there are great possibilities for identifying segmental contractility failures after administration of dobutamine, or applying vasodilatating tests such as adenosine, with a satisfactory safety profile and a good degree of diagnostic accuracy. The principle of gadolinium-based imaging is based on a lower speed of wash out of gadolinium from myocardium replaced by fibrosis or scar. On these grounds, a delayed imaging 5 to 20 minutes after injection of contrast agent will clearly show a fibrosis or a scar and thus also give an answer to the question as to the benefits of further revascularization procedures.

The main advantages of cardiac MRI versus other noninvasive imaging methods are high spatial resolution, excellent reproducibility (suitable for monitoring patients), non-ionizing radiation, high intrinsic contrast, numerous techniques within one method and 3D reconstruction.

Keywords

Magnetic resonance imaging • Perfusion • Tissue characterization

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