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° in supine position (SUP), then after 30° in sitting (SIT) and again in sitting position after 25 squats in 30° (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 (R² 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**


© 2020 Association for Research into Arterial Structure and Physiology. Publishing services by Atlantis Press International B.V. This is an open access article distributed under the CC BY-NC 4.0 license (http://creativecommons.org/licenses/by-nc/4.0/).