Multiple Sclerosis

Multiple sclerosis (MS) is a chronic degenerative disease of the central nervous system that causes inflammation, muscular weakness, and a loss of motor coordination. Over time, MS patients typically become permanently disabled, and in some cases the disease can be fatal. According to the US National Multiple Sclerosis Society, about 200 people are diagnosed every week with the disease — often striking those 20 to 40 years of age.

Clinical and anecdotal reports of cannabinoids' ability to reduce MS-related symptoms such as pain, spasticity, depression, fatigue, and incontinence are plentiful in the scientific literature[1-12] — leading many MS-associated patient organizations, including the Multiple Sclerosis Societies of Britain and Canada, to take positions in favor of the drug's prescription use.[13] Patients with multiple sclerosis typically report engaging in cannabis therapy[14], with one survey indicating that nearly one in two MS patients use the drug therapeutically.[15]

Recent clinical and preclinical studies also suggest that cannabinoids may inhibit MS progression. Writing in the July 2003 issue of the journal *Brain*, investigators at the University College of London's Institute of Neurology reported that administration of the synthetic cannabinoid agonist WIN 55,212-2 provided "significant neuroprotection" in an animal model of multiple sclerosis. "The results of this study are important because they suggest that in addition to symptom management, ... cannabis may also slow the neurodegenerative processes that ultimately lead to chronic disability in multiple sclerosis and probably other disease," researchers concluded.[16]

Investigators at the Netherland's Vrije University Medical Center, Department of Neurology, also reported for the first time in 2003 that the administration of oral THC can boost immune function in patients with MS. "These results suggest pro-inflammatory disease-modifying potential of cannabinoids [for] MS," they concluded.[17]

Clinical data reported in 2006 from an extended open-label study of 167 multiple sclerosis patients found that use of whole plant cannabinoid extracts relieved symptoms of pain, spasticity, and bladder incontinence for an extended period of treatment (mean duration of study participants was 434 days) without requiring subjects to increase their dose.[18] Results from a separate two-year open label extension trial in 2007 also reported that the administration of cannabis extracts was associated with long-term reductions in neuropathic pain in select MS patients. On average, patients in the study required fewer

daily doses of the drug and reported lower median pain scores the longer they took it. [19] These results would be unlikely in patients suffering from a progressive disease like MS unless the cannabinoid therapy was halting its progression, investigators have suggested.

As a result, the British government is now sponsoring a three-year clinical trial to assess the long-term effects of cannabinoids on both MS-associated symptom management as well as disease progression. Health Canada also recently approved the prescription use of cannabis abstracts for the treatment of MS-associated neuropathic pain.[20] Similar approval of cannabis extracts is pending in Britain and Europe.

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