

## Publication

## Diurnal variation of arterial stiffness in healthy individuals of different ages and patients with heart disease

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Arterial stiffness can be measured using various non-invasive methods. It is not well established whether it is necessary to standardize the time of the day when performing these measurements. The aim of the present study is to examine the effect of daytime on arterial stiffness in individuals with and without heart disease.; We investigated the diurnal variation of cardio-ankle vascular index (CAVI) and carotid femoral pulse wave velocity (cfPWV). CAVI and cfPWV were measured in 70 participants (23 healthy young individuals [HY], 22 healthy elderly individuals [HE], 25 patients with heart disease [HD]) at 09:00, 13:00 and 17:00 h.; There was a significant diurnal variation in CAVI with the highest values at 09:00 h in both univariate and multivariate analysis. After adjusting for age, sex and MAP (mean arterial pressure), CAVI maintained a significant highest values at 09:00 h, which was 4% higher than at 13:00 h ( $p = 0.022$ ) and 5% higher than at 17:00 h ( $p = 0.002$ ). However, a lack of diurnal variation was found in cfPWV in multivariate analysis in our study population.; Our findings suggest that it does not appear mandatory to measure cfPWV at the same time of day. However, standardizing the time of day for CAVI is important in routine clinical practice and longitudinal studies.

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