

USE OF MEDICAL MARIJUANA FOR NEUROLOGIC DISORDERS

Background Information

The American Academy of Neurology (AAN) is a professional organization of over 34,000 practicing neurologists and neuroscientists with a deep and abiding interest in assuring the best possible care of patients with all types of neurologic disorders.

Legislation has been passed in 30 states and the District of Columbia for comprehensive medical marijuana and cannabis programs, which protect users from criminal penalties, allow access to a variety of products and strains, and enable smoking or vaporizing of products. Separately, 16 states allow for the use of medical cannabidiol (CBD) products or low-tetrahydrocannabinol (THC) products. Most of these state laws include specific provisions for individuals living with neurologic conditions like intractable (treatment resistant) epilepsy, multiple sclerosis, ALS, and Parkinson's disease. As these policies are adopted and expanded, it is important for the AAN to have an official position on the issue that can inform and assist policymakers.

Description of the Issue

In this position statement updated from 2014,¹ the term “medical marijuana” refers to the plant cannabis and compounds derived from the plant when used for medical rather than recreational purposes. Existing medical research does not support the present and proposed legislative policies across the country that promote marijuana-based products as treatment options for various neurologic disorders.² Most studies are small and poorly designed. There are concerns regarding the safety of medical marijuana, especially for pediatric patients³ and people with disorders of the nervous system who use medical marijuana.⁴ Psychiatric and neurocognitive adverse effects have been described in studies of recreational and medical use,⁵ which may be particularly problematic in a population with compromised neurologic function. The interaction of these compounds with prescription medications is uncertain and may introduce unnecessary and unknown risk for patients living with chronic, complex neurologic diseases that require one or more prescription drugs.⁶ Research is urgently needed to determine the safety and potential medical benefit of various forms of marijuana for neurologic disorders, especially those for which anecdotal evidence is available without strong scientific data. Anecdotal evidence may engender public support for the use of medical marijuana, but such information must be substantiated by rigorous research which should ultimately inform legislative policy.

The AAN Position

The AAN supports scientific research of medical marijuana and rescheduling from Schedule I to Schedule II to encourage more scientists to investigate the safety and potential benefits.

The AAN does not support the legalization or prescribing of medical marijuana for use in neurologic disorders.

The AAN supports all efforts to allow for rigorous research to evaluate the long-term safety and efficacy of medical marijuana and compounds derived from the plant. This includes proposals that increase access for the study of medical marijuana under IRB-approved research protocols and the reclassification of medical marijuana from its

current Schedule I status to Schedule II to allow for medical research. The AAN does not support or advocate for the legalization of medical marijuana for use in neurologic disorders at this time as further research is required to determine the safety and potential benefits of such products. This is of critical importance when medical marijuana is used in patients with underlying neurologic disorders or in children whose developing brains may be more vulnerable to its potentially toxic effects.²

The AAN acknowledges interest in medical marijuana from patients and physicians and notes that several states have moved to legalize medical marijuana in some form. The AAN also recognizes that medical marijuana may be useful in treating neurologic disorders. For example, there may be a role for CBD in the treatment of Dravet syndrome.^{7,8} However, this evidence is insufficient to draw conclusions regarding the effectiveness of medical marijuana for other neurologic conditions.

The AAN recommends that each product and formulation of cannabis used in treating medical conditions demonstrate safety and efficacy via scientific study similar to the process required by the Food and Drug Administration (FDA) for the approval of any drug. Many cannabis preparations that had some evidence for efficacy in studies are not available in the United States, and the studies were conducted in Europe using standardized preparations.⁹ It is not appropriate to extrapolate the results of trials of standardized preparations to other non-standardized, non-regulated medical marijuana products which may be commercially available in states with laws supporting the use of medical marijuana. Efficacy of a non-standardized product is not equal to that of standardized products that are studied in clinical trials. Additionally, most currently available medical marijuana products are not regulated by any agency and may not contain the ingredients identified by labeling, making quality control impossible and raising further safety questions.¹⁰

Rationale

The federal government currently classifies marijuana as a Schedule I drug, defined as having no currently acceptable medical use and a high potential for abuse. Efforts to conduct rigorous medical research and/or reclassify marijuana in the Drug Enforcement Agency (DEA) schedule will increase scientific data available to inform clinicians and medical professionals.

The history and basic science of medical marijuana in treating neurologic disorders dates to the 1800s. Marijuana is derived from the plant *Cannabis sativa*, which contains over 60 different pharmacologically active compounds referred to as cannabinoids.¹¹ THC is the major psychoactive compound which causes the euphoric effect. Other cannabinoid compounds such as cannabidiol and CBD are not known to have psychoactive properties. Cannabinoid compounds have the potential for therapeutic benefit in a number of neurologic diseases. However, the psychoactive effects of THC can acutely alter a patient's cognition and inhibit normal functioning. Long-term effects on learning and memory may occur.¹² Thus, from a safety perspective, medical use of products with high THC content is controversial. Research is necessary to develop marijuana-based compounds that have minimal psychoactive properties while retaining any therapeutic pharmacologic effects.

Position Statement History

Originally drafted in 2014, updated in 2018 by John C.M. Brust, MD, FAAN; Dominic Fee, MD, FAAN; Pushpa Narayanaswami, MBBS, DM, FAAN; Anup Patel, MD, FAAN; Sarah Song, MD; Sarah Youssef, MD; Amber Stock, MPH (AAN staff). Approved by the AAN Board of Directors February 2018.

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