

JOINT EVENT

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The role of oxidative stress and inflammation in Parkinson's disease: current knowledge and future therapeutic strategies

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Current Parkinson's disease (PD) therapies are focused on maintaining dopamine levels of brain at normal range. Although, this approach is fairly useful to control and manage Parkinson's disease symptoms, it has some disadvantages. Previous studies indicate that levodopa and other dopaminergic medications accelerate neuronal degeneration in some parkinsonian brains via production of free radicals and reactive oxygen species (ROS). This is in addition to the main oxidative and inflammatory processes of the PD. Additionally, patients need higher doses of drugs over the time which it implies some serious side-effects including motor and non-motor signs. Oxidative stress and inflammation are considered as the leading cause and progression in many diseases, especially those that are associated with aging such as Parkinson's disease. During the recent years, interest in administration of neuroprotective factors such as anti-oxidants, anti-inflammatory drugs and neurotrophic factors for management of PD is popularly increasingly. According to the above literature, it is important to understand the mechanism of action of these neuroprotective factors and investigate the new and more effective ones. On the other hand, neuroinflammation is one of the serious complications of PD which is usually developed due to protein aggregates and dopaminergic cell deaths. Therefore, here we review the pathways of these two important aspects of PD (oxidative stress and neuroinflammation) to understand what is happening inside a PD brain and we discuss about the benefit of anti-oxidants and anti-inflammatory drugs based on our recent studies in this area.

Biography

Kambiz Hassanzadeh is the Associate Professor and Head of Cellular and Molecular Research Center at Kurdistan University of Medical Sciences, Iran. He teaches Pharmacology and Neuroscience courses to Medical and PhD students and does research in the field of Neuroscience with more than 60 publications. During recent years, he has been interested in doing research on molecular nature of neurodegenerative diseases, especially Parkinson's disease. He also researches on antioxidant agents on animal models of Parkinson's disease.

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