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INVESTIGATION OF TNFRSF10A GENE POLYMORPHISM CAUSING ALZHEIMER'S DISEASE IN TURKISH POPULATION

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Abstract

Alzheimer's disease (AD) is the most common form of dementia and a serious public health issue; it is a complex disease influenced by both genetic and environmental factors. It is a progressive neurodegenerative disease characterized by the accumulation of amyloid-beta plaques as known hyperphosphorylated tau protein, particularly in the medial temporal lobe at the neocortex. We selected Turkish early onset Alzheimer disease, (EOAD), which typically occurs between the ages of 40 between 65 in this study. The aim of this study was to determine of the prevalence and of the TNFRSF10A (tumor necrosis factor receptor superfamily 10A) polymorphism Turkish patients with Alzheimer disease in Turkey. In this study, RFLP-PCR method was used to detect the TNFRSF10A polymorphism in Turkish patients with Alzheimer's disease. As DNA material in this study, we isolated from peripheral blood drawn from 200 individuals (Patients, n=100; Controls, n=100). We also performed agarose gel electrophoresis, preparing gels at two different concentrations: 2% and 3.5% agarose gels, which we ran at 120 V for 30–35 minutes. When all samples were evaluated together, the comparison between heterozygotes and the normal group was not statistically significant different ($p > 0.05$, 95% CI). However, the comparisons between homozygotes and heterozygotes, and between the normal group and

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homozygotes, yielded statistically significant results (*HET vs WT:* 0.2256, *HOM vs WT:* 0.0067 *HET vs HOM:* 0.0410). A surprising finding in this study was that the homozygous and heterozygous state of this polymorphism was significantly higher in the control group compared to the patient group ($n_{patient}$) = 1, $n_{control}$= 9), (n_p= 31, n_c= 37). Among the 100 people used as the control group in the study, 9 and 37 individual was found to be homozygous and heterozygous; It suggests that TNFRSF10A polymorphism may have a greater impact on Alzheimer's disease in Turkish population. In our opinion the fact that no such statistical study has been conducted in Turkey distinguishes this work and makes the data obtained from it significant and valuable. Additionally, the study is intended to serve as a guiding framework for future research.

***Key words*:** Alzheimer, Turkey, mutation, polymorphisms, chi square, odds ratio

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