

MEDICAL MARIJUANA

PRESCRIBING & PATIENT INFORMATION

DESCRIPTION: Medical Marijuana is a cannabinoid for oral inhalation, liquid or edible product used to treat debilitating medical conditions. Marijuana, its source, the hemp plant (cannabis), cannabis contains at minimum, 60 - 400 different chemicals, with a main ingredient being THC (delta-9-tetrahydrocannabinol). Medical Marijuana has a rapid onset of action, in as little as 10 minutes. THC levels are affected by a great many factors, including plant type, weather, soil, time of harvest.

WARNING & PRECAUTIONS: Cannabis Sensitive Reaction to itself. The simultaneous use of Medical Marijuana and alcohol may produce additive somnolence and or depressive effects on central nervous system function. Possible changes in mood and other adverse behavioral effects may occur in patients receiving Medical Marijuana. Activities Requiring Mental Alertness: The occurrence of somnolence has been reported in some patients taking medical marijuana: **due caution should therefore be exercised when driving a car or operating potentially dangerous machinery.**

CLINICAL PHARMACOLOGY: Cannabinoids have complex effects on the central nervous system (CNS). It has been suggested that the antiemetic effect of cannabis is caused by interactions with the cannabinoid receptor system, i.e., the CB (1) receptor, which has been discovered in neural tissues. Oral cannabis has the potential to be abused and to produce psychological dependence.

MECHANISM OF ACTION: THC, the main active ingredient in marijuana, binds to and activates specific receptors, known as cannabinoid receptors. There are many of these receptors in parts of the brain that control memory, thought, concentration, time and depth perception, and coordinated movement.

ABSORPTION & BIOAVAILABILITY (AUC): Following inhalation the absolute bioavailability averages 30% with a 3.5% THC cigarette. Peak plasma level near 160 mg/ml occurs approximately 10 min after inhalation. THC is eliminated quickly from plasma in a multiphasic manner and is widely distributed to tissues, which is responsible for its pharmacologic effects. The elimination of THC and its many metabolites, mainly THC-COOH, occurs via the feces and urine for several weeks, then is stored in body fat as a long-term storage site.

SPECIAL POPULATIONS:

- Diabetes: Cannabis extract (in the presence of insulin) was shown to induce cells to take up glucose.
- Chronic Hepatitis C: Cannabis use should be discouraged in patient with CHC.
- Renal insufficiency: No available data.
- Hepatic Fibrosis: Medical Marijuana has been shown to have a beneficial effect on delaying or even reversing hepatic fibrosis.
- Geriatrics: No available data
- Pediatrics: Not recommended to patients less than 18 years of age.

CLINICAL RECOMMENDATIONS: Severe Pain, Persistent muscle spasm (including Multiple Sclerosis), Seizure (including epilepsy), Cancer, Glaucoma, HIV or AIDS, Cachexia, Severe Pain or Severe Nausea.

CONTRAINDICATIONS: Using Medical Marijuana during breastfeeding has been shown to decrease motor skills in children at the age of one. Pre-Natal use has been associated with increased risks of childhood leukemia, astrocytoma, and Rhabdomyosarcoma. Although marijuana use has not been associated with mortality in other populations, it may pose particular risk for susceptible individuals with coronary heart disease (CHD).

SIDE EFFECTS: dry mouth, Impaired perception, diminished short-term memory, loss of concentration and coordination, impaired judgment, increased risk of accidents, loss of motivation, diminished inhibitions, Increased heart rate, tachycardia, hypotension, anxiety, panic attacks, and paranoia, hallucinations, respiratory damage, reproductive, and immune system damage, increased risk of cancer & psychological dependency. Chronic or Heavy users may have an increased risk of chest colds, bronchitis, emphysema, and bronchial asthma, and sleep disturbance. First episodes of Psychosis have been attributed to High Potency Marijuana use in some patients.

DRUG ABUSE & DEPENDENCE: If loss of control over medication occurs, more frequent use of the medication per day, taking medication for other reasons not specified by the Doctor or taking medication that was prescribed for another person, may be a sign of drug abuse or addiction. Getting past abuse or dependency can be overcome with doctors supervision, and may require a substance abuse program. **If the patient enters a substance abuse program please report it to the Medical Marijuana Registry at 303.692.2184.**

OVERDOSAGE: In overdose settings and disturbing psychiatric symptoms are present, the patient should be comforted in a quiet environment with supportive measures, and including reassurance should be used. Pay attention to vital signs since hypertension and hypotension have been known to occur. Subsequent clinical recommendations of Medical Marijuana should be discontinued until their baseline mental status resumes.

DOSAGE & ADMINISTRATION: Episodically patients may have symptoms that can be suppressed with Medical Marijuana multiple times a day, and possibly intermittently. Doctor's recommendations should be followed on usage, whether daily or when symptoms seem to exist. Patients are allowed to have up to 2 ounces. They or their caregiver can manage up to 6 plants, with 3 maturing plants at a time.

PATIENT FEE'S: The annual Medical Marijuana Application registry fee is \$90. If a patient meets the states standard for indigent care the application fee may be waived. Annual exams with bona-fide doctor patient relationship must also occur, acknowledging one of the approved indications by Colorado state government to continue to receive the Marijuana Registry Card.

COLORADO LAW: Please reference the website; <http://www.cdphe.state.co.us/hs/medicalmarijuana/>. Patients 21 and over must complete the "Medical Marijuana Registry Application". The Doctor must sign the patient's application and select one of the eight debilitating medical conditions clinically approved by Colorado Law. Patients must complete a medical history, current medical condition and a complete physical. Only an active licensed MD or DO can prescribe Medical Marijuana, and must have a bona-fide physician-patient relationship. Patients 18-20 must receive a recommendation from two physicians. The patient may or may not have a caregiver, but must submit their application via mail. Cards will not be approved if patients have been convicted of a felony or have been ordered by a court to receive drug or substance abuse treatment.

FEDERAL LAW: The use, possession, distribution, and manufacture of marijuana remains a federal crime in Colorado, and possession of a registration card provides no protection whatsoever against federal criminal prosecution. More than 800 doctors to date have prescribed Medical Marijuana and no federal reprisals of doctors have taken place.

REFERENCES:

- Antiemetic efficacy of smoked marijuana Subjective and behavioral effects on nausea induced by syrup of ipecac, *Pharmacology, Biochemistry and Behavior* 69 (2001) 343–350
- Cannabis Use in HIV for Pain and Other Medical Symptoms, *Journal of Pain and Symptom Management*, Vol. 29 No. 4 April 2005
- Commentary On the pharmaceuticalization of marijuana, Lester Grinspoon, Medical School, University of Harvard, 74 Fenwood Road, Boston, MA 02115, USA, Received 5 February 2001; accepted 31 August 2001
- Marijuana, immunity and infection, Thomas W. Klein, *Journal of Neuroimmunology* 83 (1998) 102–115, accepted 24 October 1997
- Medical marijuana—moving beyond the Smoke, *THE LANCET* • Vol 360 • July 6, 2002, Billy R Martin,
- Decreased depression in marijuana users, Thomas F. Denson, *Addictive Behaviors* 31 (2006) 738–742
- Effect of anxiety on treatment presentation and outcome: Buckner, J.D., Carroll, K.M., E Results from the Marijuana Treatment Project, *Psychiatry Res.* (2010), doi:10.1016/j.psychres.2009.10.010
- Antidepressant-like effect of Δ9-tetrahydrocannabinol and other cannabinoids isolated from Cannabis sativa A.T. El-Alfy et al. / *Pharmacology, Biochemistry and Behavior* 95 (2010) 434–442
- Role of cannabinoids in chronic liver diseases, Anna Parfieniuk, Robert Flisiak, *World J Gastroenterol* 2008 October 28; 14(40): 6109-6114
- Biological effects of THC and aliphilic cannabis extraction normal and insulin resistant 3T3-L1 adipocytes M. Gallant et al. / *Phytomedicine* 16 (2009) 942–949
- Beneficial Effects of a Cannabis sativa Extract Treatment on Diabetes-induced Neuropathy and Oxidative Stress, F. Comelli *Phytotherapy. Res.* 23: 1678–1684 (2009)
- Cannabinoids as Pharmacotherapies for Neuropathic Pain: From the Bench to the Bedside, Elizabeth J. Rahn and Andrea G. Hohmann, *The Journal of the American Society for Experimental Neurotherapeutics*, Vol. 6, No. 4, 2009
- Cannabinoid Analgesia as a Potential New Therapeutic Option in the Treatment of Chronic Pain, Tammy L Burns, PharmD, Joseph R Ineck, PharmD, *The Annals of Pharmacotherapy*: Vol. 40, No. 2, pp. 251-260, Published Online, 31 January 2006
- Cannabinoids against pain, Efficacy and strategies to reduce psychoactivity: a clinical perspective, Matthias Karst † & Sonja Wippermann, *Expert Opin. Investig. Drugs* (2009) 18 (2):125-133
- Meta-analysis of cannabis based treatments for neuropathic and multiple sclerosis-related pain, Iskedjian M, Bereza B, Gordon A, Piwko C, Einaron TR, *Current Medical Research and Opinion*, 2007 Jan;23(1):17-24
- Are cannabinoids an effective and safe treatment option in the management of pain? A qualitative systematic review, Fiona A Campbell, Martin R Tramèr, Dawn Carroll, *BMJ VOLUME* 323 7 JULY 2001
- Functional role of cannabinoid receptors in urinary bladder, Pradeep Tyagi, Vikas Tyagi, *Indian Journal of Urology*, 2010 Jan–Mar; 26
- The Endocannabinoid System and Pain, Josée Guindon and Andrea G. Hohmann, *CNS Neurol Disord Drug Targets*. 2009 December
- Cannabinoids, Endocannabinoids, and Related Analogs in Inflammation, Sumner H. Burstein and Robert B. Zurier, *American Association of Pharmaceutical Scientists* February 2009
- Therapeutics use of the cannabinoids in psychiatry, José Alexandre S. Crippal, Antonio Waldo Zuardi, *Revista Brasileira de Psiquiatria*, May 2010
- Cannabis as a substitute for alcohol and other drugs, Amanda Reiman, *Harm Reduction Journal*, Dec 2009