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Case Report: Cannabis for Treatment of PTSD

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Eddie is a 14-year-old male residing in a Child Protective Services center. He presented unaccompanied to the psychiatric emergency department of a large city hospital reporting suicidal ideation in the setting of ongoing stressors. He explains that in the previous two days, he has been involved in physical altercations at the center despite the fact that he was attempting to remain uninvolved in any conflicts.

He has a psychiatric history significant for a diagnosis of ADHD, post-traumatic stress disorder (PTSD) and cannabis use disorder (CUD). He also reports being subjected to frequent physical abuse and neglect from his mother since early childhood. He has one previous psychiatric hospitalization after a suicide attempt and history of aggression towards others. He previously received psychopharmacological treatment in an outpatient setting, but is no longer taking any medications as he has not attended any follow up appointments.

During the interview, Eddie reports feelings of hopelessness, depressed mood, anhedonia and recurrent nightmares. He explains that he uses cannabis on a daily basis to cope with anxiety, and reports no intention of decreasing his use due to the perceived anxiolytic effect.

Developmental Trauma

Exposure to traumatic events in childhood may result in symptoms that reflect the developmental stage, duration, frequency, types and intensity of the abuses inflicted. As a result, clinical presentations vary greatly, and can include internalizing symptoms (anxiety, depression), externalizing symptoms (aggression, inattention, hyperactivity), suicidality, emotional dysregulation, cluster B personality traits, psychosis, and substance use (Morelli and Villodas, 2022). As a result of the wide presentation range, patients may receive several co-occurring diagnoses in a clinician's attempt to capture the full extent of the patient's symptom expression. In an attempt to encapsulate such complex presentation, trauma-informed researchers have coined the term developmental trauma disorder (DTD), intended to contrast with the more uniform presentation of adult-onset PTSD. In the definition offered for DTD, patients must exhibit impairments in three major developmental competencies:

1. affective or physical arousal regulation,
2. attentional and behavior regulation, and
3. personal identity and relationship involvement.

These criteria attempt to gather the myriad of symptoms observed in people exposed to childhood trauma, i.e: impaired ability to modulate high arousal states, impaired ability to learn from and cope with stress, and negative perception of self and maladaptive relational behavior (Morelli and Villodas, 2022).

Cannabis access and trends in the US

The number of states legalizing recreational cannabis use is increasing throughout the country. Studies of the impact of cannabis legalization have noted higher prevalence of cannabis use to states that did not legalize cannabis (Yu et al, 2020). However, rates of cannabis use have remained relatively stable since the early 2000's and legalization was not found to increase the number of recreational users among adolescents (Yu et al, 2020).

Although sales are limited to those above 21 years, accessibility to cannabis has been noted to increase in adolescents as dispensaries and smoke shops selling legally permitted products have increased. In studies of adolescent purchasing patterns it was noted that up to 34% of youth aged 12-17 years reported obtaining cannabis for free from friends or family (King et al, 2016). Since the mid 2010s, perceived risks associated with cannabis use showed steady declines among 8th, 10th and 12th graders. As a result, youth dare at greater risk of medical and psychiatric consequences of cannabis use, such as E-cigarette or Vaping Use-Associated Lung Injury (EVALI), psychosis, mood disorders, amotivational syndrome, and CUD (Volkow et al, 2014).

Therapeutic use of cannabis for trauma disorders

The role of cannabis in trauma disorders is yet to be clarified. Preclinical research was able to replicate brain alterations related to early trauma exposure in different animal models, which were ultimately associated with dysfunctions in the endocannabinoid system (ECS) through a decrease in CB1 receptor activity and an upward regulation of CB2 receptors

—typically found outside the central nervous system— in different brain areas (Dunn et al, 2020). Animals exposed to trauma showed increased aggressiveness, impulsivity and anxiety, which was counteracted by the administration of ECS agonists (such as THC). Noteworthy, ECS activation was not cognitively harmful in these models (as demonstrated by the improvement in object location, social recognition and novel object recognition tasks), suggesting a potentially different side effect profile. Paired to these preclinical findings, there is some clinical data that suggests that cannabis might be a suitable treatment for trauma-related disorders. While these studies shed light on the therapeutic potential of cannabis, they are at best in the early stages of treatment exploration. A recent literature review on the efficacy of cannabis products for PTSD (Bedard-Gillian et al., 2022) showed that the current evidence is composed of naturalistic studies and open trials, and the only randomized clinical trial to date found no benefit of cannabis over placebo. Unfortunately, cannabis is already being touted as a treatment for PTSD without much consideration to the complexities of the various cannabis products, the lack of methodologically sound trials and potential psychiatric consequences (Medical Marijuana act, 2023).

Future of Research

Despite legalization for recreational and medical purposes by some states, cannabis' role as a treatment for psychiatric conditions has been hampered, as cannabis remains illegal on the federal level. Additionally, it has been labeled a Schedule 1 narcotic –the highest level of restriction– since the passing of the Controlled Substances Act of 1970. The Schedule 1 categorization results in greater licensing requirements, reviewal processes and oversight procedures that involve local, state and federal agencies for its use in research; hindering the development of adequate clinical trials (National Academies of Sciences, Engineering and Medicine, 2017). A review of the regulations about the use of cannabis in clinical research are paramount to advance in new therapeutic alternatives needed for the treatment of PTSD and potentially DTD.

Traumatic exposures throughout the lifetime are ubiquitous and contribute to mental health disorders, medical illness, poor academic outcomes, reduced job functioning, and high healthcare utilization and costs, among other individual and societal consequences. Adequately powered randomized clinical trials that examine the potential medical benefit of cannabis for DTD will either expand treatment options or provide medical professionals evidence to the contrary. Without high quality research in this area, patients with DTD/PTSD who use recreational, unregulated cannabis sources to resolve their symptoms, will continue to expose themselves to unknown adverse reactions of cannabis. Likewise, healthcare professionals are limited in their ability to counsel patients due to the lack of strong research which supports abstinence.

Treatment Recommendations

The mainstay of PTSD treatment in those less than 18 years of age is psychotherapy alongside medications (Cisler & Herringa, 2021). Trauma-focused therapies are crucial for patient outcomes and functional improvements. Though currently there are no FDA approved treatments for PTSD in pediatric populations, many clinicians use those approved in adults (e.g., antidepressants from the SSRI family or alpha-agonists). The use of second generation antipsychotics is controversial, but can be helpful in cases where auditory-visual hallucinations do not improve with SSRI and alpha-agonist optimization. Adolescents with PTSD are also susceptible to substance use and addiction, as well as partaking in high risk behaviors (e.g., unprotected sexual encounters, nonsuicidal self injury and suicide attempts). To prevent future harm, youths should be screened with a full psychiatric and medical assessment (including infectious disease testing) and provided comprehensive treatments that include drug and alcohol counseling (medication-assisted treatments when appropriate) and safety planning with available adults. Those using cannabis should be counseled about the risks of using high potency cannabis products, and the associated risk of developing addiction, psychotic illness, amotivational syndrome, withdrawal symptoms, deficits in coordination and memory, and lung injury (Volkow et al, 2014).

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