# INTISARI

## HUBUNGAN ANTARA *CARDIO-ANKLE VASCULAR INDEX* DAN TINGKAT KEPARAHAN LESI KORONER PADA PASIEN INFARK MIOKARD AKUT YANG DILAKUKAN ANGIOGRAFI KORONER DI RSUP DR. SARDJITO YOGYAKARTA

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**Latar Belakang:** Infark miokard akut (IMA) merupakan salah satu klasifikasi dari Sindrom Koroner Akut (SKA) yang menyebabkan angka perawatan rumah sakit dan angka kematian yang tinggi di Indonesia. Sebagian besar IMA adalah manifestasi akut dari ruptur plak aterosklerosis pembuluh darah koroner, disertai dengan pelepasan zat vasoaktif sehingga terjadi vasokonstriksi, akibat perubahan komposisi plak dan penipisan selubung fibrosa. Aterosklerosis berkorelasi baik dengan kekakuan dinding arteri dan proses penebalan arteri koroner. Pengukuran derajat kekakuan arteri dengan menggunakan *Cardio-Ankle Vascular Index* (CAVI) telah diketahui mempunyai hubungan dengan tingkat keparahan proses aterosklerosis dan derajat plak (*plaque burden*) arteri koroner pada pasien penyakit jantung koroner (PJK). Pasien SKA yang mengalami iskemia miokard secara mendadak dan berat, memiliki CAVI yang lebih tinggi daripada pasien angina pektoris stabil (APS). Meskipun demikian, hubungan antara CAVI dan tingkat keparahan lesi koroner pada pasien IMA masih belum diketahui.
**Tujuan:** Penelitian ini bertujuan untuk mengetahui hubungan antara CAVI dan tingkat keparahan lesi koroner pada pasien IMA
**Metode:** Dua puluh tiga pasien IMA, yang telah dilakukan angiografi koroner dan memiliki nilai *ankle brachial index* $\geq$ 0,9, menjalani penelitian potong lintang. Pemeriksaan CAVI, menggunakan VaSera VS-1500, dilakukan dalam waktu 5 hari perawatan saat pasien dalam kondisi stabil. Tingkat keparahan lesi koroner dinilai menggunakan skor Gensini yang sudah tervalidasi dan banyak digunakan. Penilaian skor Gensini dilakukan oleh 2 orang spesialis jantung konsultan yang buta terhadap hasil pemeriksaan CAVI dan sudah dilakukan uji kesesuaian Bland-Altman. Hubungan antara nilai CAVI dan skor Gensini dianalisis menggunakan analisis korelasi dan regresi linear berganda.
**Hasil:** Rerata CAVI dan Gensini pada subjek penelitian ini yaitu 8,79 ± 1,326 dan 47,34 ± 36,298 secara berturut-turut. Korelasi Pearson menunjukkan adanya korelasi positif berkekuatan sedang yang bermakna antara CAVI dan skor Gensini ($r = 0,433$; $p = 0,020$). Penelitian dihentikan karena kondisi pandemi, sehingga *power* penelitian ini hanya sebesar 66,6%. Analisis regresi linear berganda menunjukkan bahwa usia, status hipertensi, ABI, CAVI, LDL, trigliserida, ataupun CRP tidak memiliki hubungan yang independen terhadap skor Gensini.
**Simpulan:** Terdapat hubungan korelasi positif berkekuatan sedang yang bermakna secara statistik dengan *power* penelitian sebesar 66,6% antara CAVI dan tingkat keparahan lesi koroner pada pasien IMA yang dilakukan angiografi koroner di RSUP Dr. Sardjito Yogyakarta.
**Kata Kunci:** *Cardio-Ankle Vascular Index*, keparahan lesi koroner, IMA

# ABSTRACT

## CORRELATION BETWEEN CARDIO-ANKLE VASCULAR INDEX AND CORONARY ARTERY LESION COMPLEXITY IN ACUTE MYOCARDIAL INFARCTION PATIENTS

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**Background:** Acute myocardial infarction (AMI) is one of the classifications of Acute Coronary Syndrome (ACS) which causes high hospital admissions and high mortality rates in Indonesia. Most of AMI patomechanism is acute manifestation of atherosclerotic plaque rupture of the coronary arteries, accompanied by the release of vasoactive substances resulting in vasoconstriction, due to changes in plaque composition and thinning of the fibrous cap. Atherosclerosis have a significant correlation with the stiffness of the arterial walls and the thickening of the coronary arteries. The degree of arterial stiffness, which is assessed by Cardio-Ankle Vascular Index (CAVI), has been found to have a significant correlation with the severity of the atherosclerosis process and the degree of coronary artery plaque burden in coronary artery disease (CAD) patients. ACS patients who have an abrupt and severe myocardial ischemia could have a higher CAVI than stable angina pectoris (SAP) patients. However, the correlation between CAVI and the severity of coronary lesions in AMI patients is not yet well established.

**Objectives :** To investigate the correlation between CAVI and the severity of coronary lesions in AMI patients

**Methods:** Twenty-three AMI patients, who had been performed corangiography and had an ankle brachial index ≥ 0.9, were enrolled in a cross sectional study. CAVI examination, using VaSera VS-1500 device, was performed within 5 days of treatment while the patient was in stable condition. Coronary lesion severity was assessed using Gensini score which has been validated and is most widely used. The assessment of the Gensini score was carried out by 2 consultant cardiologist who were blinded to the results of the CAVI examination and the Bland-Altman suitability test had been carried out. The relationship between the CAVI score and the Gensini score was analyzed using correlation analysis and multiple linear regression.

**Results:** The mean of CAVI and Gensini in the subjects of this study were 8.79 ± 1.326 and 47.34 ± 36.298, respectively. Pearson correlation shows that there was a significant positive correlation between CAVI and Gensini score ($r = 0.433$; $p = 0.020$). The study was stopped due to pandemic conditions, so the power of this study was only 66.6%. Multiple linear regression analysis showed that age, hypertension status, ABI, CAVI, LDL, triglycerides, or CRP did not have an independent relationship to the Gensini score.

**Conclusion:** There was a significant positive correlation between CAVI and the severity of coronary lesions in AMI patients undergoing coroangiography at RSUP Dr. Sardjito Yogyakarta with 66,6% power of test.

**Keywords:** Cardio-Ankle Vascular Index, coronary artery lesion severity, AMI