Abstract

Introduction: The relationship between diastolic dysfunction and P-wave dispersion (PWD) in the electrocardiogram has been studied for some time. In this regard, echocardiography is emerging as a diagnostic tool to improve risk stratification for mild hypertension. Objective: To determine the dependence of PWD on the electrocardiogram and on echocardiographic variables in a pediatric population. Methods: Five hundred and fifteen children from three elementary schools were studied from a total of 565 children. Those whose parents did not want them to take part in the study, as well as those with known congenital diseases, were excluded. Tests including 12-lead surface ECGs and 4 blood pressure (BP) measurements were performed. Maximum and minimum P-values were measured, and the PWD on the electrocardiogram was calculated. Echocardiography for structural measurements and the pulsed Doppler of mitral flow were also performed. Results: A significant correlation in statistical variables was found between PWD and mean BP for prehypertensive and hypertensive children, i.e., r = 0.32, p < 0.01 and r = 0.33, p < 0.01, respectively. There was a significant correlation found between PWD and the left atrial area (r = 0.45 and p < 0.01). Conclusions: We highlight the dependency between PWD, the electrocardiogram and mean blood pressure. We also draw attention to the dependence of PWD on the left atrial area. This result provides an explanation for earlier changes in atrial electrophysiological and hemodynamic characteristics in pediatric patients.

Keywords

P-wave dispersion, mitral A-wave duration, prehypertension, blood hypertension