Homocysteine Level in Children with Classic Congenital Adrenal Hyperplasia: Relationship to Carotid Intimal Wall Thickness and Left Ventricular Function

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Abstract:

Background/Aims: Homocysteine is an important and independent risk factor for atherosclerotic diseases. The aim of this study was to evaluate serum levels of homocysteine in children with congenital adrenal hyperplasia (CAH) and their relation to carotid artery intima-media thickness (CA-IMT) and left ventricular (LV) function. Methods: This study included 36 children with classic CAH and 36 healthy children. All underwent anthropometric evaluation. Measurement of serum levels of total homocysteine was carried out. The LV mass (LVM) and function were assessed using conventional echocardiography. Duplex ultrasonography was used to measure CA-IMT. Results: Compared to the controls, the patients had higher homocysteine levels (p = 0.001), a thicker CA-IMT (p = 0.01), a higher LVM index (LVMI) (p = 0.001), and a prolonged mitral deceleration time (DcT) (p = 0.01). Abnormalities were marked in children who were uncontrolled on medical treatment. In multivariate analysis, homocysteine levels were significantly correlated with systolic (OR = 2.2; 95% CI: 1.10–1.18; p = 0.01) and diastolic blood pressures (OR = 2.9; 95% CI: 1.45–2.4; p = 0.01), atherogenic index (OR = 2.6; 95% CI: 1.33–2.89; p = 0.01), HOMA-IR (OR = 1.3; 95% CI: 1.04–1.34; p = 0.001), LVMI (OR = 2.6; 95% CI: 1.1–1.13; p = 0.001), mitral DcT (OR = 2.4; 95% CI: 1.15–2.05; p = 0.01), and CA-IMT (OR = 1.6; 95% CI: 1.16–1.57; p = 0.01). Conclusions: Serum total homocysteine was elevated in children with classic CAH, particularly in those with poor control on medical treatment, and it was correlated with CA-IMT, LVMI, and mitral DcT. Measurement of homocysteine in children with CAH may help to identify those at high risk of developing LV dysfunction and subclinical atherosclerosis.

Keywords:

Homocysteine · Congenital adrenal hyperplasia · Intima-media thickness · Left ventricular function

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