The Relationship between High Sensitivity C-reactive Protein and ABI and CAVI in EGAT Study: Result after 5-Year Follow Up

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Background: Cardiovascular disease remains the leading cause of death. Recent studies show inflammatory process which plays the key role in atherosclerotic process. There are evidences to show that hsCRP levels are predictive factors of vascular events and could be considered as risk assessment for atherosclerosis.

Objective: This study aimed to define the relationship between high sensitivity C-reactive protein and arterial stiffness measured by ABI (Ankle-brachial index) and CAVI (Cardio-ankle vascular index) after 5-year follow up among the population in EGAT study.

Methods: This study was a retrospective cohort study, including 638 participants from EGAT study originally recruited from EGAT (Electricity Generating Authority of Thailand) employees in 2002 and 2007. Baseline characteristics and physical examinations were recorded. Serum hsCRP was measured in 2002 and was categorized as low (<3mg/L) and high (3-9.9 mg/L). Arterial stiffness was assessed by ABI in 2002 and 2007 and by CAVI (Vasera-1000, Fukuda Denshi, Japan) in 2007. The relationship of serum hsCRP with ABI was measured in 2007 and 2007. CAVI measured in 2007 was also analyzed.

Results: The study consisted of 638 participants (474 male, 164 female), with mean age of 59.26±4.769 years and 63.00±4.794 years in 2002 and 2007, respectively. The serum hsCRP was 1.93±1.85 mg/L. The mean CAVI in 2007 was 8.69±1.29. The mean ABI was significant decreased from 1.10±0.08 in 2002 to 1.07±0.09 in 2007 with p <0.001, 95% CI 0.02-0.04. There was no significant association between hsCRP and ABI in 2002 and CAVI in 2007. The study showed a significant correlation between hsCRP and ABI in 2007 with p=0.001.

Conclusion: Serum hsCRP is significantly associated with reduction of ABI after 5-year follow up which could be the predictor of cardiovascular disease.

Keywords: Cardio-ankle vascular index, Ankle-brachial index, C-reactive protein, Atherosclerosis, Cardiovascular disease