BACKGROUND MCG (Multifunction Cardiogram) is new technology developed by Premier Heart in USA. Analyze cardiovascular function (mainly ischemia) by frequency digitalized ECG data which is obtained approximately 7 minutes of 2 leads (II and V5) of resting ECG. (Total testing time is 20-30 minutes.) Data is transmitted through the internet to the data center in the USA and analyzed automatically. “Analyze” is categorized as a medical device in the USA (Class I). CPT code is obtained (= 44042) and categorized as medical device. (Not applicable pharmaceutical jurisprudence and insurance).

MCG analyzes patient’s information, comparing to a database of over 40,000 patients’ electrocardiograms at rest. A numeric score is assigned on this analysis representing the likelihood and severity of CAD (Coronary artery disease). A numeric score is assigned on this analysis representing the likelihood and severity of CAD (Coronary artery disease). We performed fully informed consent. After that, we performed MCG test, 117 cases. The study group consists of 95 patients, (mean age at 67.4 ± 9.3, Male; 69 patients and Female; 26 patients), who are planning to or underwent CAG or MDCT, SPECT. For these patients, using MCG testing, with the data transferred over the internet to Premier Heart in New York for analysis, sensitivity and specificity for patients of stenosis was ≥ 75%.

RESULTS

Baseline characteristics were not different between 2 groups, MCG score < 4.0 categorized as Medical device (Class I) vs. C21 4.0, and specificity was 82.8%. The cut-off being 4.0, the outcome showed increased reliability after including the MCG session. Sensitivity and specificity for patients of stenosis was ≥ 75%. 22 cases were excluded. The reasons were MCG ECG quality level, poor test, after PCI, CAG or SPECT negative.

METHODS MCG analyzes patient’s information, comparing to a database of over 40,000 patients’ electrocardiograms at rest. Obtain resting ECG data of the patient with stable condition. Total time will be approximately 20-30 minutes including resting time before testing. Time for analyze will be a few minutes after transmitting data. A numeric score is assigned on this analysis representing the likelihood and severity of CAD, a score from 0 to 20, with a score of 4.0 or higher indicating CO (coronary obstruction).

CONCLUSION

Subjects included in the trial were ambulatory patients who presented to their physicians for evaluation with either Coronary Angiography or SPECT-MPI. This might influence on the high accuracy sensitivity and PPV of this study.

Considering the use in the health checkup center, further study targeting for low risk population might be important to find out the relationship between CAD risk factors and the MCG score within low risk population. Optima medical therapy is important method for treating coronary artery disease with a exception of acute coronary syndromes or confirmed is chemic patient. Also it is a very important treatment as a primary and secondary prevention for CAD. However, there is an issue with optimal medical therapy that is difficult to get consensus especially from the symptomatic patient.

Through this study it was suggested that the MCG test, which is an easy noninvasive test with high accuracy for CAD risk, might motivate patient toward optimal medical therapy from the primary prevention stage. Through this study it was suggested that the MCG test is very useful for screening CAD risk of ≥ 75% stenosis. The MCG test is noninvasive test and can be applied regardless patient characteristic such as age, kidney function and ADL.