Arterial stiffness evaluated by cardio-ankle vascular index (CAVI) in healthy Slovak children

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Purpose: Recently, the cardio-ankle vascular index (CAVI) is considered as a novel noninvasive index of the arterial stiffness from the beginning of the aorta to the ankle. CAVI represents an important marker of early atherosclerotic changes that is significant for a consequent evaluation of the atherosclerosis severity. We aimed to determine the CAVI values in the group of healthy children and adolescents necessary for a comparison with CAVI values in pathological states. Moreover, the second aim was to assess the age and gender influence on the CAVI in healthy children and adolescents.

Methods: We examined 520 healthy Slovak children at the age from 7 to 19 years (260 boys) without clinically observed cardiovascular risk factors. CAVI values were evaluated using the system VaSera 1500 (Japan).

Results: The CAVI normal values are presented in graphical forms for total group, and separately for boys and girls. In healthy children, the CAVI increased linearly with age from 7 to 19 years. Gender analysis did not show significantly differences between boys and girls at this age-period. Additionally, CAVI values were independent on the blood pressure measurement at the same time.

Conclusion: Our study firstly presented the CAVI normal values for Slovak population of children and adolescents at the age from 7 to 19 years. Importantly, the CAVI was dependent on the age during this developmental period. Concluding, our CAVI values can be used for detection of the early atherosclerotic changes in children with essential hypertension.