Abstract: P6432

Predictive value of rest-MCG and stress-MCG in patients with angina pectoris

Authors:
D Brala¹, S Morita¹, U Landmesser¹, J-W Park¹, ¹Charite - Campus Benjamin Franklin - Berlin - Germany,

Topic(s):
Coronary Artery Disease – Diagnostic Methods

Citation:
Background: Thousands of patients present themselves annually to the emergency department or private clinic with chest pain. Categorizing different types of angina is clinically important and is one of the cornerstones for pre-test-probability.

In patients with angina pectoris, symptoms mostly occurred during physical exertion and usually lasted a short time. This paper examines Magnetocardiography (MCG) in patients with angina pectoris. Cardiac electromagnetic activity is recorded by MCG which is a non-invasive, non-contact, and radiation-free multichannel mapping technique. We present results focusing on resting- and stress-MCG in order to detect true coronary artery disease.

Method: We examined 131 patients (66±12 yrs., 94 male) with angina pectoris who were asymptomatic during the time in the emergency department. Troponin and ECG were in normal range. These patients had complex cardiovascular risk factors – arterial hypertension in 87%, hyperliproteinemia in 63%, nicotine consumption in 23%, diabetes mellitus in 14%.

The cardiac magnetic field was registered over the anterior chest wall with a 64-channel gradiometer system in a magnetically shielded room (CS-MAG III, BMP GmbH). Rest- and Stress-MCG measurement were performed before patients received an invasive ischemia investigation. We calculated in total 9 MCG parameters that could serve as indicators in the diagnosis of ischemia and coronary artery disease (CAD): T-wave dispersion, T-wave vectors MCG (VMCG), T-Scores, ST-Fluc-Score and PLP-Score.

Results: All of the 131 patients received an invasive diagnostic. 43 patients exhibited a CAD. Resting MCG could identify 28/43 patients correctly (SENS of 65%, NPV of 66%). Stress-MCG was able to identify 42/43 correctly (SENS 98%, NPV 88%).

Conclusions: Stress-MCG seems to be a highly sensitive method in detecting CAD in patients with stable angina. In diagnostics, it should be complemented by other indicators such as troponin to improve its specificity.