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Working to Reform Marijuana Laws

Epilepsy

Epilepsy is a central nervous system disorder characterized by uncontrollable twitching of the arms or legs and/or seizures. One in 26 Americans will develop epilepsy during their lifetime, according to statistics published by the Epilepsy Foundation. Conventional treatment to mitigate symptoms of this disorder includes medications or, sometimes, surgery. Nonetheless, even with conventional treatment, an estimated 30 percent of people with epilepsy continue to experience seizures.

Epileptics frequently report gaining subjective relief from cannabis-based interventions.[1-2] In recent years, increased focus has been paid to the use of cannabis-based therapies by adolescents with severe forms of pediatric epilepsy.

Parents of epileptic children have long advocated in favor of the therapeutic efficacy of cannabis, in particular the use of CBD-rich products, in media reports[3] and in scientific surveys.[4-5]

Initial open-label trials showed evidence in support of parents' claims. For example, a retrospective chart review of children and adolescents who were given oral cannabis extracts in a Colorado epilepsy center reported mitigation in seizure frequency in up to 57 percent of subjects.[6] Additional benefits reported included: improved behavior/alertness (33 percent), improved language (10 percent), and improved motor skills (10 percent).

Similarly, a 2016 Israeli study retrospectively evaluated the effects of plant-derived CBD oil in a multicenter cohort of 74 patients with intractable epilepsy. Investigators reported: "CBD treatment yielded a significant positive effect on seizure load. Most of the children (89 percent) reported reduction in seizure frequency. … In addition, we observed improvement in behavior and alertness, language, communication, motor skills, and sleep."[7]

These initial results were eventually reaffirmed in randomized, placebo-controlled trials assessing the safety and efficacy of the plant-derived CBD extract known as Epidiolex.

Clinical trial results made public in April 2015 at the 67th Annual Meeting of the American Academy of Neurology reported that the administration of Epidiolex decreased seizure frequency by 54 percent over a 12-week period in children with treatment-resistant epilepsy.[8] Trial data reported in the fall of 2015 at the American Epilepsy Society's annual meeting further reported that the adjunctive use of Epidiolex was associated with long-term seizure relief in 40 percent of adolescent subjects.[9] Trial data reported in the journal *Lancet Neurology* reported a median reduction in seizures in adolescent patients treated with Epidiolex that approached 40 percent. Authors concluded, "Our findings suggest that cannabidiol might reduce seizure frequency and might have an adequate safety profile in children and young adults with highly treatment-resistant epilepsy."[10] Data provided from a state-sponsored trial conducted by investigators affiliated with the University of Alabama at Birmingham in 2016 reported that an estimated 90 percent of subjects with pediatric epilepsy showed "some improvement" following CBD treatment.[11]

Separate clinical studies conducted during this time further demonstrated that Epidiolex treatment mitigates seizure frequency and is well tolerated in the treatment of Lennox-Gastaut syndrome, a rare and severe form of epilepsy.[12-13] Epidiolex/CBD treatment is also associated with improved symptoms and reduced prescription drug intake in pediatric patients with febrile infection-related epilepsy syndrome (FIRES), a devastating form of epilepsy affecting normal children after a febrile illness,[14] as well as with

seizure reduction in patients with tuberous sclerosis complex-induced epilepsy.[15] Another trial, published in 2018 in Canada, similarly reported that plant-derived extracts containing high percentages of CBD and low percentages of THC were safe and effective in children with Dravet syndrome.[16] The adjunctive administration of CBD and clobazam has also been demonstrated to be safe and effective in child subjects.[17]

Based on this and other data, regulators at the United States Food and Drug Administration granted market approval for Epidiolex in the treatment of Lennox-Gastaut syndrome and Dravet syndrome in June of 2018. The drug is categorized as a Schedule V controlled substance. In 2020, FDA regulators expanded the prescription use of Epidiolex to patients with the genetic disorder tuberous sclerosis complex (TSC). By contrast, cannabidiol in forms other than in Epidiolex is not FDA-approved.

In recent years, follow-up studies have affirmed the sustained safety and efficacy of Epidiolex in patients who were administered it long term. Data published in 2020 reported "no statistically significant changes in cognitive function" among pediatric patients taking the drug twice-daily for extended periods of time.[18] Data from another study, published in 2021, reported that the efficacy of Epidiolex as an anti-seizure remedy improved the longer subjects took it. Authors reported: "[The] percentage of children achieving [a] ≥50 percent seizure frequency reduction was 44 percent at month 1, and 41 percent at year 1, and [a] 61 percent reduction at year 2, while adult responder rates were 34 percent at month 1, 53 percent at year 1, and 71 percent at year 2."[19]

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