

Increases Atherosclerosis and Cardiovascular risk in in Prematurely Born School Children

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Introduction: Bronchopulmonary dysplasia (BPD) is an important complication of prematurity and has long-term pulmonary consequences. Cardiovascular sequelae related to BPD have also been reported in severe BPD patients of the presurfactant era. The aim of this study is to investigate cardiovascular risk of BPD at school ages and to find out possible risk factors related to cardiovascular sequelae especially atherosclerosis

Methods: In our study totally 43 children (21F/22M: 23 aged 104 ± 7.4 months born preterm with BPD, 20 aged 112 ± 8.2 months born preterm without BPD and 21 healthy children aged 100 ± 16 months born at term (control group) were evaluated lipid profile and specifically echocardiographic methods (MPI, carotid artery intima media thickness - CIMT, brachial artery flow-mediated vasodilatation - FMD%). And also Left (LV) and Right ventricular (RV) strain and strain rate were assessed by speckle-tracking echocardiography. Echocardiographic examination was performed using a Vivid 9 ultrasound machine, and LV and RV myocardial strain were analyzed offline using Echo PAC software.

Results: CIMT values were also significantly higher in the patients compared to the controls ($P = 0.001$) and flow-mediated dilatation values were significantly lower ($P = 0.001$) in BPD patients. These patients had a decreased pulmonary artery acceleration time and higher left and right ventricular myocardial performance indexes in school ages. Longitudinal and circumferential strains were abnormal in premature with BPD group even in the presence of normal RV and LVEF.

Conclusions: Subclinical cardiovascular dysfunction and risk in children with BPD persists at school age. Negative effects of BPD on global cardiac performances of ventricles, atherosclerosis and pulmonary arterial pressure persist up to school ages.