CBD-Drug Interactions: the role of Cytochrome p450

By Adrian Devitt-Lee

With cannabidiol (CBD) poised to be commercialized, available in various forms, and prescribed by physicians for a number of conditions, medical scientists are taking a closer look at CBD-drug interactions. CBD is metabolized by a number of enzymes known as cytochrome P450 (CYP) isoenzymes. CBD can interact with the active site of the metabolic enzyme cytochrome P450 (CYP), specifically the CYP2C and CYP3A enzymes. These liver enzymes also metabolize CBD, converting it into 7-OH-CBD and 6-OH-CBD. But there has been relatively little research into the properties of these metabolites, especially since it takes only a few minutes after a person ingests CBD for its effects to become apparent. In a recent study, researchers measured CBD in the blood of 20 healthy participants who were given a single dose of CBD. The researchers found that CBD was detectable in the blood for up to 8 hours after ingestion.

Cannabidiol (CBD) has been shown to be a safe and effective therapeutic agent for a number of conditions, including anxiety, pain, and seizures. However, the extent to which cannabidiol behaves like a cytochrome P450 (CYP) isoenzyme is unknown. This means that if CBD is metabolized by CYP enzymes, it may affect the way other drugs are metabolized.

The way CBD interacts with cytochrome P450 is pivotal; in essence, it deactivates other CYP enzymes. Preclinical research shows that CBD is metabolized by cytochrome P450 enzymes while functioning as a “competitive inhibitor” of the same liver enzymes. This is not the predominant way that CBD interacts with CYP enzymes at smaller doses; CBD does not seem to function like a generic breakdown of THC. The active component of the drug (the cannabinoid) is not the predominant way that CBD interacts with CYP enzymes.

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