

Publication

Associations of Novel and Traditional Vascular Biomarkers of Arterial Stiffness: Results of the SAPALDIA 3 Cohort Study

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)**ID** 3642698**Author(s)** Endes, Simon; Caviezel, Seraina; Schaffner, Emmanuel; Dratva, Julia; Schindler, Christian; Künzli, Nino; Bachler, Martin; Wassertheurer, Siegfried; Probst-Hensch, Nicole; Schmidt-Trucksäss, Arno**Author(s) at UniBasel** [Caviezel, Seraina](#) ; [Schaffner, Emmanuel](#) ; [Dratva, Julia](#) ; [Schindler, Christian](#) ; [Künzli, Nino](#) ; [Probst Hensch, Nicole](#) ;**Year** 2016**Title** Associations of Novel and Traditional Vascular Biomarkers of Arterial Stiffness: Results of the SAPALDIA 3 Cohort Study**Journal** PLoS ONE**Volume** 11**Number** 9**Pages / Article-Number** e0163844

There is a lack of evidence concerning associations between novel parameters of arterial stiffness as cardiovascular risk markers and traditional structural and functional vascular biomarkers in a population-based Caucasian cohort. We examined these associations in the second follow-up of the Swiss Cohort Study on Air Pollution and Lung and Heart Diseases in Adults (SAPALDIA 3).; Arterial stiffness was measured oscillometrically by pulse wave analysis to derive the cardio-ankle vascular index (CAVI), brachial-ankle (baPWV) and aortic pulse wave velocity (aPWV), and amplitude of the forward and backward wave. Carotid ultrasonography was used to measure carotid intima-media thickness (cIMT) and carotid lumen diameter (LD), and to derive a distensibility coefficient (DC). We used multivariable linear regression models adjusted for several potential confounders for 2,733 people aged 50-81 years.; CAVI, aPWV and the amplitude of the forward and backward wave were significant predictors of cIMT ($p < 0.001$). All parameters were significantly associated with LD ($p < 0.001$), with aPWV and the amplitude of the forward wave explaining the highest proportion of variance (2%). Only CAVI and baPWV were significant predictors of DC ($p < 0.001$), explaining more than 0.3% of the DC variance.; We demonstrated that novel non-invasive oscillometric arterial stiffness parameters are differentially associated with specific established structural and functional local stiffness parameters. Longitudinal studies are needed to follow-up on these cross-sectional findings and to evaluate their relevance for clinical phenotypes.

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