

Abstract

Several studies reported that cardio-ankle vascular index (CAVI), a non-invasive measurement of arterial stiffness, was associated with the incidence of cardiovascular events. We investigated whether adding CAVI to a risk score improves the prediction of cardiovascular events in the setting of primary prevention. This retrospective observational study included consecutive 554 outpatients with cardiovascular disease risk factors but without known cardiovascular disease (68 ± 9 years, 64% men). CAVI was measured with VaSera vascular screening system. Major adverse cardiovascular events (MACE) included cardiovascular death, myocardial infarction, stroke, hospitalization for heart failure and coronary revascularization. During a median follow-up of 4.3 years, cardiovascular events occurred in 65 patients (11.7%). Multivariate Cox analysis showed that abnormal CAVI (> 9.0) was significantly associated with the incidence of MACE (Hazard ratio 2.31, 95% confidence interval 1.27-4.18). The addition of CAVI to the Suita score, a conventional risk score of coronary heart disease in Japan, significantly improved the C statistics from 0.642 to 0.713 ($p = 0.04$). CAVI in addition to a conventional risk score improved prediction of cardiovascular events in patients with cardiovascular disease risk factors but without known cardiovascular diseases.