

Angiotensin Gene Polymorphisms (T174M and M235T) are Significantly Associated with the Hypertensive Patients of Tamil Nadu, South India

M. Karthikeyan^{1,2}, V. Shridevi², Rajiv Rose², B. Anandan, Kh. Dhanachandra Singh¹, S. Shanmugasundaram³, D. Mohan⁴, A. Ramesh² and G. Jayaraman²

¹Department of Bioinformatics, Alagappa University, Karaikudi 630 004, Tamil Nadu, India

²Department of Genetics, Dr. ALMPGIBMS, University of Madras, Taramani Campus, Chennai 600 113, Tamil Nadu, India

³K.S Hospital, Kilpauk, Chennai, Tamil Nadu, India

⁴Govt. Hospital, Head quarters, Dindigul 624001, Tamil Nadu, India

KEYWORDS Hypertension. Angiotensinogen. Gene Polymorphism. M235T. T174M. Renin-angiotensin-system

ABSTRACT Hypertension is complex multi factorial disease; the development and progression of hypertension varies from population to population. The T174M and M235T polymorphisms of the *AGT* gene have been reported to be associated with essential hypertension in many populations. The researchers analyzed the possible association of T174M and M235T polymorphisms of *AGT* gene in essential hypertension patients (n=254) of Tamil Nadu, India along with equal number of age and sex matched control subjects. Results revealed that 235T mutation is an independent risk factor for essential hypertension in this study group (RR = 2.52; $\chi^2 = 39.32$; CI = 1.89-3.371). It is a risk factor for both younger (RR = 2.72; $\chi^2 = 16.39$; CI = 1.689-4.380) and older age (RR = 2.48; $\chi^2 = 16.53$; CI = 1.60-3.839) groups. 174M is a more potent risk allele for younger onset (RR = 1.54; $\chi^2 = 3.97$; CI = 1.01-2.34) of hypertensive patients than in the older (RR = 1.09; $\chi^2 = 0.14$; CI = 1.42-1.67) essential hypertensive patients. Further both T174M and M235T polymorphisms were observed to be high risk factors in females than in males. Our finding suggested that both polymorphisms (M235T and T174M) are independent risk factors for essential hypertension while homozygous TT235 has greater effect than the MM174 mutation.