

THE THERAPEUTIC USE OF CANNABIS

CANNABIDIOL CBD

DOSING & ADMINISTRATION METHODS OVERVIEW

The expression profile of cannabinoid receptors and endocannabinoid levels is cell-specific and changes as a function of disease and the aging process, so the response of humans to cannabinoid based therapeutics will be different depending on the age of the patient, and disease phase.

Until now, most relevant preclinical studies have been done in animal models where the pharmacokinetics differ from those in humans and so do the active blood concentrations of CBD. Plus CBD targets may differ between humans and animals as does the affinity to them, and in fact when mice and humans are given the same dose, the former show a higher bioavailability which in turn causes larger CBD effects. And finally, in preclinical studies supraphysiological concentrations are often used, and then the effects observed might not relate to specific binding to receptors but rather, they can be due to unspecific binding or even inactivation of them.

Due to its lipophilic nature, CBD quickly diffuses and crosses the blood-brain barrier, while its elimination is prolonged, going through all different metabolic

pathways and undergoing multiple reactions until it is finally excreted from urine with a half life of 9 hours.

It is known that CBD can affect some hepatic drug metabolism systems in both ways, inhibiting in the short term and inducing them after repeated administration. In turn, CBD is metabolized via other enzymes that can be inhibited by various medications and cause slower degradation of it and higher doses that are active longer. Other drugs, in contrast can induce CBD metabolism causing reduced bioavailability. Also some drug transport systems can be affected by CBD.

However, it must be said that the concentrations used where these effects have been seen are supraphysiological and usually not reached by oral or inhaled CBD administration.

DOSING

When humans have been given doses of 10 and 120 mg/kg oral CBD, it has led to blood levels of 0.001 and 0.12 microgr/ml respectively and since up to 1 microgr/ml would be needed to affect drug transporters, which is as much as 2.100 mg CBD, and if 700 mg CBD reflects the most realistic scenario of CBD dose in patients when really high doses are considered, it is clear that the safety margin is really very big ,but even chronic use and high

doses of up to 1.500 mg per day have been repeatedly shown to be well tolerated in humans and has not lead to elevated mean blood concentrations.

But even if it is logical to assume that the mean plasma concentration exerts the total of observed CBD effects, single high doses of CBD as high as 600-800 mg have been shown to be effective.

But these above mentioned data are extreme figures that do not correspond with what the standard way of dosing actually is in most cases.

CBD dosing will be adjusted depending on the circumstance, the particular need of each and every one and the way of administration. As a general rule it is best to take it sublingually than orally in capsules due to the higher bioavailability, 20-30% compared to just 5% in oral preparations, and faster onset of action. There are some other forms of taking CBD orally that eventually will become more popular, like infused food called edibles. Vaping, a form of inhalation, second in popularity to sublingual drops, and with a higher bioavailability of around 30-40%, it used when a fast relief is needed like in an anxiety crisis or a migraine attack, among others. Topicals will probably become even more popular than oils due to the multitude of cosmetic uses and dermatological conditions that can be treated with them. Transdermal patches have even higher bioavailability, like

of 70%, and have advantages over the other methods, like acting both locally and systemically and lasting for about 8-12 hours, but are expensive and will not become so popular. Finally, suppositories have the highest bioavailability of all methods, of up to 80-90% and they will become popular in hospitalized patients or who cannot swallow or patients that need high doses of CBD, the effect starts in 15-20 minutes and stays around for 8 hours.

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