274

AORTIC GROWTH ARREST AFTER PRETERM BIRTH- A LASTING STRUCTURAL CHANGE OF THE VASCULAR TREE

U. Schubert

Karolinska Institute, Stockholm, Sweden

Purpose: Young people born preterm exhibit a narrower arterial tree as compared to people born at term. We hypothesized that such arterial narrowing occurs as a direct result of premature birth. The aim of the present study was to compare aortic and carotid artery growth in infants born preterm and at term.

Methods and results: Observational and longitudinal cohort study of 50 infants (21 born very preterm, all appropriate for gestational age, 29 controls born at term). Diameters of the upper abdominal aorta and common carotid artery were measured with ultrasonography at three months before term, at term and three months after term equivalent age.

At the first assessment, the aortic end-diastolic diameter (EDD) was slightly larger in preterm infants as compared to fetal dimensions. Fetal aortic EDD increased by 2.6 mm during the third trimester, whereas preterm infants exhibited 0.9 mm increase in aortic EDD during the same developmental period ($p < 0.001$ for group difference). During the following three-month period, aortic growth continued unchanged (+0.9 mm) in preterm infants, while postnatal growth in term controls slowed down to +1.3 mm ($p < 0.001$ vs fetal aortic growth). At the final examination, aortic EDD was 22% and carotid artery EDD 14% narrower in infants born preterm compared to controls, also after adjusting for current weight ($p < 0.01$).

Conclusions: Aortic and carotid artery growth is impaired after preterm birth, resulting in arterial narrowing. Arterial growth failure may be a generalized vascular phenomenon after preterm birth, with implications for cardiovascular morbidity in later life.