Prevalence of Arterial Stiffness Evaluating By Cardio-ankle Vascular Index (CAVI) in Thai Rheumatoid Arthritis Patients Comparing with Sex-matched Controls

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Background: Rheumatoid arthritis (RA) is an autoimmune disease related to cardiovascular disease which causes early death. Previous studies proposed that RA is associated with subclinical atherosclerosis evaluated by several measurements (e.g., carotid artery intima-media thickness, ankle-brachial index). The results demonstrate a significantly increased risk of atherosclerosis in RA patients compared with control groups.

Objective: To find the prevalence of arterial stiffness evaluated by abnormal cardio-ankle vascular index (CAVI) in Thai RA patients compared with sex-matched controls, and to determine the correlation between abnormal CAVI and malondialdehyde level along with other factors affecting abnormal CAVI.

Methods: A cross-sectional study was performed in 48 RA patients and 51 sex-matched controls. The CAVI was measured and classified as normal (CAVI <8), borderline (CAVI 8-9), and abnormal (CAVI >9). Other traditional risk factors or factors that could affect CAVI including age, blood pressure, fasting blood sugar, lipid profile, medication, duration of disease, and disease activity were also measured.

Results: Prevalences of arterial stiffness evaluated by abnormal CAVI (>9) in Thai RA and in sex-matched controls were 18.8% and 17.6%, respectively. There was no correlation between CAVI and malondialdehyde level. Age and mild disease activity were significantly related to high CAVI (p=0.001 and p=0.031, respectively). Likewise, age, dyslipidemia and medication-adjusted logistic regression model demonstrated a significantly higher CAVI in RA than controls in the borderline group (p=0.045), but not in the abnormal group (p=0.188). Prevalences of CAVI in the borderline and the abnormal groups (>8) were 60.5% and 35.2% in the RA and the control groups, respectively.

Conclusion: There is a significantly higher CAVI in RA than controls in the borderline group, but not in the abnormal group. Factors significantly affecting abnormal CAVI were age and low disease activity. Early detection of subclinical atherosclerosis in RA patients can be a primary prevention for further cardiovascular complications.

Keywords: Rheumatoid arthritis, Atherosclerosis, Cardio-ankle vascular index, Arterial stiffness