The Analgesic Potential of Cannabis

While some cultures have used cannabis for centuries to relieve pain, it's only recently, with the legalization of medical marijuana in so many U.S. states, that its potential analgesic (pain relief) properties have become widely known.

Studies on the human endocannabinoid system in 1992 identified the role cannabinoids play in bringing bodily functions back into balance, including reducing and/or relieving the perception of pain. Since then, plant based cannabinoids, such as CBD oil extracted from hemp and marijuana, and CBD-rich strains of weed have become extremely popular, prescribed by doctors, available at cannabis dispensaries, and sold as salves, tinctures and CBD-infused drinks in convenience stores across the country.

Scientific studies of cannabis's analgesic properties, while promising, are still very limited. There is, though, a great body of anecdotal evidence that suggests that for many people, CBD, especially cannabis-derived CBD with some THC content, can be a very effective analgesic, with few negative side effects.

A recent scientific study has found that CBD may be more effective in reducing the perception of pain/the feeling of pain, than reducing pain itself.

Some research shows that cannabis may be an effective adjunct to opioid use in treating severe pain, and may help reduce the amount of opioids used, the duration of use, and in doing so, reduce the likelihood of dependence.

At Home Grow Community, we've had positive personal experience with cannabis' pain relief, and so encourage the scientific community to take on the research needed to explain how it works, where it's effective, proper dosing, as well as identifying possible side effects, and who might be at risk if used.

How Cannabinoids Work In The Body

The human endocannabinoid system serves to keep body functions in balance throughout the body. CB1 and CB2 receptors, part of this system, help to regulate pain signaling to the brain. Research into the chemistry of this system, and the effect of cannabinoids produced by the body and to plant-based cannabinoids in response to injury, indicates that they bind with these receptors, helping to inhibit pain signals. An article in Frontiers in Pharmacology explains how cannabinoids, such as CBD, affect the human endocannabinoid system, and why they have promising analgesic properties:

> "The mechanisms of the analgesic effect of cannabinoids include inhibition of the release of neurotransmitters and neuropeptides from presynaptic nerve endings, modulation of postsynaptic neuron excitability, activation of descending inhibitory pain pathways, and reduction of neural inflammation.

Recent meta-analyses of clinical trials that have examined the use of medical cannabis in chronic pain present a moderate amount of evidence that cannabis/cannabinoids exhibit analgesic activity, especially in neuropathic pain."

Research Results

The Frontiers of Pharmacology article cites studies that show that "… synthetic or plant-derived cannabinoid receptor antagonists or endogenous cannabinoid ligands are effective in different animal models of acute pain (Dhopeshwarkar and Mackie, 2014). However, data obtained in humans, including volunteers with experimental pain and clinical trial patients, suggest that cannabinoids may be more effective for chronic

rather than acute pain conditions (Kraft et al., 2008). Also, a number of targets identified in animal studies have not been confirmed in clinical trials." It goes on to cite a number of animal-based studies that indicate the effectiveness of cannabinoids in regulating pain, especially neuropathic and inflammatory pain, and the increased effectiveness of those that used a combination of CBD, THC and turpenes, over a single compound alone. The article does caution that human response to pain is more complex than animal response, and so harder to isolate and measure.

Clinical trials with humans are still relatively rare. Of those observed, the article states that "Clinical studies have shown that cannabinoids are not effective against acute pain (Buggy et al., 2003; Bealieu, 2006; Holdcroft et al., 2006, Kraft et al., 2008). Clinical data also indicate that cannabinoids may only modestly reduce chronic pain, like all presently available drugs for the treatment of chronic pain in humans (Romero-Sandoval et al., 2017)."

The authors of the article concluded that "The National Academy of Sciences, Engineering and Medicine (NASEM, 2017) has evaluated more than 10,000 scientific abstracts and established that there is 'conclusive or substantial evidence' for the use of cannabis in treating chronic pain in adults."

"Cannabis and Pain: A Clinical Review" published by the National Institutes of Health, concluded that collectively, this research indicates that although the results of experimental studies with healthy adults are mixed, there is converging evidence to support the notion that cannabis can produce acute pain-inhibitory effects among individuals with chronic pain. This observation is consistent with determinations made by authors of the recent National Academies report on cannabis that there is "conclusive or substantial evidence" of benefit from cannabis or cannabinoids for chronic pain. However, it is important to also highlight their statement that more research is needed to better understand the efficacy, dose–response effects, routes of administration, and side effect profiles for cannabis products that are commonly used in the United States."

An article in Inverse took these findings a step further, explaining how cannabis may affect the perception of pain more than pain itself: "In a systematic review and meta-analysis released Wednesday, scientists from Syracuse University explain that while studies can't currently prove that cannabinoid drugs reduce pain, research does demonstrate that they can help with the experience of feeling pain. An evaluation of 18 studies that included 442 adults revealed that the use of cannabinoid drugs modestly increased people's threshold for pain and reduced pain's overall sensation of unpleasantness. This suggests to the researchers that cannabis' analgesic properties, or its ability to relieve pain, affect the mind rather than the body."

Cannabinoids And Opiates

Preliminary studies suggest that cannabis when used with opioids to treat pain, produces greater pain relief, with lower doses of opioids required. According to Leafly, "This has the potential to effectively wean patients off their opioid regimen."

Opioids are effective in treating acute pain, but marginally effective in dealing with chronic pain, while cannabinoids appear to do the opposite—they're not very effective for acute pain, but reasonably effective for chronic pain treatment.

Cannabinoids may also offer chronic pain relief with fewer side effects, including reducing drug cravings, one of the primary reasons people become addicted to opioids. CBD, which is non-addictive, can be used to not only reduce pain, but the anxiety and mood swings common in opioid withdrawal. With gradual substitution of cannabinoids for opioids, we may be able to reduce the relapse rate.

There is some evidence that states that have legalized medical marijuana have seen a reduction in opioid use/opioid dependence. According to Leafly, "In the United States, total prescription drug spending in Medicare for both program and enrollee spending fell by $165 million per year in 2013 after the implementation of several state medical cannabis laws."

Sources

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