Sensitivity of Similarity Index for Detecting Ischemic Patients with Adenosine Test Using Magnetocardiogram

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Ischemic heart disease is one of the leading causes of death and need to be detected with an easy, convenient, and non-invasive method. Magnetocardiogram (MCG) is one of the rapidly developed and promising diagnostic tools to detect ischemic patients. In this study, we introduce a new analysis method, Similarity Index (SI), using MCG parameters. In the preliminary analysis, SI showed sensitivity of 89% and specificity of 96% to detect 102 myocardial infarction patients from 28 healthy controls. However, it does not show high sensitivity for stable angina (SAP) and unstable angina patients (UAP). In this study we applied the method to adenosine patients whether SI could distinguish patients from healthy controls. As a result, SI showed distinguishable changes from mild or moderate ischemic patients (SAP and UAP) even though each MCG parameter did not change much. This method may be useful to detect mild ischemic patients who should use adenosine stress test.
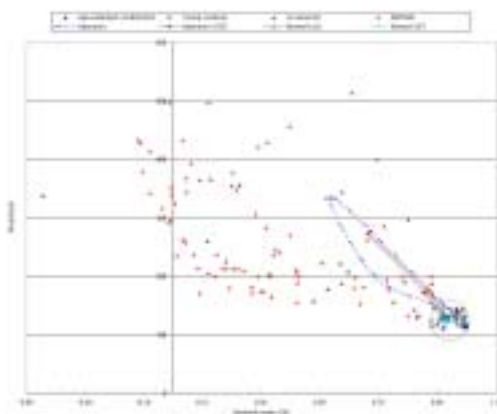
Fig.1 similarity index (SI) and magnitude of healthy controls, myocardial infarction patients, and angina patients. Healthy controls stay inside of the circle which is a boundary between normal and patients, while patients showed huge change during adenosine test.

Keywords : Magnetocardiogram, ischemic heart disease, similarity index, sensitivity