Roles of beta2-adrenergic receptor gene polymorphisms in a Turkish population with obstructive sleep apnea syndrome or obesity

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ABSTRACT. We determined the distribution of the Arg16Gly and Gln27Glu polymorphisms of the beta-2 adrenergic receptor gene (ADRB2) in patients with obstructive sleep apnea syndrome as well as a control group in Northeastern Turkey. A total of 52 patients diagnosed with obstructive sleep apnea in a sleep laboratory and 78 control subjects were examined. Peripheral blood samples were taken from patients diagnosed with obstructive sleep apnea by polysomnography. DNA was extracted from blood samples and amplified using polymerase chain reaction. Amplification products were digested with restriction enzymes to investigate gene polymorphisms. Restriction products were extracted from agarose gel electrophoresis and polymorphisms were analyzed using gel images. The Arg16Gly polymorphism was observed in 18 of 52 patients and in 23 of 78 controls. The Gln27Glu polymorphism was observed in 21 of 52 patients and in 28 of 78 controls. In conclusion, there was no correlation among polymorphic
frequencies between patient and control groups. Based on the results, these polymorphisms do not contribute to the clinical diagnosis of this syndrome. However, the distribution of Arg16Gly vs Gln27Glu polymorphisms may contribute to obesity in patients with a body mass index greater than 30 (P < 0.05). Different results may be obtained if the parameters of obstructive sleep apnea disease are changed.

**Key words:** ADRB2 gene polymorphisms; Body mass index; Obesity; Restriction fragment length polymorphism; Turkish population; Obstructive sleep apnea syndrome