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Oral Presentation

The Study of Negative Effects of Air Pollution on Serotonin Receptors (5HTR2a and 5HTR3a) and Mono Amino Oxidase A Gene Expression Alterations in Exposed Individuals and its Association with Urban Traffic Accident

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Abstract

In recent years, with the rapid development of science, especially Neurogenetics, we could find different genes, especially genes that influence our behavior and cause behavioral changes. Culture is one of the important factors in urban traffic and correct way of driving But this is only effective when the biologically conditions are healthy and with appropriate interaction of an endogenous gene and an appropriate biological and psychological balance in person. Serotonin and receptor genes and enzymes that control this neurotransmitter are one of the major factors controlling the behavior, thus were selected as target genes in this study. In this study, according to the municipal air quality control center most polluted parts of the city in 2012 were revealed. Blood samples were collected from Individuals who are deployed for 6 months from September to March in the contaminated areas. The PBMCs were extracted and RNA isolated and through reverse reaction cDNA synthesis was performed. Then, using the specific primer pairs, 5H2Ra, 5H3Ra, MAO and B-Actin genes were measured and amplified By the Real- Time PCR. For statistical analysis REST software was used ,then by comparing the gene expression levels in healthy individuals and individuals located in contaminated area in Tehran The results confirmed statistically significant changes in the genes serotonin receptors 5H2Ra, 5H3Ra that regulate mood and behavior. But there was no significant change of mono amino oxidaze enzymes which control serotonin. Due to significant changes in the genes that are responsible for controlling our behavior, there was a stress–strain behavior in people who have a track daily traffic jams, and pollution area compared with individuals outside the city. This behavior leads to restlessness, impatience, and non-compliance with laws and regulations. Thus, it leads to conflict with each other or officers of the law and will create a high risk of accidents. In respect with this study, Further studies are necessary to prevent human injury .It is also recommended that the traffic police forces also used as rotation in the affected areas to be less susceptible to the damage caused by air pollution.

Keywords: Air Pollution, 5HTR2a, 5HTR3a and MAO-A, Serotonin, Urban Traffic Accident.

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