Analysis of Polymorphisms in Genes (ADD1 1378 G>T, AGT 704 T>C (Met235Thr), AGT 521 C>T (Thr174Met), AGTR1 1166 A>C, AGTR2 1675 G>A, CYP11B2 344 C>T, GNB3 825 C>T, NOS3 786 T>C, NOS3 894 G>T (Glu298Asp)) Associated with Hypertension in Children of Ural

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INTRODUCTION
During the last few years the studies on the genetic basis of essential hypertension in adults have been numerous but there is little data of association of gene polymorphisms with hypertension in children to date.

OBJECTIVE
To investigate the role of gene polymorphisms in predicting of essential arterial hypertension in male and female children.

PATIENTS AND METHODS
METHODS
The following genetic variants of ADD1 1378 G>T, AGT 704 T>C (Met235Thr), AGT 521 C>T (Thr174Met), AGTR1 1166 A>C, AGTR2 1675 G>A, CYP11B2 344 C>T, GNB3 825 C>T, NOS3 786 T>C, NOS3 894 G>T (Glu298Asp) were identified in children. Gene DNA was extracted from blood samples and amplified by polymerase chain reaction (PCR).

Patients: 31
Sex: 21 male, 10 female
Age: 6-17 years old
Diagnosis: Essential hypertension*

*Secondary hypertension was excluded in all patients

RESULTS I

The study showed association of all genes polymorphisms with hypertension in all children. The combinations of three to seven gene polymorphisms were found more frequently.

RESULTS II

Female children have shown the presence of AGT 704 T>C and AGTR2 1675 G>A more frequently than male children (p<0.05). From the other side, the polymorphism CYP11B2 344 C>T was found in 76% of boys. The identification of nitric oxide gene polymorphisms (NOS3 786 T>C, NOS3 894 G>T) hasn’t depended on the sex of children.

CONCLUSION
The gene polymorphisms AGT 704 T>C and AGTR2 1675 G>A are associated with hypertension and may be a genetic markers of early onset of disease in female children, the gene polymorphism CYP11B2 344 C>T may be a predisposing factor of essential hypertension in boys.

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