Imaging Biomarkers of Atherosclerosis in Stroke Patients are Associated with Fibrinogen and Fibrinogen $\gamma'$: The Plaque At RISK Study (PARISK).

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Introduction: The coagulation factors Von Willebrand Factor (VWF), ADAMTS13, fibrinogen and fibrinogen $\gamma'$ are associated with an increased risk of ischemic stroke. One hypothesis of the underlying mechanism of this association is an effect of atherosclerosis on the synthesis of these coagulation factors. Currently, novel imaging techniques of the atherosclerotic plaque are available to study this association in more detail.

Material & Methods: In 182 patients of the PARISK-study (prospective multicenter cohort study) with a recent transient ischemic attack (TIA) or ischemic stroke and a symptomatic mild-to-moderate carotid artery stenosis (Plaque-At-RISK; clinicaltrials.gov NCT01208025), we measured VWF antigen (VWF:Ag), ADAMTS13 activity, fibrinogen (Clauss), and fibrinogen $\gamma'$. Imaging biomarkers of carotid atherosclerosis were determined by Multidetector-Row Computed Tomography (MDCTA, n=160) and Magnetic Resonance Imaging (MRI, n=172). In this cross-sectional analysis, we used linear regression analysis to assess the association between imaging biomarkers and the coagulation factors.

Results: None of the imaging biomarkers were significantly associated with VWF:Ag or ADAMTS13 plasma levels. Mean fibrinogen and fibrinogen $\gamma'$ were respectively 3.68 g/L (± 1.02 g/L) and 0.36 g/L (± 0.14 g/L). We found an inverse association between intraplaque hemorrhage (IPH) volume and fibrinogen and fibrinogen $\gamma'$ (B= -0.28 g/L/mm$^3$, p=0.01 and B= -0.04 g/L/mm$^3$, p=0.01, respectively). Additional adjustment for C-reactive protein (CRP) and degree of stenosis (according to the European Carotid Surgery Trial (ECST) criteria) did not change the results.

Conclusions: Fibrinogen and fibrinogen $\gamma'$ are inversely associated with IPH volume, independent of degree of stenosis and inflammation.

Hereby I would like to apply for the ‘Outstanding Abstract Award’.

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