Association of 24-hour Urine Sodium and Cardio-ankle Vascular Index (CAVI) in 5 Years Follow-up

Panuchai Bamrungwong¹ Prin Vathesathogkit²

¹Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok 10400, Thailand, ²Division of cardiology, Department of Medicine, Faculty of Medicine Ramathibodi Hospital, Mahidol University, Bangkok 10400, Thailand

Background: Cardiovascular disease is a major burden in public health of Thailand. High salt intake that associated with hypertension is one of the important risk factors for cardiovascular disease. Arterial stiffness, cardio-ankle vascular index (CAVI) can reflect distensibility of arteries and risk of cardiovascular events. The study between 24-hour urine sodium, reflecting salt intake and cardio-ankle vascular index (CAVI) should be conducted.

Objective: To evaluate the association of sodium intake with Cardio-Ankle Vascular Index (CAVI)

Methods: The study was designed as a retrospective cohort in 177 subjects from a population-based cohort study; The Electricity Generating Authority of Thailand Study (EGAT) from 2008 to 2013. Salt intake was assessed at baseline using 24-hour urine sodium, and cardio-ankle vascular index (CAVI) was measured at baseline in 2008 and follow-up in 2013. The participants were divided into three groups based on 24-hour urine sodium: Group A, low urinary sodium excretion (<100 mmol/24h), Group B, medium urinary sodium excretion (100-199 mmol/24h), and Group C, high urinary sodium excretion (≥200 mmol/24h).

Results: The 24-hour urine sodium excretion levels in Group A, B, and C were 76.16 ± 18.73 mmol/24h, 148.74 ± 26.02 mmol/24h, and 257.38 ± 63.36 mmol/24h, respectively. The baseline CAVI in 2018 in Group A, B, and C were 8.16 ± 0.79, 7.70 ± 0.75, and 7.75 ± 0.90 (P-value = 0.476). The percentage change of CAVI in Group A, B, and C were -2.18 ± 11.53, 4.34 ± 12.19, and 2.96 ± 12.00 (P-value = 0.083).

Conclusion: This preliminary study shows no significant association of 24-hour urine sodium excretion and CAVI at baseline in 2008 and percentage change of CAVI.

Keywords: Salt intake, 24 hour urine sodium, Cardio-ankle vascular index, CAVI