

Association of beta 2 adrenoceptor gene polymorphisms in Malaysian hypertensive subjects

ABSTRACT

The sympathetic nervous system plays a major role in blood pressure regulation. Beta 2 (β 2) adrenoceptor gene polymorphisms have been associated with hypertension in different populations with conflicting results. We examined the association of three common polymorphisms, Arg16Gly, Gln27Glu, and Thr164Ile, of the β 2 adrenoceptor gene in Malaysian hypertensive subjects. A total of 160 hypertensive and control subjects were recruited. Systolic blood pressure (SBP), diastolic blood pressure (DBP), and anthropometric measurements were obtained from each subject. Biochemical analyses of lipid profiles were conducted with an autoanalyzer. DNA samples were extracted from blood and buccal cells. Genotyping was accomplished with polymerase chain reaction-restriction fragment length polymorphism. SBP, DBP, body mass index, and biochemical factors all differed significantly between case and control subjects ($P < 0.05$). The genotype frequencies of Arg16Arg, Arg16Gly, and Gly16Gly were 22.5, 70, and 7.5% among cases and 33.1, 63.1, and 3.8% among controls, respectively. The genotype frequencies of Gln27Gln, Gln27Glu, and Glu27Glu among cases were 41.1, 50, and 1.9% compared to 77.5, 20.6, and 1.9% among controls, respectively. In this study, the Gln27Glu polymorphism was significantly associated with Malaysian hypertensive subjects ($P < 0.05$). Therefore, the Gln27Glu polymorphism of the β 2 adrenoceptor could be a risk factor associated with hypertension among Malaysians.

Keyword: Gln27Glu polymorphism; β 2 adrenoceptor; PCR-RFLP; Hypertension