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Curcumin: a potential neuroprotective agent in Parkinson's disease.

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Abstract

Parkinson's disease (PD) is an age-associated neurodegenerative disease clinically characterized as a movement disorder. The motor symptoms in PD arise due to selective degeneration of dopaminergic neurons in the substantia nigra of the ventral midbrain thereby depleting the dopamine levels in the striatum. Most of the current pharmaco-therapeutic approaches in PD are aimed at replenishing the striatal dopamine.

Although these drugs provide symptomatic relief during early PD, many patients develop motor complications with long-term treatment. Further, PD medications do not effectively tackle tremor, postural instability and cognitive deficits. Most importantly, most of these drugs do not exhibit neuroprotective effects in patients. Consequently, novel therapies involving natural antioxidants and plant products/molecules with neuroprotective properties are being exploited for adjunctive therapy.

Curcumin is a polyphenol and an active component of turmeric (Curcuma longa), a dietary spice used in Indian cuisine and medicine. Curcumin exhibits antioxidant, anti-inflammatory and anti-cancer properties, crosses the blood-brain barrier and is neuroprotective in neurological disorders.

Several studies in different experimental models of PD strongly support the clinical application of curcumin. The current review explores the therapeutic potential of curcumin in PD.

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