VASCULAR DISEASE

ANGIOGENESIS AND THE PROGRESSION OF SUBCLINICAL ATHEROSCLEROSIS: A 24-MONTH FOLLOW-UP STUDY

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Background: Progression of atherosclerosis is a complex process and can be modulated by angiogenesis. However, the role of soluble fms-like tyrosine kinase 1 (sFlt-1), a soluble form of vascular endothelial growth factor (VEGF) receptor, in atherosclerosis has not been completely understood. We performed this study to evaluate the relation of plasma VEGF and sFlt-1 levels to the progression of subclinical atherosclerosis.

Methods: We consecutively enrolled 130 patients (males: 64, mean age: 60 yrs) with hypertension under control. At the time of enrollment, blood was sampled for the measurement of VEGF and sFlt-1 levels. Mean carotid intima-media thickness (CIMT) of right and left common carotid arteries were assessed at the enrollment and 24 months later. Clinical and biomarker determinants for the progression of CIMT were analyzed by multiple linear regression.

Results: One hundred and thirteen patients (87%) completed the study. The mean change of CIMT during 24 months was 0.03 mm (from 0.67 ± 0.09 mm to 0.70 ± 0.10 mm). Patients' age, HOMA index, and log-sFlt-1 levels were significantly associated with the change of CIMT in univariate analyses. After adjusting of confounding variables, log-sFlt-1 (beta=0.282, p=0.01) and HOMA index (beta=0.001, p=0.04) were identified as independent predictors for the progression of CIMT.

Conclusions: Higher sFlt-1 levels were significantly associated with the progression of CIMT independent of other risk factors. Although further study is needed to clarify clinical implications of these findings, our results indicate that elevation of sFlt-1 is potentially related to the progression of atherosclerosis.