THERAPEUTIC VALUES OF CANNABIS

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ABSTRACT

Marijuana or cannabis have a various therapeutic use and it's medicinal usage is legal in some parts of the world. However it's medicinal usage is marginal because of lack of proper evidence. There are preclinical evidences that supports cannabis usage as a medicine but there is no clinical evidence so far . It can affect the CB1 and CB2 receptors and can bring about a G protein coupled reaction. It is commonly used as recreational compound, but can be used for medicinal purposes. It can heal chronic pain, decreases nausea and vomiting caused by chemotherapy, spasticity, type 2 diabetes, and many more. Oral route is more effective than any other mode like inhalation, etc .

KEYWORDS

THC, CBD, adipocytes, splenocytes, cancer, Tourette syndrome, Parkinson's disease, Alzheimer's disease, IBS.

INTRODUCTION: Marijuana is also called as Cannabis can be user for various treatment ,as per the current data about 29 states of US and Washington DC approved Cannabis as legal. Marijuana has some advantages over opioid drugs. It is classified as 'class B ' under the " Misuse of Drug Act "1971 (6).It is considered as illegal in UK under " Dangerous Drug Act " 1925.Marijuana has more than 100 active components in which CBD (cannabidiol) has less intoxicating properties. There are reports which says CBD has many benefits. It relieves from insomnia, anxiety, spasticity, pain and many more(4).

THERAPEUTIC VALUE OF CANNABIS: chronic pain, cancer, chemotherapy-induced nausea and vomiting, anorexia and weight loss associated with HIV, irritable bowel syndrome, epilepsy, spasticity, Tourette syndrome, amyotrophic lateral sclerosis, Huntington's disease, Parkinson's disease, dystonia, dementia, glaucoma, traumatic brain injury, addiction, anxiety, depression, sleep disorders, posttraumatic stress disorder, and schizophrenia and other psychoses are some of the disease to which cannabis can be used as a medicine. The main mode of action is through CB1 and CB2 receptors (G coupled protein receptor). **Alzheimer's disease :** cannabinoids interact with CB2 receptors which have possible therapeutic roles in the treatment of neurodegenerative disorders such as Alzheimer's disease. CB2 agonist JWH-015 induces macrophages to remove native beta-amyloid protein from frozen human tissues(2).

Chronic pain : Most of the people in US uses cannabis mainly to bare chronic pain. This is the common cause for cannabinoids usage. Nabiximols are the most common used cannabinoids for chronic pain. It had become a substitute for opioids. It is said to be a fabulous muscle relaxant and lessens tremors in Parkinson's disease. It can also be used to treat glaucoma(3).

Cancer: one of the review was found which emphasis the effect of cannabinoids(Rocha et al., 2014). The review focused exclusively on the anti-tumor effects of cannabinoids on gliomas.Of the 2,260 studies identified in December 2012, 35 studies met the inclusion criteria. These studies were all preclinical studies.16 of the in vivo studies found an antitumor effect of cannabinoids. Nabilone and dronabinol were approved in 1985 for nausea and vomiting caused due to cancer chemotherapy (6) . The patients who failed to respond to antiemetic treatments were treated by this cannabinoids.Dronabinol is equivalent to ondansetron which delayed nausea and vomiting, although no comparison to the currently more widely used neurokinin-1

inhibitors has been conducted. Oral route of taking cannabinoids were proven to be more efficient to combat nausea and vomiting induced by chemotherapy(2).

CBD has many benefits in relieving insomnia, anxiety, spasticity and pain and to treat life threatening diseases like epilepsy. Dravet syndrome responds dramatically to a CBD dominant strain of marijuana called Charlotte's web(5).

Cannabis is an effective stimulant for **appetite** in cancer and HIV patients with cachexia Or wasting syndrome. Anorexia and weight loss are the side effects of many disease like cancer, AIDS, etc. Cannabinoids can be used which induces appetite and prevent weight loss. There are few primary literature available which confirms the benefit of cannabis to increase appetite and decrease weight loss. Dronabinol was approved to use to increase appetite in 1992(2).

Irritable Bowel Syndrome (IBS) : It is a common gastrointestinal disorder .Abdominal cramping and changes in bowel movement patterns are it's symptoms. Irritable bowel syndrome can be classified into four types,they are: IBS with diarrhea, IBS with constipation, IBS mixed, and IBS unclassified . Type 1 cannabinoid (CB1) receptors are present in the mucosa and neuromuscular layers of the colon. They are also present in plasma cells and influence mucosal inflammation. In animal models, endocannabinoids acting on CB1 receptors inhibit gastric and small intestinal transit and colonic propulsion. Cannabinoids can be used as a potential drug for therapeutic effect in patients with IBS(4).

Tourette syndrome is a neurological disorder characterized by sporadic movements or vocalizations commonly called "tics". While there is currently no cure for Tourette syndrome, recent efforts have explored whether cannabis may be effective in reducing symptoms commonly associated with the disorder(3).

Diabetes Malleitus:There are reports of cannabis use emphasis that cannabis have the ability to reduce headache, migraine and post surgery pain. In relation to diabetes, there are only preclinical reports of cannabis use in reducing stress level and blood sugar level. It can stabilize or lower blood sugar level(6).

The major active component of cannabis is THC. It stimulates endocannabinoid system through the cell surface receptors CB1and CB2. It regulates development of hyperglycemia, insulin resistance and Dyslipidaemia. THC interferes with both the action of insulin and it's release. THC increases insulin induced glucose uptake in adipocytes in a culture media. TNF alpha interfere with insulin signalling and decrease glucose uptake by interfering with expression of GLUT4. THC decreases the level of TNF alpha and also increases the gene expression of IRS1, IRS2, GLUT4and exhibit insulin sensitizing effect (6).

 CBD, a non psychoactive cannabinoid prevent development of diabetes in NOD mice. CBD do not have direct effect on glucose level in blood, however it inhibits IL-12 (cytokine) production by splenocytes. This cytokine had major role in causing autoimmunity including diabetes. CBD also reduces IFN gamma and TFN alpha and inhibits destruction of betacells of islets of langerhann's of pancreas. But usage of cannabinoids may cause adverse effect lead to atherosclerosis, retinopathy and neuropathy (6).

DISCUSSION:

Cannabis have various active components like CBD and THC. THC is the most active component. Cannabinoids have the ability to cure many disease and to lower it's symptoms. It is majorly used to combat chronic pain, it is also used to get relief from nausea and vomiting induced by chemotherapy, Parkinson's disease, spasticity etc. It can also become an efficient treatment for diabetes in upcoming decades.

CONCLUSION:

Usage of cannabinoids is still a controversial topic because there is no accurate experimental evidence to prove its medicinal value. Even though there are data from survey which says it heals some of the diseases as above mentioned, it do not have a evidence to proove and the results varied from person to person. So further studies and experiments have to be conducted to conclude it's therapeutic effects.

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