

Herbal Marijuana and Its Application in the Treatment of Parkinson's Disease

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Editorial

Medical (herbal) marijuana (*Cannabis sativa*) is becoming a popular therapy for treatment of degenerative neurological diseases, including Parkinson's disease (PD) and other medical conditions [1,2]. Extracts from this plant have been used by ancient herbal practitioners over millennia in the treatment for a wide variety of diseases, which forms the basis of many claims today [3]. There are other forms of marijuana (Dronabinol, Nabilone and Nabiximole) available some having approval by federal agencies (Drug Enforcement Agency) [1]. However, clinical efficiency has been shown to be highly variable regarding the various forms of cannabinoids⁴. Use of herbal marijuana has been shown with a good degree of scientific certainty to be effective in treatment of some diseases [4,5]. Most notably, this agent has been shown to be beneficial regarding multiple sclerosis (MS) [6]. Recently, there has also been suggestion of its benefit for motor and non-motor symptoms of PD [7].

Alternative therapies are commonly included in treatment of PD patients along with conventional practices [8]. Presently, much of the initiative in using marijuana for treating PD and other types of neurological problems has been based on anecdotal information. Many of the claims regarding benefits of marijuana have not been adequately evaluated; although, current studies do suggest some applicability for treatment of pain, nausea, muscle spasticity, anorexia, sleep disturbances, in support of cancer (including chemotherapy), glaucoma, and Tourette syndrome, as examples [5]. Marijuana contains over 100 pharmacological active compounds and metabolites that can be generated each having a wide variety of physiological effects. In animal studies, marijuana and derivatives have been reported to provide protection, in some form, of the substantia nigra and as such reduce those neurons from damage or deterioration [9]. What should also be noted, similar findings have also been observed for Huntington's disease, MS, and Alzheimer's disease [1]. One of the major issues with using the herbal form of this drug for treatment relates to inconsistent concentrations of the active ingredients from available sources [10].

Few actual scientific studies have been conducted on herbal marijuana and PD. A subjective study reported benefits to PD patients [11]. This investigation noted that benefits may not be observed for months after application of this agent, indicating long-term use is necessary in achieving positive results. Insufficiency

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of treatment time may be one reason for inconsistent results reported in the literature [12]. In a small investigation [11], it was suggested cannabis consumption (smoking) improved motor function, and reduced tremor, rigidity and bradykinesia [7] which is similar to the subjective study. However, extracts of marijuana was shown to be ineffective in treatment of long-term levodopa induced dyskinesia [13]. Due to a small number of patients these studies must be considered pilot investigation [5] making conclusions difficult. Based on the study by Venderova et al. (2004) [11], not all patients report improvement from use of herbal marijuana, which may be considered a confounder due to the variability and differences in PD. It appears that about 15% of PD patients respond; although, when applied through long-term application, this increased to about 50% [11]. Herbal marijuana may only have a benefit for a sub-population of PD patients. When all the studies are evaluated together along with a self-reporting investigation [14], benefits of herbal marijuana for PD patients appear to exist. Many of the positive benefits reported include difficult to quantify outcomes (i.e. mood improvement) creating inconsistencies among studies.

Use of herbal marijuana has been shown to have benefits increasing the quality of life for those afflicted in PD. Studies evaluating this agent have employed small populations limiting conclusions, but overall can be considered positive. It is likely a select group of PD patients will benefit from use of this herb. Large randomized clinical trials are needed to better elucidate efficacy of this herb and methods of delivery for PD patients.

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