Abstract: P183

Arterial stiffness was inversely associated with left ventricular diastolic function in indigenous Papuan populations

Authors:
A Ishida, A Isotani, M Fujisawa, E Garcia Del Saz, K Okumiya, Y Kimura, I Manuaba, M Kareth, A Rantetampang, Y Ohya, K Matsubayashi, Graduate School of Medicine, University of the Ryukyus, Department of Cardiovascular Medicine, Nephrology and Neurology - Okinawa - Japan, Kokura Memorial Hospital, Department of Cardiology - Kitakyushu - Japan, Center for Southeast Asian Studies, Kyoto University - Kyoto - Japan, Center for International Collaboration, Kochi University - Kochi - Japan, Wamena General Hospital, Department of Neurology - Papua - Indonesia, Cenderawasih University - Papua - Indonesia,

Topic(s):
Diastolic Ventricular Dysfunction

Citation:
Background: Age-related increase in systolic pressure is known to be absent in indigenous Papuan populations, partially because of their life-long low-sodium and high-potassium diets.

Purpose: The aim of this study was to investigate the age-related change in left ventricular (LV) systolic and diastolic function and the relationship with arterial hemodynamics among the indigenous Papuan highland people.

Methods: Indices of arterial hemodynamics were measured using oscillometric brachial cuff-based sphygmomanometer (Mobil-O-Graph). Brachial-ankle pulse wave velocity (baPWV) was measured using a semiautomatic device (form ABI/baPWV). LV systolic and diastolic function was evaluated by 2-dimensional echocardiography and tissue-Doppler imaging using Vivid iq.

Results: A total of 81 native Papuans (median age 42 years, 47% women) were enrolled in this study. None of the subjects took any medicines, particularly antihypertensive drugs. All participants presented in sinus rhythm. With ageing, LV mass index remained unchanged, and LV ejection fraction increased, but mildly reduced (40–50%) in 3 participants. Transmural E-wave velocity slightly decrease but the change was not significant. Transmural A-wave velocity markedly increased (?=0.60, P<0.001) and E/A ratio decreased with age (? =0.52, P<0.001). Age-related change of E-wave deceleration time was not significant. Septal e’ (?=0.60, P<0.001) and lateral e’ decreased (?=0.53, P<0.001) and average E/e’ increased with age (?=0.44, P<0.001). Left atrial volume index did not change significantly with age. In multivariate regression analysis, baPWV was independently associated with E/e’ ratio both before and after adjustment for age, sex, body mass index, mean arterial pressure, and heart rate; however, indices of wave reflection including augmentation index and reflection magnitude were not associated with E/e’. Only age and heart rate were inversely associated with E/A ratio.

Conclusion: LV systolic function was preserved in indigenous Papuan populations; however, LV diastolic function decreased with ageing. Age-related arterial stiffening, not wave reflection, was inversely related to LV diastolic function.