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Poster Presentation

Correlation Between Alanine Aminotransferase Serum (ALT) Level and Behavioral Symptoms of 6-Hydroxydopamine (6-OHDA)-Induced Parkinsonism in Rats

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Abstract

Introduction: Parkinson disease (PD) is the second frequent human neurodegenerative disease following Alzheimer. This illness is caused by degeneration of dopaminergic neurons in the compact part of substantia nigra (SNpc). Clinical demonstrations are observable when 70% of dopaminergic neurons in SNpc and 80% of dopaminergic terminals in striatum have been degenerated. Characterization of non-clinical bioindicators are therefore of great importance in diagnosis of the disease. This work aimed to assess the serum level of ALT, as a bioindicator of PD, following induction of the disease by 6-OHDA in an animal model. **Materials and Methods:** Twenty-eight Wistar rats were classified in two equal control and PD-induced groups. The 6-OHDA toxin was injected into the medial forebrain bundle of rats in PD-induced group through stereotaxic surgery. Animals in control group received no such treatment. Severity and extent of Parkinsonism in both animal groups were assessed by apomorphine-induced rotational test. Blood specimens were consequently collected from all animals and the serum ALT level was determined. **Results:** In the PD-induced rats, ALT level was detected at much lower amounts compared to the control group ($P<0.05$). The severity of PD, however, was not similar between animals as severe, mild and even no-detectable clinical symptoms were observed in examined rats. The ALT level in severely and mildly affected animals was clearly lower compared to control group ($P<0.01$, $P<0.05$). Besides, no definitive difference was detected between animals with no symptoms and control group. **Conclusion:** Since the severity of rotations in the apomorphine-induced rotational test is in harmony with extent of degeneration of dopaminergic neurons in SNpc, the serum level of ALT is likely to be an important bioindicator of Parkinson disease.

Keywords: Parkinson Disease, Alanine Aminotransferase, ٦-Hydroxydopamine, Apomorphine-induced rotational test

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