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Elevation of PC12 cells viability in the presence of 6-hydroxydopamine due to celecoxib

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Background and Aim : Non-steroidal anti-inflammatory drugs (NSAIDs) are among the most widely used drugs. Numerous studies have been investigated the possible protective effects of selective COX2-inhibitor NSAIDs on neurodegenerative disorders.

Methods : In the present study, the effect of celecoxib (selective COX2-inhibitor NSAIDs) was assessed on cell apoptosis induced by 6-hydroxydopamine in PC12 cells in the mimicry of Parkinson disease by measurement of cell viability, the amount of reactive oxygen species (ROS) and apoptosis.

Results : According to the results pre-treatment with celecoxib significantly increased the amount of cell viability ($p < 0.001$), decreased the amount of ROS ($p < 0.001$) and apoptosis ($p < 0.001$) in PC12 cells adjacent with 6-hydroxydopamine.

Conclusion : As a result, probably pretreatment with celecoxib by scavenging ROS and inducing an antioxidant effect can decrease the cell apoptosis in dopaminergic cells. Overall, it is suggested that celecoxib may be able to produce anti-oxidant effects by inhibiting the COX2 enzyme.

Keywords : Celecoxib- Parkinson's disease- cell viability- 6-hydroxydopamine