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Diagnostic Performance of Multifunction Cardiogram for Low Risk Patients with Coronary Artery Disease

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Background

MCG is a new computer-enhanced, non-invasive, resting electrocardiogram analysis developed to detect relevant coronary artery disease(CAD). However, the diagnostic performance of the MCG is controversial.

Method

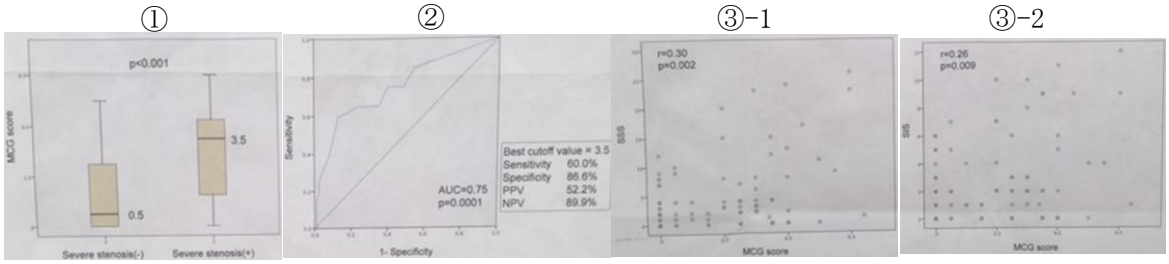
102 patients suspected CAD who are scheduled to have CTA(CCTA (Age66 ± 10.8, Male:70, Female:32) and compare Ca-score, Segment Stenosis Score(SSS), Segment Involvement Score(SIS)(*) with MCG. Excluded, severe calcification in CCTA, inappropriate low quality image for analysis, Impaired renal function (eGFR<30ml/min/1.73^2) and Contract allergy.

Result

① MCG scores in patients with or without severe stenosis are significantly different.(without stenosis:0.5, with stenosis:3.5, p<0.001)

②For ROC curve detecting severe stenosis, AUC＝0.75, Sensitivity:60.0%, Specificity:86.6%, PPV:52.2% and NPV:89.9%, Accuracy 81.4%.(Best cut off point is 3.5, p<0.0001)

③SSS and MCG, SIS and MCG are correlated.
(③-1 SSS：r=0.3、p=0.002、③-2 SIS：0.26、p=0.009)



Conclusion

MCG score is correlated to severe stenosis and likely indicates the presence of severe stenosis.

The study demonstrated MCG might provide a valuable contribution to the diagnosis of CAD in a non-invasive manner.

(*)Segment Stenosis Score (SSS): Scoring the severity of the plaque for 16 parts of coronary artery with the severity 0(no plaque), 1(mild), 2(moderate), or 3(severe). (n/48)
Segment Involvement Score (SIS): Scoring the existence of plaque for 16 parts of coronary artery irrespective of the severity of the plaque. (n/16)