

Medical Marijuana-Opportunities and Challenges

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Over the recent years, public and political opinions have demonstrated increasing support for the legalization of medical marijuana. To date, 24 states as well as the District of Columbia have legalized cannabis for medical use, 4 states have legalized the recreational use of Marijuana [1]. Marijuana is derived from the hemp plant *Cannabis sativa*. Δ -9-tetrahydrocannabinol (THC) is the major psychoactive constituent of cannabis, while cannabidiol (CBD) is the major non-psychoactive constituent. THC is a partial agonist at CB1 and CB2 receptors, while CBD at high levels is an antagonist CB1 and CB2 [2]. CB1 is abundantly expressed in the brain, and CB2 is expressed on immune cells (expression of CB2 on neurons remains controversial) [3]. The brain also produces endogenous cannabis-like substances (endocannabinoids) that bind and activate the CB1/CB2 receptors [4].

There is tremendous interest in harnessing the therapeutic potential of plant-derived and synthetic cannabinoids. Evidently, more preclinical and clinical research should be done to help better understand the benefits and pitfalls of medical marijuana. This Editorial provides an overview of diseases that may be treated by cannabinoids. The list is meant to be representative but not comprehensive.

Appetite Stimulation

The United States Food and Drug Administration (FDA) has approved the synthetic cannabinoids dronabinol and nabilone for the treatment of nausea and vomiting in patients with AIDS and patients undergoing chemotherapy for cancer [5].

Epilepsy

Efforts have been made toward using cannabidiol (CBD) for the treatment of refractory epilepsy-especially in children with Dravet syndrome. However, there is lack of adequate data from double-blind, placebo-controlled, randomized clinical trials to properly demonstrate the effectiveness cannabidiol or any other cannabinoid for the treatment of epilepsy [6].

Chronic Pain

Cannabinoid compounds (e.g., Nabiximols, a spray containing both THC and CBD) show some efficacy in alleviating chronic pain associated with multiple sclerosis, rheumatoid arthritis, cancer and AIDS [7]. It remains inconclusive whether Cannabinoids reduce acute pain and other painful conditions.

Multiple Sclerosis

The American Academy of Neurology has reached a consensus regarding the use of cannabinoids for multiple sclerosis: Nabiximols and dronabinol are effective in treating spasticity, central pain, and urinary dysfunction associated with multiple sclerosis [7].

Psychosis or Schizophrenia

Cannabis use during childhood and adolescence doubles the risk of the development of psychosis or schizophrenia in adulthood [8]. However, it is still too early to conclude that cannabis use causes schizophrenia. Ongoing studies are attempting to determine whether Cannabidiol has an antipsychotic effect.

Cannabis Withdrawal

In agonist replacement therapy, Nabiximols demonstrated limited effectiveness in reducing sleep disturbance, anxiety, appetite loss, and restlessness associated with cannabis withdrawal and dependence [9].

Acute Cannabis use is associated with impairments of memory, motor coordination, cognition, judgement and an increased risk for motor vehicle accidents [10]. Chronic Cannabis users are marked by anxiety, irritability, craving, dysphoria, and insomnia during withdrawal [5]. Physicians must weigh the risks and benefits for prescribing medicinal cannabis. Patient education and pharmacovigilance should be used to reduce adverse events.

Acknowledgement

This work was supported by NIH Grants R01 DA035217 and R56 MH101146.

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Received May 13, 2016; Accepted May 18, 2016; Published May 25, 2016

Citation: Liu Q (2016) Medical Marijuana-opportunities and Challenges. *Biochem Pharmacol (Los Angel)* 5: e182. doi:10.4172/2167-0501.1000e182

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