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Paraquat (herbicide) as a cause of Parkinson's Disease

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Abstract

The four features of Parkinson's disease (PD), which also manifests other non-motor symptoms, are bradykinesia, tremor, postural instability, and stiffness. The pathogenic causes of Parkinsonism include Lewy bodies, intracellular protein clumps of α synuclein, and the degeneration of dopaminergic neurons in the substantia nigra's pars compacta region. The pathophysiology of PD is still poorly understood due to the complexity of the illness. The apoptotic cell death of neurons in PD, however, has been linked to a variety of intracellular mechanisms, according to a wide spectrum of study. The endoplasmic reticulum's stress, decreased levels of neurotrophic factors, oxidative stress, mitochondrial dysfunction, catabolic alterations in dopamine, and decreased activity of tyrosine hydroxylase are some of these causes. The herbicide paraquat has been used in laboratory studies to create a variety of PD pathological features in numerous in-vitro and in-vivo animals. Due to the unique neurotoxicity that paraquat causes, understanding of the pathophysiology of PD has changed. Parkinson's disease (PD) is more likely to develop among people exposed to paraquat over an extended period of time, according to epidemiological studies. Thanks to this paradigm, the hunt for new therapy targets for PD has expanded. In both in-vitro and in-vivo models, the purpose of this study is to summarise the relationship between paraquat exposure and the onset of Parkinson's disease (PD).

Keywords: Dopamine; Epidemiology; Neurodegenerative disease; Paraquat; Parkinson's disease.

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