Aim: To assess the influence of components of metabolic syndrome (MS) upon formation of essential arterial hypertension (EAH) in adolescents.

Material and methods: We examined 229 adolescents at the age of 12-18 years old with EAH at different stages of its formation. The average age was 14.9±2.0 years. All patients were performed 24-hour blood pressure monitoring. As a result, the following groups were formed: 1 group – patients with “white coat” hypertension – 98 pts (30.1%), 2 group – adolescents with labile arterial hypertension – 108 pts (33.1%) and 3 group – adolescents with persistent hypertension – 93 pts (28.5%). The control group consisted of 27 healthy adolescents. MS marks detection was performed according to the National Cholesterol Education Program Adult Treatment Panel III.

Results: Insuline resistance syndrome (IR) was disclosed in 2.3% of adolescents with EAH, 85.7% of whom had abdominal obesity. IR in the form of hyperinsulinemia and increase of insuline resistance index (IRI) of HOMA appeared in 7.4% of adolescents with EAH. Only the third part of the examined patients had overweight. The highest average values of IRI HOMA, in comparison with the control group, were revealed only in the group of adolescents with persistent hypertension, and the difference of values was 1.79 (95%CI 1,01:3,59), p=0.049). Carbohydrate metabolism disorder, which is the indirect indicator of IR, was disclosed in 13.1% of adolescents with EAH. Significant changes of fats in adolescents with essential AH were not disclosed. Clinically significant difference of mean values of triglyceride and very little density lipoprotein-cholesterol (p=0,027 and p=0,027, correspondingly) was discovered in the group with persistent hypertension in comparison with the control group. Hyperuricemia was recorded in 72.1% of patients with EAH and in 22% of adolescents from the control group without any significant correlation between two groups. Clinically significant difference of mean values of uric acid level was recorded only in the group of patients with persistent hypertension - 65,41 mmol/l (95%CI 19,89:110,94), p=0,0051.

Conclusion: MS components start to form long before its clinical implication. Metabolic disorders cause AH stabilization.