USEFULNESS OF SOLUBLE FMS-LIKE TYROSINE KINASE 1 AS A BIOMARKER OF ACUTE AND CHRONIC PHASE OF CORONARY ARTERY DISEASE

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Background: Fms-like tyrosine kinase 1 (Flt-1) is a specific receptor for vascular endothelial growth factor (VEGF) family cytokines, those enhance angiogenesis and play an important role in both development of coronary artery disease (CAD) and healing process after acute myocardial infarction (AMI). We wished to elucidate the clinical significance of plasma soluble form of Flt-1 (sFlt-1), an endogenous antagonist against VEGF family cytokines, in CAD.

Methods: In the present study, we enrolled total 503 patients with CAD (329 patients with stable CAD and 174 patients with AMI), and measured plasma levels of VEGF family cytokines and sFlt-1.

Results: In patients with stable CAD, sFlt-1 level was negatively and the PlGF/sFlt-1 ratio was positively with the number of stenosed coronary arteries, suggesting the protective role of sFlt-1 against the chronic development of coronary atherosclerosis. Furthermore, sFlt-1 level was significantly decreased with the progression of renal dysfunction, which is an independent and powerful risk for CAD. By contrast, in patients with AMI, sFlt-1 level on admission was significantly elevated compared with controls (528.1±290.9 vs. 355.7±205.0 pg/ml, P<0.001). sFlt-1 level was significantly higher in patients who developed acute severe heart failure compared to those with stable hemodynamics (611.4±373.6 vs.494.6±243.9 pg/ml, P=0.016), and multivariate logistic analysis showed that hemodynamic instability was predicted by sFlt-1 on admission. Moreover, Flt-1 was positively related to the duration of hospitalization.

Conclusion: Measuring plasma levels of sFlt-1 would give us a divergent but an important information about the anatomical severity of CAD as well as the prognosis of patients after AMI.