

Pulse pressure amplification as a predictor of cardiovascular risk in shift workers: an analysis based on PARTAGE

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Background/Introduction: Shift workers are known to have a higher risk of cardiovascular diseases, however there is no precise description of the etiology of these problems. One of the hypotheses refers to the increase in blood pressure due to desynchronization of biological rhythms, in view of work activity, at a time when biologically they should be at rest, which deregulates the endogenous mechanisms of pressure control and vascular elasticity. The Predictive Values of Blood Pressure and Arterial Stiffness in Institutionalized Very Aged Population (PARTAGE) study aimed to evaluate the value of blood pressure and pulse pressure amplification as a predictor of cardiovascular risk. According to the study, when pulse pressure amplification was greater than 10% in the elderly population there was an association with a higher risk of mortality and cardiovascular outcomes.

Purpose: To evaluate whether in shift workers exposed to night work there is an early increase in pulse pressure amplification, as a predictor of cardiovascular risk.

Methods: It was a quantitative, prospective and cross-sectional study. The participants visited collection of sociodemographic data, health conditions, lifestyle habits, work schedules using validated questionnaires and measurements of peripheral blood pressure (PBP) and central blood pressure (CBP), using the Arteris AOP® equipment. Pulse pressure amplification (PPA) was obtained using the following formula: $PPA = 100 \times (PBP - CBP) / CBP$, values are expressed as a percentage.

Results: 83 participants were included, with a mean age of 44.4 years, of which 76 (91.6%) were female and 7 (8.4%) were male, only 31 (37.3%) practiced physical activity, 81 (97.6%) were not smokers and 40 (48.2%) were not alcoholics. The average blood pressure values were: PBP 112x80mmHg, CBP 105x81mmHg and PPA was an average of 6.81%. In the univariate regression analysis, no associations were observed between PPA and night work ($\beta = 0.35$; $p = 0.192$) considering adjustments for sex and age, factors that directly influence the central parameters. However, analyzing individually, a total of 7 (8.43%) of shift workers had PPA above the value considered risk for cardiovascular outcomes. Conclusion(s): In the studied population there was no association between PPA and night work, but in some individuals the PPA values were already above the recommended level, that is, they had cardiovascular risk, indicating the need for further studies.