

BI IRB# 087-14 Acute and Short-Term Effects of CBD on Cue-Induced Craving in Drug-
Abstinent Heroin-Dependent Humans

NCT # 02539823

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The purpose of this study is to determine if Cannabidiol (CBD) - one of the natural components of the cannabis plant) is effective in reducing heroin craving. Current therapies available for heroin treatment such as methadone and buprenorphine, do not block heroin craving. Craving is a distressing symptom which is linked to relapse and ultimately the continued cycle of heroin abuse.

45 healthy male and female subjects between the ages of 21 and 65, who are currently abstinent from drug use but who have a recent history (past 3 months) of heroin-dependence will be recruited for the study. There will be 3 groups of 15 subjects. One group will receive a placebo (a solution that does not contain the experimental drug), 15 participants will receive 400 mg of Cannabidiol (CBD), and 15 participants will receive 800 mg of CBD. Dispensation of investigational drug will be randomized and double-blinded.

Participation in this research study will consist of 5 visits in total over a two week period, and will consist of one prescreening session (about 2 hours) and four test sessions. Test sessions 1, 2 and 4 include Cue sessions and will last 3 hours per visit. Test session 3 (no cue session) will last 90 minutes. The investigational drug (CBD) or placebo will be administered during test sessions 1, 2, and 3. There is a 1 week break between test session 3 and 4. There will be no CBD/placebo administration during test session 4.

The prescreening session will consist of:

- | Basic Physical exam
- | Toxicological assessments: urine drug screening including opioid metabolite screening and Breathalyzer. Positive findings will result in exclusion.
- | Urine pregnancy test, blood test (complete blood count, liver function tests, electrolytes, urea, creatinine, glucose), EKG, vital signs (heart rate, blood pressure, weight and height measurement, Body Mass Index calculation), survey of medical history (including tobacco use assessment). MD will determine medical eligibility based on physical exam and lab results.
- | Computerized Structured Clinical Interview for DSM-V (SCID-V) for diagnosing drug dependence. Participants must be positive for current dependence for heroin (within past 3 months), but must not be currently using any drugs (including heroin) besides nicotine.
- | MINI International Neuropsychiatric Interview which is used for the detection of psychiatric conditions. Positive findings for current mood disorders, bipolar disorders and psychotic disorders will result in exclusion.
- | Clinical assessment for withdrawal symptoms - Clinical Opiate Withdrawal Scale (COWS)
- | PI will review pre-screening findings and determine eligibility for enrollment.
- | Computerized attention performance tasks/test

Test Sessions will consist of:

Sessions 1 and 2:

- o Urine drug screening (including opiate metabolite screen), breathalyzer, pregnancy test, questionnaires. Positive findings will result in exclusion.

- CBD/Placebo administration
- Test Session 1 will comprise 2 cue sessions (one 3-minute video of heroin-related imagery plus one 3 minute video of neutral imagery).
- Test Session 2 will comprise 2 cue sessions (one 3-minute video of heroin-related imagery plus 2 minutes of exposure to heroin related paraphernalia; then one 3 minute video of neutral imagery plus 2 minute exposure to neutral paraphernalia)
- Vital signs measurements (blood pressure, heart rate and oxygen saturation) at specific time points
- Questionnaires at specific time points after cues
- 6 saliva samples at specific time points after cues
- SAFETEE to assess for side effects and/or adverse effects
- Debriefing: relaxation exercise to ensure subject is in stable condition (in terms of craving levels) before he/she is discharged
- Take home questionnaire to assess craving at home. To be returned to coordinator at next session.

Session 3: (no cue session)

- Urine drug screening (including opiate metabolite screen), breathalyzer, pregnancy test, questionnaires. Positive findings will result in exclusion.
- Vital signs at specific time points
- Questionnaires at specific time points
- CBD/Placebo administration
- Computer performance tests to assess attention and memory
- SAFETEE to assess for side effects and/or adverse effects
- Take home questionnaire to assess craving at home. To be returned to coordinator at next session.

Session 4 (no CBD/Placebo administered):

- Urine drug screening (including opiate metabolite screen), breathalyzer, tobacco use assessment, pregnancy test, questionnaires.
- 2 Cue sessions (one 3-minute video of heroin-related imagery and one 3 minute video of neutral imagery)
- vital signs measurements (blood pressure, heart rate and oxygen saturation) at specific time points after cues
- 6 saliva samples at specific time points after cues
- SAFETEE to assess for side effects and/or adverse effects
- Debriefing: relaxation exercise to ensure subject is in stable condition (in terms of craving levels) before he/she is discharged