

Genetic markers of early onset of arterial hypertension

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INTRODUCTION

Familial history of hypertension is known to increase the risk of hypertension in offsprings. Numerous studies confirming genetic predisposition to arterial hypertension have been performed during the last years, however data on heritability of particular genes from parents to children are rare.

PATIENTS AND METHODS

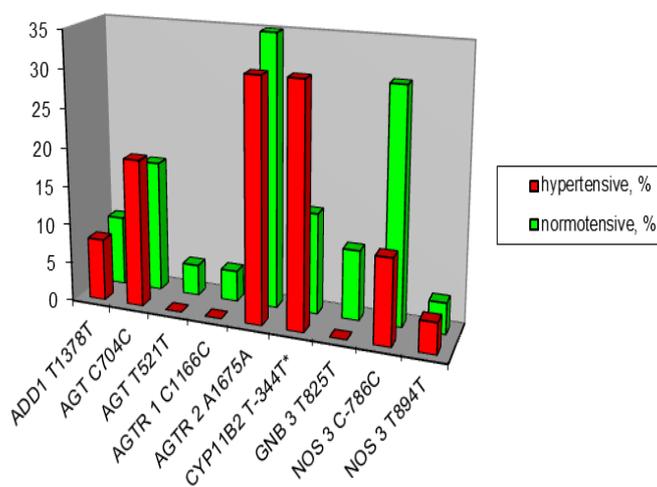
The study subjects consisted of 13 essential hypertensive children* (aged 6 to 18 years old) and their hypertensive parents with onset of the disease before 35 years (n=13) and 23 normotensive children. We identified the following genetic variants of ADD1 1378 G>T, AGT 704 T>C (Met235Thr), AGT 521 C>T (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) in subjects. Gene DNA was extracted from blood samples and amplified by polymerase chain reaction (PCR).

*Secondary hypertension was ruled out in all patients

OBJECTIVE

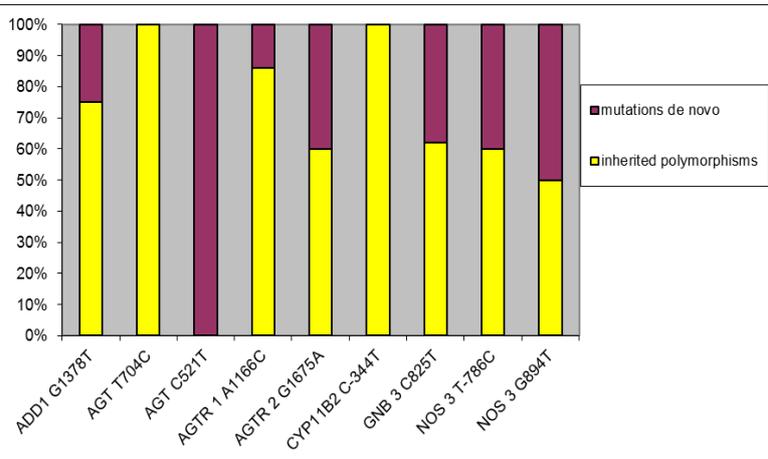
To investigate the heritability of gene polymorphisms associated with essential hypertension in children. We examined whether gene polymorphisms associated with hypertension identified in parents were related a high blood pressure in offsprings.

RESULTS I



*P<0,05

RESULTS II



T allele/TT genotype of CYP11B2 C-344T were identified in 11 adults and inherited by their offsprings in 100 %. AGT T704C gene polymorphism and AGTR 2 G1675A gene polymorphism were inherited in 80 % offsprings.

The study showed an association of TT genotype of the aldosterone synthase (CYP11B2) C-344T polymorphism with hypertension in children and early onset of the disease in adults (p<0,05).

CONCLUSION

Family history of arterial hypertension is the main risk marker of high blood pressure in children. An early and regular screening in children of hypertensive parents is necessary to prevent any future cardiovascular diseases.