

# Pharmacokinetics, safety, and tolerability of a THC:CBD oil formulation in patients with chronic non-cancer pain on long term high dose opioid analgesia.

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## Abstract

**Aim** This Phase I open label study examined pharmacokinetics, safety, and tolerability of escalating doses of a combination cannabinoid medication (1:1 ratio THC:CBD) in patients with chronic non-cancer pain (CNCP) on high dose opioid analgesia. **Methods** Nine people with CNCP and oral morphine equivalent daily dose of [?]60mg were recruited. Blood concentrations of THC, 11-hydroxytetrahydrocannabinol (OH-THC), 11-nor-9-carboxy-tetrahydrocannabinol (COOH-THC) and CBD were assayed weekly. Concentrations were measured after a single dose of 2.5mg THC/2.5mg CBD up to 12.5mg THC/12.5mg CBD on Day 29. Follow-up was on Day 36 after 7 day washout. Secondary outcome data encompassed pain, mood, and sleep parameters. **Results** The parent THC, CBD, OH-THC, COOH-THC were detected at most time points. In general, the concentration of all analytes increased until 2 hours post-administration, decreasing to approximately pre-dose concentrations by 8 hrs. There was considerable inter- and intra-individual variability. The study medication was well tolerated. Eight participants reported at least one Adverse Event (AE), with a total of 62 AEs; most common were euphoric mood, headache, and agitation, none classified as severe. There was no significant change to pain severity self-ratings, nor use of pain medications. Improvements in pain interference scores, mood, and some sleep parameters were observed. **Conclusion** The THC:CBD formulation was tolerated well in a CNCP patient group. Between-participant variability supports personalized dosing and "start low-go slow" titration. Improvements in pain, mood, and sleep parameters suggest that on relatively low dosages clinical effects are apparent. To validate and quantify findings a comparison placebo group study is needed.

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