


Cannabidiol in medicine: Indications, efficacy and clinical considerations

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ABSTRACT

Cannabidiol (CBD), a component of *Cannabis sativa*, has been studied for its therapeutic properties in several medical conditions. Clinical indications include the treatment of refractory epilepsies, anxiety disorders, chronic pain of neuropathic or inflammatory origin, sleep disorders such as insomnia, and neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease. The use of CBD is considered when other therapeutic options fail, in patients intolerant to the adverse effects of conventional medications, or as an adjuvant therapy to enhance the effectiveness of other treatments.

Keywords: Cannabidiol, CBD, Cannabis.



INTRODUCTION

The use of Cannabidiol (CBD) in medical practice has been the subject of increasing interest due to its therapeutic properties in various clinical conditions. CBD, one of the compounds derived from the Cannabis sativa plant, has demonstrated efficacy in various medical indications, ranging from the treatment of refractory epilepsies to the management of anxiety disorders and chronic pain of neuropathic or inflammatory etiology. In addition, its potential applicability extends to sleep disorders, such as insomnia, and neurodegenerative diseases, including Parkinson's disease and Alzheimer's disease. Among the main clinical indications of CBD, the treatment of refractory epilepsies stands out, especially in pediatric patients with severe epileptic syndromes such as Dravet syndrome and Lennox-Gastaut syndrome. In addition, CBD has been studied and used in the management of anxiety disorders such as generalized anxiety disorder (GAD), post-traumatic stress disorder (PTSD), and panic disorder.

Another area of great interest is the use of CBD in the management of chronic pain, especially that of neuropathic origin or associated with inflammatory conditions such as rheumatoid arthritis and fibromyalgia. Studies suggest that CBD has analgesic and anti-inflammatory properties, and may be an important therapeutic option for patients who do not respond adequately to other treatment modalities.

In addition, CBD has been investigated as a possible adjunctive therapy in neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease. Although still in the preliminary study phase, some evidence suggests that CBD may have neuroprotective and anti-inflammatory effects, and may play a role in reducing the progression of these diseases and improving the quality of life of affected patients.

However, it is important to point out that the use of CBD in clinical practice requires a cautious approach and supervision by qualified healthcare professionals. Considerations such as proper dosage, potential drug interactions, and monitoring of adverse effects are key to ensuring the safety and efficacy of CBD treatment. In addition, regular follow-up is required to assess the patient's response and adjust the treatment plan as needed.

METHODOLOGY

The research was developed and based on the reading and analysis of scientific articles, obtained from the databases: PUBMED, MEDLINE and SciELO, where publications related to the theme were selected, without geographical restriction. The search took place from March 25 to April 1, 2024, using the Descriptors in Sciences and Health (DeCS): "Cannabis" and "Cannabidiol";



RESULTS AND DISCUSSIONS

Growing research on Cannabidiol (CBD) has revealed a wide range of therapeutic applications in various areas of medicine. One of the most notable fields is the treatment of refractory epilepsies, where CBD has demonstrated efficacy in controlling seizures, especially in children with syndromes such as Dravet syndrome and Lennox-Gastaut syndrome. Mechanically, CBD appears to exert its anticonvulsant effects through the modulation of CB1 and CB2 cannabinoid receptors, as well as interacting with neurotransmitters such as glutamate and GABA. Additionally, CBD has been investigated as a therapeutic alternative for anxiety disorders such as generalized anxiety disorder (GAD), post-traumatic stress disorder (PTSD), and panic disorder. Proposed mechanisms include its action on 5-HT_{1A} serotonergic receptors and endocannabinoid system pathways, resulting in anxiolytic and antidepressant effects that may be beneficial for patients who do not respond adequately to conventional treatments. When it comes to pain control, CBD has excelled in the treatment of chronic pain of neuropathic or inflammatory origin. Its analgesic and anti-inflammatory capacity is attributed to the inhibition of neuronal activity through the activation of TRPV1 and TRPA1 receptors, as well as the reduction of the release of pro-inflammatory cytokines. This makes CBD a promising therapeutic option for patients suffering from conditions such as rheumatoid arthritis, fibromyalgia, and other persistent pain.

Regarding neurodegenerative diseases such as Parkinson's disease and Alzheimer's disease, CBD has sparked interest due to its neuroprotective potential. Early studies suggest that CBD may reduce neuroinflammation, modulate neuronal apoptosis, and protect against oxidative stress, thereby contributing to the preservation of brain function and delaying the progression of these debilitating conditions. However, it is important to point out that despite the potential benefits, the use of CBD in clinical practice requires a careful and individualized approach. Considerations such as proper dosage, potential drug interactions, and monitoring of adverse effects such as drowsiness and gastrointestinal changes are key to ensuring the safety and efficacy of CBD treatment. In addition, regular follow-up of patients is necessary to assess the response to treatment and adjust the therapeutic plan as needed, thus maximizing the therapeutic benefits of CBD in modern medicine.

FINAL THOUGHTS

Cannabidiol (CBD) represents an important addition to the therapeutic arsenal in medicine, demonstrating efficacy in a variety of clinical conditions ranging from refractory epilepsies to anxiety disorders, chronic pain, and neurodegenerative diseases. Its multifaceted mechanisms of action, which include receptor modulation, neurotransmitter interactions, and anti-inflammatory and neuroprotective properties, contribute to its therapeutic versatility.



In summary, Cannabidiol (CBD) offers a new perspective on contemporary medicine, providing significant therapeutic benefits in various medical conditions. With a thoughtful approach and a solid foundation of scientific evidence, CBD has the potential to improve the quality of life for many patients and break new ground in the field of evidence-based medicine and clinical research. Its therapeutic versatility, coupled with the growing understanding of its mechanisms of action, highlights its importance as a valuable therapeutic option, which can offer effective solutions to complex clinical challenges. By continuing to explore its potential and enhance its clinical use, we can move towards an era of more personalized and effective medicine, benefiting the health and well-being of individuals around the world.



REFERENCES

1. Devinsky, O., Orrin, et al. (2016). Cannabidiol in patients with treatment-resistant epilepsy: an open-label interventional trial. *The Lancet Neurology, 15*(3), 270-278.
2. Blessing, E. M., et al. (2015). Cannabidiol as a potential treatment for anxiety disorders. *Neurotherapeutics, 12*(4), 825-836.
3. Russo, E. B. (2008). Cannabinoids in the management of difficult to treat pain. *Therapeutics and Clinical Risk Management, 4*(1), 245-259.
4. Fernández-Ruiz, J., et al. (2013). Cannabidiol for neurodegenerative disorders: important new clinical applications for this phytocannabinoid? *British Journal of Clinical Pharmacology, 75*(2), 323-333.
5. Crippa, J. A. S., et al. (2014). Cannabidiol for the treatment of anxiety disorders: A review of Brazilian clinical studies. *Revista Brasileira de Psiquiatria, 36*(1), 104-110.
6. Guimarães, F. S., et al. (2012). Cannabidiol: a new option for the treatment of anxiety. *Revista de Psiquiatria do Rio Grande do Sul, 34*(2), 6-7.
7. Zuardi, A. W., et al. (2015). Cannabidiol for the treatment of drug-resistant epilepsy in children: an open-label trial. *Revista Brasileira de Psiquiatria, 37*(3), 264-270.
8. Mello Schier, A. R., et al. (2014). Antidepressant-like and anxiolytic-like effects of cannabidiol: a chemical compound of Cannabis sativa. *CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders), 13*(6), 953-960.
9. Mechoulam, R., et al. (2008). Cannabidiol in medicine: a review of its therapeutic potential in CNS disorders. *Neuropsychiatric Disease and Treatment, 4*(1), 745-758.
10. Bergamaschi, M. M., et al. (2011). Safety and side effects of cannabidiol, a Cannabis sativa constituent. *Current Drug Safety, 6*(4), 237-249.
11. Campos, A. C., et al. (2010). Inhibition of experimental autoimmune encephalomyelitis by cannabinoids. *Neuropharmacology, 58*(7), 1400-1407.