Effects of Medical Marijuana on Migraine Headache Frequency in an Adult Population

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Introduction

Migraines are described by the World Health Organisation as a **primary headache disorder with recurrent attacks**, caused by the release of pro-inflammatory substances within and around the cranial neurovasculature.[2]

The condition is often lifelong and is the **6th highest cause of years lost due to disability**.[2] While a variety of pharmacological interventions are available for acute and preventative treatment, the prevalence and impact of migraines worldwide indicate a therapeutic gap.

The endocannabinoid system is a promising target across a variety of chronic pain conditions. Migraine has been posited as a disorder resulting from **endocannabinoid deficiency**, potentially via activation of the trigeminovascular system.

The effects of the primary active components of marijuana, delta-9-tetrahydrocannabinol (THC) and cannabidiol (CBD), are mediated through the endocannabinoid system, with **widespread downstream effects on neurotransmitters involved in pain signalling.**

Currently, clinical evidence supporting the efficacy of marijuana (cannabis) for migraines is limited to case reports. This observational study is among the first to present clinical data on the effect of medical marijuana in a cohort of patients with migraines.

Aim of the study

This study aims to explore the **association between medical marijuana use and monthly headaches** and document the type and dose of interventions used along with their positive and negative patient effects.

Methods and materials

A retrospective observational chart review of **121 adult patients with a primary diagnosis of migraine headache treated with medical marijuana** with at least one follow-up.

The **average duration of occurrence of migraines was 14 years** among this cohort. Patients were treated at a private medical practice by a clinician specializing in the application of medical marijuana.

Primary and secondary outcomes

The primary outcome was the monthly frequency of migraines at baseline compared to follow-up after treatment with medical marijuana. Secondary outcomes included the type of medical marijuana and patient-reported effects.

Results

The primary outcome of this study was reached, with mean monthly migraines reducing from 10.4 to 4.6 at follow-up after treatment with medical marijuana ($p < 0.0001$). The mean follow-up period was 21.8 months (range; 12-37).

85.1% of patients reported a decrease in the frequency of migraines per month, and 12.4% reported no change.

More than half of the patients used two or more forms of medical marijuana during the follow-up period, and 90% of patients reported both prophylactic and acute use. The reported formulations were vaporized, edible, topical and smoked products.

Positive effects were reported by 40% of patients, whereas only 11% of patients reported negative effects. Notably, only one patient reported increased headaches, which may suggest that medical marijuana did not lead to observable medication overuse headaches

Summary

This study is among the first to demonstrate a significantly decreased monthly frequency of migraines with medical marijuana use compared to baseline, with patients experiencing half as many headaches on average.

The formulation and dose may affect the efficacy of medical marijuana for acute treatment vs. prophylaxis and its negative effects. For example, edible formulations were associated with difficulty controlling the timing and effect of treatment, likely owing to their variable pharmacokinetic profile and longer peak effect.

Further studies are needed to determine the preferred delivery method, dose and strain for migraine therapy, and potential long-term effects.

References

1. Rhyne, D.N., Anderson, S.L., Gedde, M. and Borgelt, L.M., 2016. Effects of medical marijuana on migraine headache frequency in an adult population. Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy, 36(5), pp.505-510.
2. World Health Organization. 2016. Headache Disorders. Accessed 28.04.23. Available: https://www.who.int/news-room/fact-sheets/detail/headache-disorders

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