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Cannabis intoxication with perceptual disturbances under clinical setting

Introduction: short-term psychiatric effects have been described for cannabis, but rarely under clinical setting.
Aims: We report three cases of healthy male young subjects who were occasional cannabis users without known psychiatric history who developed anxiety attacks, panic crisis, and transient perceptual disturbances (visual hallucinations, depersonalization, paranoid feelings and derealization) following oral or smoking administration of cannabis. In contrast to most other case reports where subjects characteristics and history of drug use, circumstances, doses and blood concentrations are unknown, the three cases reported here happened under experimental conditions. **Methods:** Among the three cases, two happened among a series of 8 healthy male volunteers included in a study testing the psychomotor effects of oral cannabis (one case received 20mg dronabinol and the other a decoction of 166 mg THC). The third critical case happened in a series of 16 subjects involved in a study to assess theeffects of cannabis smoking on a tracking task carried out during a functional magnetic resonance imaging (fMRI) experiment. The two studies were approved by the ethical commissions.
Results: no opiates, amphetamines, cocaine, and benzodiazepines were found in urine and no breath alcohol was detected before each sessionThe ingested (16.6 mg THC or 20 mg dronabinol) or inhaled dose (joint=0.8 g, 11% THC, 10 puffs of 2s, no tobacco added), the time-events of effects on behavior, willingness to drive, and performance as well as the cannabinoid whole blood levels were documented. While the oral route of administration achieved only limited blood concentrations (less than 4.7 ng/mL (dronabinol) and 3.9 ng/mL (THC)), significant psychotic reactions occurred. In contrast, following inhalation, much larger THC blood levels (peak concentration: 143 ng/mL) were found. The psychotic symptoms started at the end of the inhalation phase and continued during the distribution phase when the THC levels rapidly decreased from 143 to 17 ng/mL in 16 min. Two tablets of Temesta 1 mg (lorazepam) were then successively administered to this volunteer to ease anxiety and hallucinations. In this latter case, MRI and fMRI brain imaging performed before cannabis smoking did not disclose any obvious anatomical or brain functioning anomalies. All 3 cases were withdrawn from the studies because of these unwanted side effects.
Conclusions: the THC and dronabinol maximal blood levels were found to be poor predictors of possible psychiatric side-effects. Furthermore, these unwanted symptoms seem to be more frequent than expected, despite the relative medium dose of cannabinoids administered and the careful selection of the subjects.

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