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Association of monoamine oxidase B and catechol-o-methyltransferase polymorphisms with sporadic parkinson's disease in an Iranian population

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Background and Aims: Genetic polymorphisms have been shown to be involved in dopaminergic neurotransmission. This may influence susceptibility to Parkinson disease (PD). We performed a case-control study of the association between PD susceptibility and genetic polymorphism of MAOB and COMT, both separately and in combination, in Iranians.
Methods: The study enrolled 103 Iranian patients with PD and 70 healthy individuals. Polymerase chain reaction restriction fragment length polymorphism (PCR–RFLP) methods were used for genotyping.
Results: Our data indicated that the MAOB genotype frequencies in PD patients did not differ significantly from the control group. However, the frequency of MAOB GG genotype was significantly lower in female patients. It has been shown that the distribution of MAOB allele A was slightly higher in PD patients. No statistically significant differences were found in the COMT allele and genotype distribution in PD patients in compare to the controls. The combined haplotype of the MAOB A, A/A and COMT LL genotype showed a slightly increase in the risk of PD in female patients in this Iranian population.
Conclusions: It can be concluded that, in Iranian PD risk could be associated with MAOB A allele, and this association is augmented in the presence of COMT L genotype especially in female, indicating an interaction of these two dopamine-metabolizing enzymes in the pathogenesis of PD. Future studies involving larger control and case populations will undoubtedly lead to a more thorough understanding of the role of the polymorphisms involved in the dopamine pathway in PD.

Keywords: COMT; Iranian; MAOB; Parkinson's disease; Polymorphism