

Medical Cannabis, Headaches, and Migraines: A review of the current literature

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Introduction

- Cannabis has been used since ancient times to manage a variety of conditions:
 - Chronic nonmalignant pain
 - Anxiety/Depression
 - Cancer
 - Headaches
 - Migraines
- Exists in three forms
 - Indica
 - Ruderalis
 - Sativa
- THC and CBD are the major components of marijuana that affect the endocannabinoid system.
- Endocannabinoid system consists of cannabinoid (CB) receptors
 - CB1 – Central and peripheral nervous system. Decreases dopamine, GABA, glutamate activity
 - CB2 – Peripheral nervous system and immune tissues. Decreased immune system function and increased analgesia

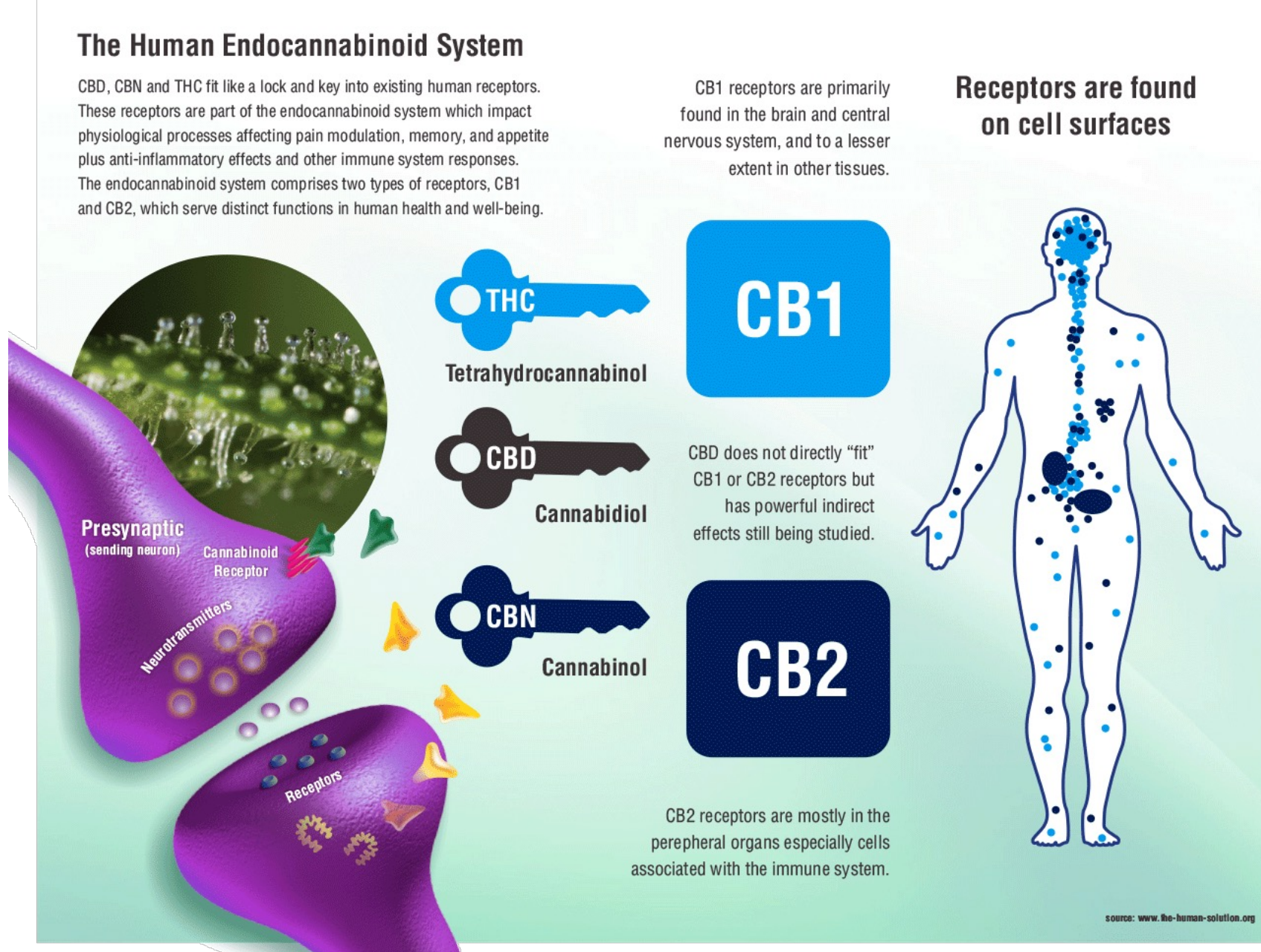


Figure 1: The endocannabinoid system

- Why migraines and cannabis?
 - Several pathways act to reduce migraine/headache frequency (Glutamate, inflammatory, opiate, serotonin).
 - Stops platelet serotonin release and dopamine activity
 - Active in the periaqueductal grey matter

Review

- Our literature search revealed 34 articles that were published in the English language and in between 1987-2020. This approach can be based upon three questions:
 - Is medical cannabis effective upon headaches/migraines?
 - What forms of medical cannabis do people prefer?
 - What is an “ideal dose” for a preferred form?
- **Is medical cannabis effective?**
 - Yes
 - Aviram et al (2020) studied 68 medical cannabis users. All reported better migraine symptom reduction, better sleep quality, and decreased medication use.
 - Baron et al (2018) demonstrated that medical cannabis use decreases migraine symptoms (nausea, vomiting, etc.)
 - Leroux et al (2019) surveyed 139 individuals in a local French hospital. 1/4 of all patients saw a modest effect. 1/8 of all patients saw migraine elimination
- Dronabinol and nabilone are used for second line therapies for cluster headaches
- **What forms of medical cannabis are preferred?**
 - Smoking, vaporization, “dabs,” flour -> any form that’s inhaled
 - Salazar et al (2011) studied 50 participants who use all forms of medical/non-medical cannabis. He found that inhaled was preferred.
 - Piper et al (2017) studied patient-physician communication and medical cannabis use. 2/3 of all participants reduced anti-anxiety, migraine, antidepressant, and alcohol use. Preferred methods included
 - Rhyne et al (2016) reviewed 82 patient charts. 20 patients used at least two forms of medical cannabis to manage migraines.
- Inhaled methods (smoking, vaporization) are preferred for medical cannabis use. Hybrids are used for headaches whereas single strains are for migraines only.
- **What is the “ideal dose?”**
 - Baron et al (2020) did an electronic survey. He found that 200 mg of THC reduced migraine pain by 55%. He also compared 200 mg of a hybrid strain (THC + CBD) to 25 mg of amitriptyline. He found that 200 mg of the hybrid strain improved migraine quality by 40.4%
 - Sexton et al (2016) utilized an online survey. They found that 3.4% of people used 28 g of flour per week. 31.8% of people used 3-5 g per week.
 - 59.8% of medical professionals who participated in the survey use medical cannabis as an alternative treatment for migraine/headache management.
- Finding an ideal dose is difficult due to user preference and endocannabinoid system composition.
- More studies are needed to determine what is an effective dose.
- Combination studies are needed for migraine medication titration.

Limitations/Conclusion

- A multitude of medical cannabis products exist with different formulations and strains:



Figure 2: Medical cannabis tinctures, oral sprays, and capsules

- Small number of articles did not provide a quality analysis
- Selected surveys had the following limitations as well
 - Small sample size(s)
 - Lack of adequate follow up
 - Could not verify answers from online surveys
 - Few control trials present
 - Lack of meaningful research within the United States due to cannabis’s designation by the Drug Enforcement Agency
- Despite a lack of meaningful studies:
 - Benefits outweigh consequences for medical cannabis use
 - Patients report more positive effects with medical cannabis use.
 - “Disorganized realm” gives more patient and provider choice for management.

References (Scan the QR code)

