

The role of novel biomarkers of inflammation in arterial stiffness, and in predicting further vascular events after TIA and lacunar stroke

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Objective: To explore the role of biomarkers (hsCRP, sRANKL, PRDX1 and EPO) in arterial stiffness and in predicting further vascular events.

Methods: Patients from the ongoing ASIST study each attended a laboratory visit within fourteen days of their diagnosed TIA or lacunar stroke. Arterial stiffness was calculated using cfPWV (carotid-femoral pulse wave velocity) measured with Complior ®Artech, France, and with the CAVI ®Fukuda, Japan (cardio-ankle vascular index) method. Blood samples were taken for ELISA assays. Analysis was completed with SPSS software.

Results: Forty patients were evaluated in this preliminary project (29 male/11 female, mean age 70.7 ± 11.99), with four experiencing a further event during the six month follow up (10%).

All biomarkers and both measurements for arterial stiffness had a higher mean value in patients with a further event (hsCRP 3.89 vs 1.42 ug/ml, P=0.08; EPO 9.06 vs 9.01 mU/ml, P=0.85; sRANKL 0.05 vs 0.03 pmol/L, P=0.31; PRDX1 6.27 vs 6.21 ng/ml, P=0.95; CAVI 11.13 vs 9.69, P=0.15; cfPWV 10.82 vs 10.2 m/s, P=0.55), however none were statistically significant.

Levels of PRDX1 were elevated acutely post-event before falling significantly (R=-0.475, P=0.002), while hsCRP and EPO continued to be elevated at >10 days post-event.

In addition, CAVI correlated closely with hsCRP (R=0.28, P=0.09) and EPO (R=0.29, P=0.08), but cfPWV was not closely related to any of the biomarkers.

Conclusions: This preliminary data suggests that biomarkers, particularly EPO and hsCRP, are more closely related to CAVI than cfPWV. hsCRP was the most relevant as an independent predictive factor for further vascular events.