S31-03 - **MODULATION OF AUDITORY AND VISUAL PROCESSING BY DELTA-9-TETRAHYDROCANNABINOL AND CANNABIDIOL: AN FMRI STUDY**

P. Allen, T. Winton-Brown, P. McGuire

Psychosis Clinical Academic Group, Institute of Psychiatry, Kings College, London, UK

Introduction: Cannabis is the world's most commonly used illicit substance. Whilst its effects on perception are well documented, little is known about the neural basis of these effects and how they are modulated by two of cannabis sativa's most abundant active ingredients, Delta-9-Tetrahydrocannabinol (THC) and Cannabidiol (CBD).

Objectives: We used fMRI to assess the effects of THC and CBD on brain activation during a simple visual and auditory stimulation paradigm in healthy volunteers.

Methods: Fourteen right handed male subjects were scanned on 3 occasions. Identical 10mg THC, 600mg CBD and placebo capsules were allocated in a balanced double blinded pseudorandomised crossover design.

Results: Ingestion of THC and CBD led to reliable increases in plasma levels of each substance and for THC concomitant increases in anxiety, intoxication and positive psychotic symptoms; CBD and placebo caused no significant symptoms. Visual and auditory stimulation led to robust activations in occipital and temporal cortices respectively under placebo conditions. Administration of THC led to decreased activation in primary sensory cortices relative to placebo whilst CBD led to an increase in activation in right temporal regions during auditory stimulation and right striate cortex activation during visual stimulation. THC mediated reduction of activation in this area during auditory stimulation correlated with a concomitant rise in psychotic symptoms.

Conclusions: These data indicate that the different psychoactive constituents of cannabis have dissociable effects on sensory processing, often in opposite directions

https://doi.org/10.1016/S0924-9338(10)70112-7 Published online by Cambridge University Press