



Use of Medical Marijuana in Cancer Treatment & Care

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Introduction

**Board Certified Medical Doctor,
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28 years as emergency physician

Founded Stram Center for Integrative Medicine

Membership to Society for Integrative Oncology



The background of the slide features a close-up, slightly blurred image of a pile of white, round Oxycontin tablets. Some tablets are clearly marked with 'TEC' and '31'. The overall image has a greenish tint, with a darker green at the top and a lighter green at the bottom.

I OPPOSE **MEDICAL MARIJUANA**
BECAUSE IT IS A GATEWAY DRUG

BUT I'D BE HAPPY TO
REFILL YOUR **OXYCONTIN**

IT'S **FDA APPROVED** WHICH MEANS IT'S 100% SAFE

Cannabis as Medicine

Cannabis has been used in medicine for 3000 years

All before achieving the status of being a class 1, illicit, and illegal drug like heroin

- Introduced to Western Medicine in 1840's by Dr. William Brooke O'Shaughnessy



A Brief History

Harry Anslinger, director of Narcotics, division of the FBI

- **Drew upon the following themes to exploit the problem**
 - Racism
 - Violence
 - Fear
 - Protection of corporate profits (alcohol / tobacco)
 - Corrupt legislators

Quotes from Anslinger



"Primary reason to outlaw marijuana is its effect on the degenerate races"



"Marijuana is an addictive drug which produces in its users insanity, criminality, and death"



"You smoke a joint and you're likely to kill your brother"



"Marijuana is the most violence-causing drug in the history of mankind"

Medicinal Effects of Phyto-Cannabinoids

Anandamide
& 2-AG

2-Arachidonoylglycerol

CB1
Receptor

CB2
Receptor

Marinol
THC

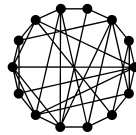
Relieves nausea in patients undergoing chemotherapy



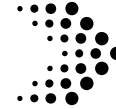
Pain Management



Appetite Control



Movement Control



Immune System



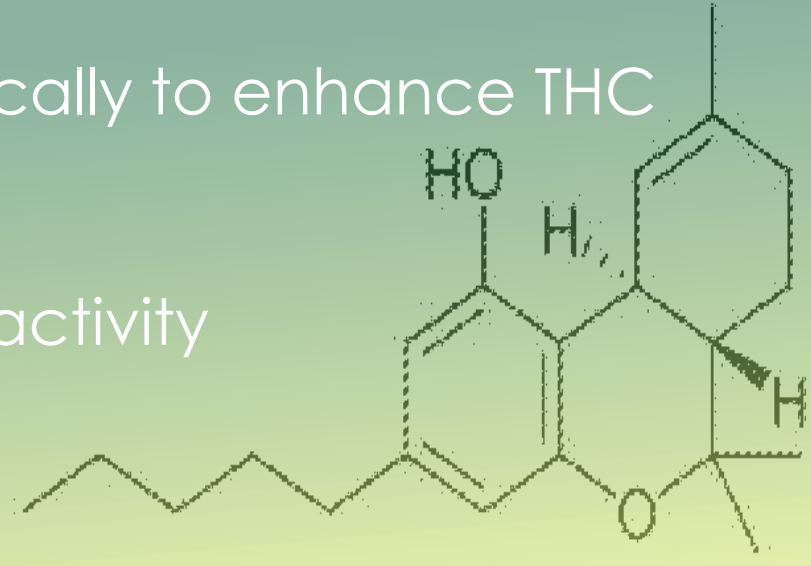
Memory Management

Medicinal Effects of Phyto-Cannabinoids

- ✓ Cannabinoids inhibit tumor growth in animal models

Other non THC compounds with biological activity: CBD

- Canabadiol acts synergistically to enhance THC
- Increases blood flow
- Kills respiratory pathogens
- Provide anti-inflammatory activity



Pharmacology of Cannabis

Oral ingestion:

- Peak occurs 1 to 6 hours and can remain elevated for up 30 hours later

Inhaled:

- Cannabinoids rapidly absorbed in bloodstream where peak occurs 2 to 10 minutes then rapid decline over next 30 minutes



How it works: Proven Results

Cancer Center Management

Supported by data

- Antiemetic agents Dronabinol and Nabilone THC synthetics; randomized controlled trials found to be more effective as an antiemetic than drugs used such as Compazine or Phenergan
- National Comprehensive Cancer Network anti-emesis guidelines recommend cannabinoids among other therapies to consider as breakthrough treatment for chemotherapy induced nausea and vomiting

Pain Management

Scientific results

- CB1 receptors found in CNS help modulate pain perception and processing
- CB2 receptors modulate inflammation acting on mast cell receptors to limit release of inflammatory agents

Appetite Management

Stimulates appetite

- Cannabis is the only antiemetic substance that also has appetite stimulating affects
- Anorexia, early satiety, weight-loss and cachexia are some of the most challenging symptoms facing cancer affiliated patients
- Two small controlled trials demonstrated that oral THC stimulates appetite and may slow down weight loss for patients with advanced malignancies

Supported by Controlled Studies



Pain intensity and relief:

- Double blind study reported that 15 and 20 mg doses of THC produce significant pain relief and appetite stimulation

Improved mood/well being

- 20 mg of THC when compared to 120 mg of codeine resulted in patients having improved sense of well-being and less anxiety

Outperforming placebo group

- THC group reported a 30% reduction in pain when compared to the other two groups. Neuropathic pain associated with platinum based chemo saw a 30-70% reduction in pain

Cannabis and Opiates Synergistic Effects

Evidence the cannabinoids may increase synthesis of endogenous opioids

Phyto-cannabinoids shown to be synergistic, therefore, the combination may offer lower doses of opioids

More effective, longer duration, fewer side effects

I don't know if I'd take it or not,
in some ways I'd
rather have the pain.

I don't know why they gotta
legalize it.

Safety and Side Effects

Preferable safety profile

- Cannabis receptors are not located in the brain stem areas and therefore do not control respiration; there is no respiratory suppression with cannabis

Gateway Drug

- Most drug abusers begin with alcohol and nicotine before marijuana; rarely the first gateway drug



Cannabis and Cancer Risk

Study:

- 65K Kaiser healthcare members; 1979 to 1993 divided in 4 groups (never smoked, cannabis only, tobacco only, smoked both)

Results:

- Those only smoking cannabis had 0 documented cases
- Smoking less than one joint of marijuana per day had 37% reduction in risk of developing lung cancer



Cannabinoids as Anticancer Agents



In-vitro study using breast cancer cells in mice showed the use of CBD is the first nontoxic agent that can decrease metastatic breast cancer cells leading to the down regulation of tumor aggressiveness in vitro

Anticancer agents

Evidence from cell culture systems and animal models have suggested that THC and other cannabinoids may inhibit growth of some tumors by inhibiting angiogenesis (blood vessel growth) and metastases

Endogenous cannabinoids Anandamide and 2-AG shown to exert antiproliferative effects of tumor cells (lung adenocarcinoma, brain glioma, lymphoma, breast)

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