Dyslipidemia as an atherogenic factor in patients with different forms of juvenile arthritis

Anna Krasnopolskaya, Larisa Balykova, Nataliya Shekina, Yurii Soldatov, Svetlana Pomerantceva

Medicine Institute, National Research Ogarev Mordovia State University, Saransk, Russian Federation

Objective. Close connection between autoimmune inflammation and proatherogenic lipid changes in rheumatoid arthritis has been well established, while for juvenile idiopathic arthritis (JIA) is under discussion. The aim of our work was to study the incidence and intensity of lipid disturbances in patients with different forms of JIA.

Methods. 90 children with JIA 6–18 years were examined using clinical, biochemical methods, ultrasonic duplex scanning of vessels, thin-layer chromatography, bioimpedance measurement. 49 children without chronic diseases made up the control group.

Results. Dyslipidemia was revealed in 48.9% of patients, mainly with systemic and polyarthritis Most often an increase in atherogenic coefficient (AC) was noted. Average AC value in JIA patients was higher than in control group (2.9 + 0.2 versus 2.0 + 0.1, $p < 0.05$) and correlated with the disease activity index according to JADAS71 ($r = 0.78$), a doctor's global assessment of the disease severity according to VAS ($r = 0.61$), the degree of joints dysfunction ($r = 0.55$), C-reactive protein ($r = 0.53$) and ESR ($r = 0.68$) level. An increase in the concentration of total cholesterol was observed in 28 (31.1%) children with JIA, commonly with a long-lasting disease, and in case of CS intake. In some JIA patients atherogenic changes were detected due to apolipoprotein A1 (ApoA1) deficiency (26.7%). Patients with JIA (maximum with polyarthritis) showed a decrease in the content of the main fractions of polar phospholipids and an increase in the phospholipid lysoforms and free fatty acids by 8.9% 21.4% and 9% compared with the control group. This leads to an increase erythrocyte membranes microviscosity. Dyslipidemia was combined with body composition changes. In this patients IMCT was higher than in control group (0.73 + 0.03 versus 0.45 + 0.02, $p < 0.05$).

Conclusion. In high disease activity both systemic onset and polyarticular JIA proatherogenic lipid disturbances and vascular disorders took place.