MRI in CT in the diagnosis of coronary artery disease indication and application

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1 Introduction

In recent years, technical advances and improvements in cardiac computed tomography (CT) and cardiac magnetic resonance imaging (MRI) have provoked increasing interest in the potential clinical role of these techniques in the non-invasive work-up of patients with suspected coronary artery disease (CAD) and correct patient selection for these emerging imaging techniques. In the primary detection or exclusion of significant CAD, e.g. in the patient with unspecific thoracic complaints, and also in patients with known CAD or advanced stages of CAD, both CT and MRI yield specific advantages. In this review, the major aspects of non-invasive MR and CT imaging in the diagnosis of CAD will be discussed. The first part describes the clinical value of contrast-enhanced non-invasive CT coronary angiography (CTCA), including the diagnostic accuracy of CTCA for the exclusion or detection of significant CAD with coronary artery stenoses that may

After study from some other research papers in introductory part we can use this MRI and CT machine in coronary artery disease

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2 how this relate with nuclear medicine

For these indications, CT and MRI applications available are: 1. Coronary calcification scoring (or coronary vessel wall imaging in general) by CT 2. Non-invasive coronary angiography by MRI or CT 3. Stress cine MRI and stress perfusion MRI 4. Myocardial viability imaging using MRI or CT Recently, the first results of stress perfusion CT have also been published. Many of these imaging methods have been reported to yield a high negative predictive value, i.e. a normal result of these tests rules out a haemodynamically significant CAD with a high probability. For a reasonable implication of imaging strategies in clinical practice, however, the pre-test probability must be considered to avoid needless examinations

Magnetic resonance imaging (MRI) is a technique that uses a magnetic field and radio waves to create detailed images of the organs and tissues within your body. Most MRI machines are large, tube-shaped magnets. When you lie inside an MRI machine, the magnetic field temporarily realigns hydrogen atoms in your body. The addition of our 3T MRI has brought patient care to an entirely new level. MRI Services is located at Kootenai Health in the Heart Center.