ABSTRACT

**Objectives:** To determine how orthostatic changes in body position alter BP and estimation of pulse wave velocity (PWV) and Augmentation Index (AIx), when changing from supine to the sitting position [1]. Also, to analyze the effect of a short physical exercise and of physical training status on PWV/AIx in supine and sitting position.

**Methods:** Cross-sectional, observational study in 63 voluntary healthy students. Age, height, weight, waist and smoking habits were assessed. We estimated peripheral and central BP, AIx and PWV (brachial oscillometry, AGEDIO, IEM®, Stollberg) after 5 minutes in supine position (SUP), then after 30 minutes in sitting (SIT) and again in sitting position after 25 squats in 30 minutes (EXE). A validated questionnaire (Vital sign, https://www.seh-lelha.org/wp-content/uploads/2017/03/GuiaEjercicioRCV.pdf) was implemented to assess chronic physical condition (CPC).

**Results:** 52.4% were women, mean age was 23.2 years. Systolic, diastolic and median BP rose from 115/67/89 (SUP) to 118/72/93 (SIT) and to 122/67/93 (EXE) mmHg (*p* < 0.001 for all comparisons to SUP), PWV was 4.9 (SUP), 4.9 (SIT) and 5.0 (EXE) m/s, with no significant difference. Variables associated with PWV were central BP (*p* < 0.001), age (*p* < 0.001), gender (*p* < 0.001) and AIx (*p* = 0.04), but not CPC. Predictors of AIx were heart rate (*p* = 0.003), BMI (*p* = 0.03) and CPC (*p* = 0.03). The latter became more significant in the transition from SUP over SIT to EXE (*R*² of multivariate analysis 0.23, 0.55 and 0.68, respectively).

**Conclusions:** Although peripheral BP significantly changed from supine, sitting and post-exercise sitting, PWV remained constant. Chronic physical condition did not affect PWV, but was associated with wave reflection.

REFERENCE


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