



Cannabidiol: a hope to treat non-motor symptoms of Parkinson's disease patients

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We read an article, “Is Cannabidiol the ideal drug to treat non-motor Parkinson's disease symptoms” by Cripp [1], the novel discussion and explanation of the role of cannabidiol (CBD) in Parkinson's disease (PD) inspired us to write our feedback. We would like to share our views on the role of CBD in the prevention and treatment of movement disorders.

CBD is one of the main components of *Cannabis sativa* investigated previously for its neuroprotective effects. Its mechanism of action is multifaceted including partial agonist activity on CB1 and CB2 receptors, an agonist of 5-HT1A, up-regulation PPAR γ , antagonist of the G-protein-coupled receptor GPR55, reverses the iron-induced epigenetic modification of mitochondrial DNA and the reduction of succinate dehydrogenase activity, decreases the levels of the pro-inflammatory cytokines IL-1 β , TNF- α , IFN- β , IFN- γ , IL-17, and IL-6. All these effects decrease pro-inflammatory mediators and increasing anti-inflammatory mediators and resulting in neuroprotective, anxiolytic and antipsychotic effects [2].

Parkinson disease (PD) primarily comprises motor symptoms and non-motor symptoms. Levodopa/carbidopa is effective in treating motor symptoms but non-motor symptoms of PD including apathy, sleep disorders, mood disorders, and autonomic dysfunctions such as alterations in the gait and urinary tract are not well controlled. These symptoms are not because of decrease dopamine but because of the neurodegeneration of nuclei and cholinergic structures such as the pedunculopontine nucleus. Most of the time these symptoms are under-treated and substantially affect the quality of life in PD patients [3].

Few studies have done with the focus on the treatment of non-motor symptoms of PD. Only three clinical trials and seven preclinical models found the use of CBD in Parkinson's disease and showed improvement of non-motor symptoms and quality of life with the use of 300 mg of CBD as compared to placebo [4]. But these studies are not enough to make a recommendation or approved by the FDA because of the short duration of the study and small sample size, although this has given hope and opens a new door for researchers.

Compliance with ethical standards

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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