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Association study: the aminopeptidase A gene and essential hypertension

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Aminopeptidase A (APA) cleaves the N-terminal aspartyl acid residue of angiotensin II (Ang II) to produce angiotensin III (Ang III). It has been reported that the APA knockout mouse exhibits elevated blood pressure. Therefore, the APA gene is thought to be a susceptibility gene for essential hypertension (EH). However, extensive studies have yet to define the relationship between the APA gene and EH. The aims of this study were to genotype some of the single nucleotide polymorphisms (SNPs) for the human APA gene and to perform a haplotype-based case-control study to further assess the association between and the APA gene and EH. We performed a genetic association study using SNPs in 227 EH patients and 221 age-matched normotensive (NT) individuals. Although the overall distribution of the genotype did not significantly differ between the EH and NT groups when the entire group of subjects were evaluated, the frequency of rs2290105 did differ between the two when just women were included in the analysis. The haplotype-based case-control analysis also revealed a significant difference between the women of the EH and NT groups. The A-T-A-C haplotype was significantly higher in the EH versus the NT group. These results suggest that rs2290105 and the A-T-A-C haplotype of the APA gene are genetic markers for EH, and that APA or a neighboring gene might be a susceptibility gene for EH.