CLINICAL PREDICTORS OF CARDIAC SYNDROME X PRESENTED WITH SUBENDOCARDIAL ISCHEMIA AND NORMAL CORONARY ARTERY: A CARDIAC MRI STUDY

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Background: In cardiac syndrome X (CSX), it has been demonstrated that subendocardial hypoperfusion is present on the basis of a cardiac magnetic resonance image (MRI) study. Despite the diagnosis of CSX become prone and reliable, the clinical characteristics and diagnostic predictors of CSX remains debated. The purpose of this study was to investigate whether a direct relation can be demonstrated between myocardial perfusion defects detected during MRI and clinical characteristics of CSX.

Methods: Among 763 patients who presented with chest pain and underwent (a) a cardiac MRI study; (b) coronary angiography or coronary CT, seventy patients who have normal coronary were analyzed. The cardiac MRI protocol comprised cine imaging followed by adenosine first-pass perfusion imaging and late gadolinium enhancement-CMR. Myocardial perfusion defects were classified by transmurality of perfusion defect on cardiac MRI as “mild (10-25% of subendocardial involvement), “moderate (25%-50%)” and “severe (50%-transmural)”.

Results: Among 94 patients, an adenosine-induced, reversible subendocardial perfusion defect was detected in 60/94 patients (63.8%) without significant CAD. Mild subendocardial perfusion defects were found 34/94 patients (36.2%) while moderate and severe defects were detected in 21/60 patients (35.0%) and 5/60 patients (8.3%), respectively. Patients with a subendocardial perfusion defect had similar demographic and clinical features, except that patients with female gender, typical chest pain and lower hemoglobin level were more prevalent by univariate analysis. However, in multivariate analysis, only female gender (OR: 4.281, 95% of CI: 1.188-15.429, p=0.026) and typical chest pain (OR: 6.792, 95% of CI: 1.294-35.631, p=0.024) were predictors of CSX.

Conclusions: In patients with cardiac syndrome X, cardiac MRI demonstrates subendocardial hypoperfusion during the intravenous administration of adenosine, which showed variable degree of transmurality. Our data concurrently suggest typical chest pain in women should be investigated thoroughly even with normal coronary artery in considering microvascular dysfunction.