

ACC Asia 2018 - MCG Study Presentation (Abstract)

<Title>

Evaluation of noninvasive mathematical analysis of spectral ECG comparing to Coronary Angiography for severe Ischemic Heart Disease in Emergency Country

<Abstract Category>

Acute Coronary Syndromes

<Background>

In the emerging countries (South East Asia including Myanmar), the death rate by communicable diseases is still higher compared to the developed countries; however, the ratio of death caused by lifestyle diseases is gradually increasing. Among lifestyle diseases, Ischemic Heart Disease (IHD) is one of the highest causes of death and its prevalence is growing faster while the number of Cath Lab and doctors with skills are limited.

<Method>

This study is to evaluate the feasibility of Multifunction CardioGram(MCG) for the assessment of patients with severe IHD by comparing with Coronary Angiography (CAG).

MCG is the mathematical analysis of spectral ECG extracting spectral information not visible on standard ECG and analyzes it by its AI with matching to the database of more than 40,000 patients' spectral data.

Total 30 patients (Age 59 ± 8.9 , Male:21, Female:9) with MCG (≥ 4 score) scheduled to do CAG were selected in Myanmar. Coronary Stenosis by CAG of $\geq 75\%$ (75%-100% of stenosis) in a single or multiple vessels is defined as severe IHD necessary to start an appropriate treatment.

<Result>

MCG scores in patients with or without severe IHD are significantly different. (with IHD:7.0, without IHD:5.4 , $p < 0.01$) (Figure 1). Best cut off value of MCG is ≥ 6 , and is identified Sensitivity 76.5%, specificity 69.2%, PPV 76.5%, NPV 69.2%, and Accuracy 73.3% ($p < 0.05$).

<Conclusion>

MCG showed high sensitivity and specificity, and high score of MCG ≥ 6 likely indicates the presence of severe IHD.

<Clinical Implication>

We suggest that MCG could be used for prompt detection of severe IHD in order to start appropriate treatments (Percutaneous Coronary Intervention /Optimal Medical Therapy) in the emerging country such as Myanmar where less medical facilities and skills are available.

<Key Word>

noninvasive, AI, MCG, ischemic heart disease, emerging country

(Figure 1)

