Markers of endothelial dysfunction in Children with mild persistent asthma

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The aim of the study is to determine endothelial function in patients with mild persistent asthma during periods of exacerbation and remission.
Methods: 43 children aged 6 to 17 years with BA in exacerbation (1st group) and remission (2nd group) were examined. Seventeen healthy children composed the control group. Ultrasound assessment of endotheliumdependent dilatation of the brachial artery with evaluation of its diameter increase (FMD%) (D.S. Celermajer et al., 1992) was carried out. The serum levels of S-nitrosothiol were determined spectrophotometrically. Statistical analysis was performed with StatSoft STATISTICAVersion 8 (Tulsa, OK). Non-parametric variables are expressed as median (interquartile range). The current clinical data study was approved by the Medical Ethics Committee of the Kharkiv National Medical University and conducted in accordance with the guidelines of the Declaration of Helsinki. All participants and their parents gave written informed consent.
Results: The indices of FMD% were significantly diminished in patients of the 1st and 2nd groups, compared with control: 8.42 (6.95; 15.00)% and 9.73 (8.42; 15.33)% respectively compared with 19.35 (17.00; 21.00)%, p<0,001). A significant FMD% increase in remission compared to the period of exacerbation (p1-2¼0.0000; T¼0) was revealed, but remained below the normative values (pc-2¼0.0000). Serum S-nitrosothiol levels were significantly decreased in patients of the 1st and 2rd groups, compared with control: 0.21 (0.17; 0.26) and 0.27 (0.23; 0.33) mmol/l respectively compared with 0.33 (0.28; 0.37) mmol/l, p<0.001). This index increased in the period of remission compared with the period of exacerbation (p1-2¼0.0000, T¼0), but remained significantly lower than in children of the control group (pc-2¼0.0036).
Relationship between FMD% and S-nitrosothiol in children with mild persistent asthma and disease duration was not revealed.
Conclusions: Presence of endothelial dysfunction in children with mild persistent bronchial asthma was determined both in the period of exacerbation and remission. It was demonstrated that these indices increase in dynamics although their values remain nevertheless lower than the norm. Results testify to the long term pathological process which leads to sustained alterations of vessel walls without regard to duration of the illness.