Select Characteristics of Recreational Opioid Users Undergoing a Human Abuse Potential Study

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Background
Human abuse potential (HAP) studies are conducted to determine the potential abuse of a drug that has rewarding properties. Abuse potential refers to the likelihood that a drug will be used to nonmedical situations for its positive psychoactive effects, e.g., euphoria, hallucinations, mood changes, etc. Subject selection is important in HAP studies to ensure subjects have the ability to detect liking with the drug under investigation.

Eligible subjects are those who prefer to use drugs that are in the same class of drug to be studied and who can differentiate active control from placebo during a period called the discrimination phase. 1 This study was conducted to assess whether there were common cognitive 2-6 and psychological characteristics of subjects who failed or did not fail the discrimination phase of a HAP study.

Methods
The study surveyed 300 subjects across 8 opioid HAP studies. Each subject was randomized to the discrimination phase of the study. Eligible subjects were those who provided consent and had either a) failed discrimination or b) passed discrimination and completed the study, and then were discharged from the study.

Qualifying subjects completed a demographic survey and questions about the "high" characteristics associated with the recreational use of various and preferred opioids.

Endpoints
Primary Endpoint:

• To identify positive cognitive and psychological characteristics that are related to the ability to discriminate opioids and to abuse such substances.

Secondary Endpoints:

• To identify any positive cognitive or psychological characteristics that correlate with ability to discriminate other abused compound classes (benzodiazepines, stimulants, etc).

• To identify any positive correlation between the ability to discriminate for abused compound classes (opioids, benzodiazepines, stimulants, etc.) and demographics, abuse history, or other key parameters as identified by the investigator.

• To identify cognitive assessment measurements that predict outcome to a placebo response (i.e., cognitive testing to identify placebo responders).

Evaluation
Following institutional review board (IRB) approval, the study investigators recruited 300 subjects across 8 HAP studies. Qualifying subjects reported ≤5 incidences of recreational drug abuse, were ≥18 years old, and had participated in a HAP opioid study within the past 36 months or were slated to participate within the next 36 months. The ability or lack thereof to discriminate an active drug compound from placebo was assessed from previous and current HAP results.

Each subject provided informed consent and completed 3 surveys during a single study center visit. The bipolar drug liking questionnaire (0 to 4 hours) was used to determine a subject’s ability to discriminate. The active control varied in dose and opioid type across the studies. The Minnesota Multiphasic Personality Inventory-2- Restructured Form (MMPI-2-RF) was used to measure a broad range of personality traits such as: depression, anxiety, catastrophizing, fear, and stress. 7

A survey collected key demographics, drug abuse, criminal history, and data concerning preferences, sources, usual routes of administration and drug combinations, frequency of use, desired effects, perceived risks, and characteristics that increase attractiveness among various opioids and other recreational drugs.

Evaluation Continued
The primary endpoint was correlation of the cognitive and psychological assessment with ability to discriminate opioids. Secondary endpoints were explored through analysis and examined correlation of cognitive and psychological assessment with ability to discriminate for other abused compounds. Additional key parameters, such as demographics and abuse history, were gathered to assess any correlation to ability to discriminate. Data were entered into a centralized database or transferred to the study data manager and statistician for review and analysis.

Results
A total of 300 subjects across 8 opioid HAP studies were surveyed. The majority of subjects were male subjects (75%). More than half of the subjects passed the drug discrimination phase (59%). Approximately 46% of subjects had some college education. Of all subjects, 39% were unemployed, 21% had a full-time employment status, 19% had a part-time employment status, 14% were self-employed, 6% were students, and less than 1% were disabled. More than half of the subjects (58%) had a yearly gross salary before taxes of less than $15,000. A total of 66% of subjects had been caught or arrested for committing a crime.

Subjects were asked a series of questions related to drug abuse, criminal history (Xt), and data concerning preferences, sources, usual routes of administration and drug combinations, frequency of use, desired effects, criminal risks, and characteristics that increase attractiveness regarding various opioids and other recreational drugs.

Results Continued
The Minnesota Multiphasic Personality Inventory (MMPI) was administered widely used and researched standardized psychometric test of adult personality and psychopathology. The MMPI-2R is one of the most recent and widely used revision of the MMPI, broken down into 42 substantive scales. It reveals clinically significant empirical correlates to specific personality traits when a T-score is ≥56 per scale. Among this drug recreational sample population, there were 8 key topics identified and discussed as follows:

1. Behavioral Extradiolism (BXD): Significant externalizing, acting-out behavior, which is likely to have gotten him or her into difficulties. At risk of criminal behavior, violent and abusive behavior, poor impulse control.

2. Disconstraint revised (DSR): Acting out impulsively, sensation and excitement seeking, often correlated with the DSM-V Axis 2 Cluster B Personality Traits (Narcissistic, Antisocial, Borderline, and Histrionic personality disorder).

3. Antisocial Behavior (RC1): A pattern of manipulating, exploiting, or violating the rights of others. Involvement in the criminal justice system, inability to conform to societal norms, difficulties with authority, impulsivity, family problems, aggressive behavior.

4. Substance Abuse (SUB): Reports past or current use to problema abused and drug and alcohol use resulting in legal problems. Sensation seeking.

Conclusions
Demographic data and response to rewarding properties of opioids were similar between subjects who failed and subjects who passed the discrimination phase. HAP were subjects exposed most of their drugs from friends or bought from dealers.

The conclusions identified in this study may inform the medical community about the cognitive and personality characteristics that make an individual more vulnerable to drug abuse. Though no specific personality traits are identified to correlation to the sample population’s ability to discriminate opioids. There are clear personality traits found among the overall sample population, which include traits such as: Impulsivity, antisocial behavior, sensation and excitement seeking, and history of criminal behavior and lawful problems.

Additionally, it may also inform the future design of HAP studies and influence drug development to mitigate future abuse of these drugs.

References


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