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Clinical myocardial perfusion PET/CT.

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Abstract

The field of nuclear cardiology is witnessing growing interest in the use of cardiac PET for the evaluation of patients with coronary artery disease (CAD). The available evidence suggests that myocardial perfusion PET provides an accurate means for diagnosing obstructive CAD, which appears superior to SPECT especially in the obese and in those undergoing pharmacologic stress. The ability to record changes in left ventricular function from rest to peak stress and to quantify myocardial perfusion (in mL/min/g of tissue) provides an added advantage over SPECT for evaluating multivessel CAD. There is growing and consistent evidence that gated myocardial perfusion PET also provides clinically useful risk stratification. Although the introduction of hybrid PET/CT technology offers the exciting possibility of assessing the extent of anatomic CAD (CT coronary angiography) and its functional consequences (ischemic burden) in the same setting, there are technical challenges in the implementation of CT-based transmission imaging for attenuation correction. Nonetheless, this integrated platform for assessing anatomy and biology offers a great potential for translating advances in molecularly targeted imaging into humans.

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