

Cannabis induced psychosis - an overview

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Psychosis is a condition where there is a loss of contact with reality with symptoms like delusions, hallucinations, paranoia, disorganized thinking & speech, loss of motivation, depression, anxiety & poor sleep. It can be associated with Schizophreniform disorder, Bipolar disorder, Schizoaffective disorder, Depression with psychotic features, Drug-induced psychosis, Organic psychosis or Post-traumatic stress disorder. Psychosis is so common that about 3 out of every 100 people will have a psychotic episode in their lifetime. The phases of psychosis include an initial Prodromal Phase where there is subtle changes in thinking, perception and behavior. During acute Phase full blown symptoms occur which may affect the individual's daily living. Later Recovery Phase starts.

Keywords: Cannabis, Psychosis, Cognitive therapy

Cannabis (also known as marijuana, hashish, weed, dope, jay, blunt, bomb, doobie, sinsemilla, hash, pot, reefer, Mary Jane, ganja, homegrown, dope, spliff & kush) is the commonest used illicit recreational drug. World Drug Report released by United Nations Office on Drug and Crime in June 2014 states that the global market for cannabis is expanding & nearly two-third of the reporting countries rank cannabis as the primary substance of abuse. Cannabis has pain-relieving, stimulating, euphorising and erotogenic effects. Among 400 chemical compounds in cannabis plant, main compounds include delta-9-tetrahydrocannabinol (delta-9-THC), cannabidiol (CBD), delta-8-tetrahydrocannabinol & cannabinol. THC binds to cannabinoid receptors & causes symptoms.

The effects occur instantaneously when inhaled & after an hour when taken orally. Δ 9-THC is extremely lipid soluble & can accumulate in fatty tissues reaching peak concentrations in 4 to 5 days & is then slowly released back into the body [1]. THC increases dopamine in the striatum, which is a biological feature of psychosis [2]. Chronic cannabis causes volume reduction in hippocampus & amygdala. It also activates CB1 receptor which reduces GABA release in hippocampal neurons which leads to dyssynchronization of neuronal activity & memory consolidation thereby leading to psychosis. Prominent symptoms associated with cannabis include auditory hallucinations, paranoid feelings of being persecuted, depersonalization,

derealization, anxiety, grandiosity, irritability, feeling of relaxation, loss of inhibition, increased talkativeness, confused perception of space and time, sedation; reduced ability to concentrate & remember [3]. Psychosis associated with Cannabis has been explained by various hypotheses; 1) Contributing Cause Hypothesis: psychosis is a consequence of cannabis [4]; 2) Self-Medication Hypothesis: cannabis use is a consequence of psychosis [5]; 3) Vulnerability Hypothesis: cannabis acts as a trigger for individuals vulnerable for psychosis [6]. Young people with immature brains & persons with a genetic predisposition to schizophrenia are more vulnerable to THC.

Recently studies have shown association between a genetic polymorphism of CB1 receptor & psychosis which can explain vulnerability to psychosis-related disorders [7]; 4) The gateway drug hypothesis asserts that the use of cannabis may ultimately lead to the use of harder drugs. Cannabis induced psychosis is also attributed due to Catecholamine O-Methyl Transferase (COMT) gene polymorphism. COMT is involved in dopamine metabolism in prefrontal cortex and genetic deregulation leads to psychosis. Individuals with AKTI gene mutations were shown to experience paranoia, visual distortions, anxiety & psychotic-like symptoms with cannabis [8]. Mutations in the gene BDNF Val66 Met was responsible for the age of onset of psychotic symptoms after cannabis use. Alterations in A

allele of rs 1076560 in the Dopamine DRD2 gene was associated with 10times higher risk of developing psychosis among daily cannabis users. Cannabis is addictive & withdrawal symptoms include craving, decreased appetite, sleep difficulty, weight loss, aggression, irritability, restlessness & strange dreams. Treating mental health disorder with standard treatments involving medications & behavioral therapies may help reduce cannabis use. Behavioral treatments include Cognitive- behavioral therapy, Contingency management & Motivational enhancement therapy [9]. Promising medications include sleep aids like zolpidem, bupirone, gabapentin; nutritional supplement like N-acetylcysteine; chemicals like FAAH inhibitors, which inhibits cannabinoids breakdown & thereby reducing withdrawal; allosteric modulators which interact with cannabinoid receptors & thereby inhibit THC's effects. Management of cannabis dependence can be through 3 major strategies: Agonist substitution (dronabinol), antagonist (rimonabant) & modulation of other neurotransmitter systems (bupirone, fluoxetine, Naltrexone, N-acetyl cysteine) [10]. Cannabidiol (CBD) is being tried and found to reduce psychotic symptoms [11].

Pal VS et al in this issue found that Acute psychosis with cannabis is characterized by primarily polymorphic clinical picture with predominance of positive and mood symptoms both in clear and disturbed sensorium. Acute psychosis without cannabis is characterized by mixed positive and negative symptoms [12].

Funding: Nil, Conflict of interest: None initiated,

Permission from IRB: Yes

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How to cite this article?

Rabindran, Verma M. Cannabis induced psychosis - an overview. *Int J Med Res Rev* 2017;5(10):881-882.doi:10.17511/ijmrr. 2017.i10.01

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