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A Critical Review of Cannabis, its Toxicity and Management

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ABSTRACT:

Cannabis is a *cannabinaceae* family herb which is known as bhang is flowering plant. It is neurotoxic cerebral deliriant poisons deliriant means delirium induce referring to hallucinogen property. For ages, the cannabis plant, native to Central Asia and the Indian subcontinent, has been utilised as a recreational and entheogenic drug, as well as in a variety of traditional medicines. This herb is grown as an agriculture crop for the purpose of pharmaceutical to formation of many type medicine to treat pain and induce sleep. Many people take long period of cannabis produce many side effect like irritability, agitation, insomnia, drugs craving, depression, tremors, nausea, sweating and body ache. Charas, ganja, majun, hashish, hash oil, and sinsemilla are the substance of cannabis. Cannabis also known as the Indian hemp and qinnab.

Key Words – Cannabis, Deliriant, THC.

INTRODUCTION

Cannabis sativa (Fig 1) is a delirious, cerebral neurotic hemp plant that comes in numerous types, including cannabis indica (India), *Cannabis maxicana* (Mexico), and *Cannabis americana* (USA). It is the most often misused illegal substance in India and the United States, especially among teenagers, and the world's most commonly abused substance after nicotine, alcohol, and caffeine¹. The plant can be found all over India, but its cultivation restricted by law. The female plant is higher than the male, standing between 4 and 6 miters tall, with darker, more luxuriant foliage. The active principles are contained in its resin. The resins main component is cannabidiol, which has no effect, cannabidiol is also inert, but when heated, it is partially transformed to the very active isomeric tetrahydro

cannabinols (THC). All parts of plant, male or female contain the active principles, except stem, root and seeds. It is central nervous system stimulant. Pot grass, dope, weed, hash, maryjone, M.J., hashish or bhang is some of its synonyms. It is a psychoactive drug. THC is metabolized in the liver and is passed through the pee and faces².

Preparation of Cannabis

Bhang:- It is the mildest of cannabis concoctions. It's made from of dried leaves that have been mashed into a fine paste and blended with sugar, spices, and fruit. Active principle 2-5% is present. (Fig 2)

Ganja:- It is flowering tops of female plant and rusty green



in color. Active principle 5-8% is present. It mix with tobacco and smoke in pipe or *hukka*. (Fig 3)

Hashish:- It's a brick made from extremely concentrated cannabis resin that's been collected, dried, and pressed.

Charas:- It is the handmade form of hashish. It is resinous exudate from leave, flowers and stems and dark green or brown in color. Active principle 10-20% is present. It mix with tobacco and smoke in pipe or *hukka*.

Marijuana:- It refers to tobacco-like preparation of dried leaves and flowers, and is the most common form of drug used in US. It is commonly smoked, but it can also be baked into meals like brownies or steeped into tea. (Fig 4)

Majun:- A bhang-based sweetmeat

Hash oil:- A lipid soluble plant extract which is mixed with tobacco and smoked. It can contain up to 50% THC and can be used to boost the THS concentration of hashish and marijuana.

Sinsemila:- It's the female plant's unpollinated/unfertilized flowering tops. THC concentration ranges from 6 to 11 percent³.

THC is also available in synthetic forms as dronabinol and nabilone which are used to treat vomiting associated with cancer chemotherapy and as an appetite stimulant for AIDS-related anorexia⁴.

Routes of intake :- Cannabis is commonly consumed as a joint, reefer, or pipe, or added to food or blended with milk⁵.

METHOD

Mechanism of action:-

Cannabinoid receptors are affected by cannabis. CB1 and CB2 are the two types of cannabinoid receptors that have been discovered. CB1 is found throughout the body, having the highest concentration in brain neurons. CB2 is found in immune system cells such as the spleen, tonsils, and immune cells⁶. THC, which binds to anandamide receptors in the brain, can have stimulant, sedative, or hallucinogenic effects, depending on the quantity and duration of use. Catecholamine release (leading in tachycardia) and sympathetic reflex inhibition (resulting in orthostatic hypotension) can both be observed.

Absorption, Metabolism and Excretion:-

Cannabis is absorbed through the gastrointestinal tract and the respiratory tract as smoke or vapour. It was absorbed slowly after being injected subcutaneously or intramuscularly. THC is rapidly transformed into the active metabolite 11-hydroxy-THC by liver microsomes. 11-hydroxy-THC is broken down into an inactive metabolite that is eliminated in urine, faeces, and bile⁷.

According to Ayurveda

Rasa - Tikta

Guna- Laghu, Tikshana

Virya-Usna

Vipaka- Katu

Prabhava- Madaka

*Doshakarma- Kaphavata Shamaka and Pitta Prakopaka*⁸.

This herb is *Vednasthapana, Nidrajanna, Dipana, Pachana, Rochana, Sukrasthanbhna, and Akshephara*. Its best used in *Atisara, Kasa, and Nidra Nasha*.

Sodhana or Purification

After sweating in cow's milk for 3 hours with an oscillator, wash it with water and dry it and then fry it in cow's Ghee on low flame, it become pure⁹.

Sign and Symptoms of Toxicity

Symptoms appear within minutes after smoking and half an hour of oral consumption. The activity lasts 6-12 hours on average, with the first 1-2 hours being the most noticeable.

1. Stage of excitement

- a. Euphoria, detached feeling, well-being, dreaminess, subjective impression of time slowing down, increased self-confidence, rapidly shifting emotions, talkativeness, and laughter. Some may experience unpleasant psychological reactions, such as panic, fear or depression.
- b. Impairment of thinking and short-term memory, decreased concentration, disorientation, illusions, visual hallucinations, altered sexual feelings, impaired judgment, slow reaction time, and perceptual and psychomotor dysfunctions resulting in impaired driving and motor vehicle accidents.
- c. Increased appetite and thirst, nausea, headache, dizziness, dry mouth, slurred speech, postural hypotension, tachycardia and increased urinary frequency.

2. Stage of narcosis

- a. Vertigo, incoordination, perplexity, ataxia, and paresthesia.
- b. The person falls asleep deeply and wakes up without feeling depressed, nauseated, or hungover.
- c.. Drowsiness can occasionally lead to respiratory failure, coma, collapse, and death¹⁰.

Intravenous marijuana syndrome – intravenous injection of marijuana broth produce a distinct clinical syndrome where in emesis, myalgia and hypotension are seen. There may be fatal anaphylaxis following injection¹¹.

Chronic Poisoning:

Cannabis use in small amounts, even over a long period of time, is not dangerous. Tolerance and psychological reliance grow as a result of this. It causes central nervous system degeneration and insanity if used excessively. Chronic cannabis usage lowers blood testosterone and sperm count, and has been linked to gynecomastia. Loss of appetite, weakness, wasting, tremors, lazy facial expression, vacant appearance, red eyes, impotence, and moral and mental degeneration are all common symptoms. They can become insane (hashish insanity) and have auditory and visual hallucinations, as well as persecution delusions. Marijuana users who use a lot of it can develop manic or paranoid psychosis. The person may become berserk, i.e., he develops a psychological disorder characterised by depression, followed by violent efforts to murder others (impulse to murder). First, he kills someone with whom he may have a genuine or imagined grudge, and then he kills anyone who gets in his path until the homicidal urge passes. Then he has the option of committing suicide or surrendering. Chronic use may result in a motivational syndrome characterised by a loss of age-appropriate behavior such as sleepiness and a lack of enthusiasm in daily activities at home and school. If the abuse goes on for a long time, it can lead to behavioral issues, crime, and even mental illness. It doesn't make you physically dependent or addicted. Radioimmunoassay techniques can identify cannabis chemicals and LSD in biological materials. Marijuana has the potential to cause cancer¹².

Medicinal Used Dose

Bhang -125-250 mg.
Ganja- 60-125mg
Charas- 30 mg¹³

Ayurvedic yog

1. *Grahni Kapat Rasa*
2. *Jatiphaladi Churan*
3. *Vijya Vati*
4. *Trilokya Vijya Vati*
5. *Madnanand Modka*

Fatal Dose

Bhang- 10gm/kg body wt.
Charas- 2gm
Ganja- 8gm¹⁴
THC- 30mg/kg¹⁵
Extract-90mg¹⁶

Fatal period-

About 12 hours¹⁷

Diagnosis

It is based on the history and typical findings. Serum and urine concentrations of THC metabolites are useful for confirmatory testing. Enzyme-multiplied immunoassay technique (EMIT) and radioimmunoassay (RIA) are useful. Gas-chromatography-mass spectrometry (GC-MS) is most effective to find it.

Dequenois-levine Test:- A presumptive test for cannabis or marijuana. Two reagents and chloroform comprise this reaction. The three solutions are added to the sample being tested, which forms multiple layers. If the chloroform layer develops a purple color, marijuana may be present in the sample¹⁸.

Differential Diagnosis

1. Cocaine intoxication
2. Amphetamine intoxication
3. Sedative
4. Tricyclic antidepressants
5. Panic attacks¹⁹

Treatment

Immediate management is supportive, including cardiovascular and neurological monitoring, and placement in a quiet room.

1. Artificial respiration.
2. Gastric lavage with warm water.
3. Strong tea/coffee.
4. Saline purgative
5. Diazepam, 5-6mg IV, if patient is violent and aggressive.
6. 100 ml of 50% glucose or dextrose, 2 mg naloxone and 100 mg thiamine IV.

7. Haloperidol to control psychotic manifestations²⁰.
8. Psychotherapy²¹.
9. Antidote – Dry ginger with cow’s curds and extract of nux-vomika²² are the antidote of cannabis.

Postmortem finding

Non-specific. Sign of asphyxia. Unabsorbed bhang may be found in the stomach.

Medico-legal Aspects

1. Most cases of poisoning are accidental, particularly in young children, or due to overindulgence during recreational use. It is the most commonly abused drug among pregnant women and women of childbearing age in most western societies. Unintentional ingestion by children has also been reported.
2. Driving is impaired if cannabis is ingested along with alcohol.
3. Lead and mercury poisoning have been reported in marijuana abusers.
4. Medical practitioners face ethical challenges which go beyond indication for use with patient requesting medical cannabis.
5. Medical use is legal in about a dozen countries, including Canada and part of Australia.
6. Passive smoke inhalation has been demonstrated to not reliably produce concentrations high enough to be detected in most urine drug screens.
7. In India, possession, trade, transports and consumption of marijuana (among other narcotic and psychotropic substance) is a criminal offence under the NDPS Act of 1985. In the USA, cannabis is subject to contradictory legal regulation under state and federal law.
8. Sometimes, it is taken by criminals before committing a criminal act to strengthen nerves.
9. Majun and charas are sometime used by thieves to stupefy persons to facilitate robbery.
10. It is used as an aphrodisiac and is supported to increase duration of coitus.
11. Its use in chocolate causes intense craving among children for its euphoric effect²³.

DISCUSSION

Cannabis has hypnotic, analgesic, antiemetic, anti-inflammatory, and other pharmacological effects. The raw herb, as well as its active ingredients like as THC, cannabidiol, and several synthetic compounds (nabilone and drabinol), have been tested in a wide range of conditions, and various clinical applications have been

proposed in modern medicine. For a long time, it has been employed in the Indian System of Medicine. The crude form of cannabis is employed in numerous chemical formulations in Ayurvedic medicine.

CONCLUSION

According to a review of the literature, cannabis formulations are utilized for their aphrodisiac, appetizer, analgesic, and retentive qualities. Various claims of traditional medicine, such as anti-asthmatic, hypnotic, analgesic, anti-inflammatory, and anticonvulsant effects, have been proven by scientific studies on plant and its bioactive constituents.

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Fig.01 Cannabis plant



Fig. 02 Bhang



Fig 03 Ganja



Fig. 04 Marijuana