THE EFFECT OF CANNABIDIOL ON INTRAOCULAR PRESSURE

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Introduction

- Cannabidiol (CBD) is one of the most prevalent active ingredients in cannabis (marijuana) along with tetrahydrocannabinol (THC).
- CBD does not produce any psychoactive effects, unlike THC. CBD has recently grown in popularity and usage; it has become increasingly available as a natural remedy.
- CBD binds to different receptors than THC. It is said that CBD increases energy, reduces anxiety, decreases inflammation, and improve preexisting systemic diseases.
- This literature review was constructed to analyze the effects of CBD on intraocular pressure.

Methods

- This literature review was constructed using SmartSearch through the Ferris State University FLITE library and the PubMed search engine.
- Key words in the search included: CBD, IOP, cannabidiol, intraocular, pressure, THC, increase, decrease. Results were limited to available peer-reviewed journals that were published between the years 2000 and 2020 and were written in the English-language.
- All articles pertaining to CBD and its effect on IOP were reviewed to determine if they were suitable to be used as a reference in this literature review.

Data Analysis & Results

- Limited research has been conducted studying the relationship of CBD and IOP.
- There are two primary studies published indicating a direct relationship between taking CBD and it resulting in an increased intraocular pressure.

- Randomized double-masked, placebo-controlled, 4-way crossover pilot study from 2006.
- 6 individuals received either 5mg Delta-9-THC, 20mg CBD, 40mg CBD, or placebo.
- THC subject showed a decrease in IOP; no effects on IOP were noted with either placebo or 20mg CBD; lastly, an increase in IOP with 40mg CBD was found.

- An experiment was conducted in 2018 at the University of Indiana campus.
- CBD was instilled in the eyes of 85 mice; IOP was measured at 1 hour and 4 hours post-instillation.
- Study concluded that THC lowered IOP by acting on a combination of receptors, while CBD had an opposing effect, raising it by 18%. See Figure 1.

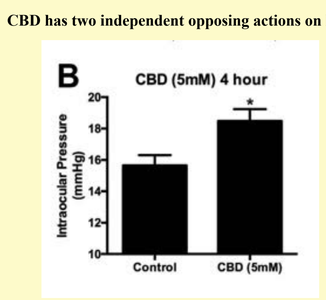

Figure 1: CBD raises IOP at 4 hours. Similar graph represented at the 1 hour mark.

Conclusions

- There is a very limited amount of information and very few studies focused on determining the effects of CBD on IOP.
- Studies that do exist report a transient increase in IOP following the consumption of CBD.
- Because chronic, long-term increases in intraocular pressure have the potential to cause damage to the optic nerve, it is important to gather more realistic data from a larger sample size of humans using the most common CBD product vehicle and formulation.

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