



4.3 Aortic Pulse Wave Velocity Measured by Occlusive, Suprasystolic, Oscillometric Method (Arteriograph) Independently Predicts all Cause Mortality

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ABSTRACT

Introduction: It has been long debated whether Arteriograph predicts cardiovascular events and/or all cause mortality, despite that its prognostic value has been proven in systolic heart failure and in myocardial infarction already. However, no data were available about the prognostic value of this method in general population.

Materials and Methods: Altogether 4146 subjects in the age range of 35–75 years (mean age 53.2 ± 9.2 years, male/female 2042/2104, SBP/DBP $136.5/82.1 \pm 20.1/11.3$ mmHg, treated hypertension 47.6%, treated diabetes 8.5%, total se-cholesterol 5.2 mmol/l) were measured in multiple centers in Hungary. Subjects visited the outpatient centers on their own initiative. Information on registered hospitalization events, mortality and medical treatment was provided by the Hungarian National Health Insurance Fund (HNHIF). For privacy protection reasons the data were managed and analyzed by the HNHIF. The PWVao measurements were performed by an invasively validated occlusive, suprasystolic, oscillometric method (Arteriograph).

Results: The mean follow-up was 5.5 years. 116 all-cause mortality events were observed. By univariate analysis 1 m/s increase in PWVao resulted HR: 1.71 (1.47–1.98; 95% CI). In multivariate Cox analysis Aortic PWV independently predicted ($p = 0.002$) the all-cause mortality in the final model of multivariate analysis (1.34 [1.12–1.62]) adjusted for age, gender, mean arterial pressure, pulse pressure, ejection duration and antiplatelet drug treatment. Body mass index, smoking, heart rate, blood pressure, augmentation index, diabetes, and cardiovascular drug therapy were all accounted for.

Conclusion: The PWVao, measured by an easy-of-use, user independent, oscillometric method in a large population, proved to be a strong, independent predictor of all-cause mortality.

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