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Anti-Parkinson Effect of Hesperidin in Combination with L-DOPA on 6-OHDA Induced Parkinsonism in Wistar Rats - A Neurochemical, Histopathological and Immunohistochemical Analysis

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Abstract: Parkinson's disease (PD) is a neurodegenerative disorder in the nigrostriatal pathway of animals and humans and is responsible for most of the movement disorders, including rigidity. The present study was aimed to determine the effect of hesperidin in combination with L-Dopa on 6-hydroxydopamine (6-OHDA) induced rat model of PD. Animals were divided into 5 groups: GroupI served as normal. GroupII was induced with 6-hydroxydopamine (8 μ g/2 μ l in 0.1% ascorbic acid-saline). GroupIII: 6 hydroxydopamine +50mg/kg b.w hesperidin. GroupIV: 6-hydroxydopamine + 50mg/kg b.w hesperidin+100mg/kg b.w of L-Dopa. GroupV: 6-hydroxydopamine+100mg/kg b.w L-Dopa.After treatment, the effect of these factors was determined by biochemical, histopathological and for immunohistochemistry evaluation. Neurotransmitter levels like dopamine, nor-epinephrine, epinephrine and serotonin shows better results in group IV than other treated groups. Similarly, histopathological and immunohistochemistry observation has also shown better results in group IV than other treated groups. Thus it may be concluded that effect of hesperidin in combination with L-Dopa on 6-OHDA treated animal model has an Anti-Parkinson effect. Further investigation is required to understand the exact etiology of clinical parkinsonism.

Keywords : Parkinson disease, Dopamine, 6-OHDA, hesperidin, L-DOPA.

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