Medical Cannabis for Palliative Care

Paul Daeninck

Departments of Internal & Family Medicine
University of Manitoba and CancerCare Manitoba
Leonard Sarna

Chief Science Officer
Teewinot Life Sciences Inc.
Medical Cannabis and Cancer
Panacea or Just Weed?
810,045
Canadians were alive at the beginning of 2009 with a cancer diagnosed in the previous 10 years

2 in 5
Canadians will develop cancer in their lifetime

202,400
Canadians will be diagnosed with cancer in 2016

60%
The five-year survival probability, in Canada, that would be observed in the hypothetical situation where cancer is the only possible cause of death

78,800
Canadians will die of cancer in 2016

1 in 4
Canadians will die from cancer
Should doctors prescribe cannabinoids?

Michael Farrell professor and director¹, Rachelle Buchbinder director and professor², Wayne Hall professor, National Health and Medical Research Council Australia fellow, and deputy director (policy)³
Who uses cannabis as medicine?

2% use cannabis for medical purposes (2000)

>37,000 people registered with MMAR (Mar 2013)
  approx 6% cancer Dx

>98,000 people registered with MMPR (Sept 2016)

>167,000 registrants with ACMPR (Mar 2017)

>5600 kg sold to clients (Jan –Mar 2017)

No epidemiology studies done in cancer or palliative care patients

Ogborne, CMAJ 2000
Health Canada information
The Medicinal Use of Cannabis and Cannabinoids—An International Cross-Sectional Survey on Administration Forms

Arno Hazekamp, Ph.D.; Mark A. Ware, M.D.; Kirsten R. Muller-Vahl, M.D.; Donald Abrams, M.D. & Franjo Grotenhermen, M.D.

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FIGURE 1
Preferred Mode of Administration for Subjects in Each of the Top 5 Symptoms

- chronic pain (N = 278)
- anxiety (N = 175)
- loss of appetite and/or weight (N = 102)
- depression (N = 50)
- insomnia or sleeping disorder (N = 49)
TABLE 2
Daily Dose, Daily Frequency, and Onset of Effects; Mean Values are Shown

<table>
<thead>
<tr>
<th></th>
<th>Smoking</th>
<th>Vaporizer</th>
<th>Tea</th>
<th>Food/Tinct</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a) Daily use</strong>&lt;br&gt; (units are indicated)</td>
<td>3.0 gram</td>
<td>3.0 gram</td>
<td>2.4 gram</td>
<td>3.4 gram</td>
</tr>
<tr>
<td><strong>b) Daily frequency</strong>&lt;br&gt; (times per day)</td>
<td>6.0</td>
<td>5.2</td>
<td>1.9</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>c) First onset of effects</strong>&lt;br&gt; (minutes)</td>
<td>7.0</td>
<td>6.5</td>
<td>28.9</td>
<td>45.5</td>
</tr>
</tbody>
</table>
Review of 1 yr observational data, 5 oncologists
Approx 17,000 cancer pts
279 (1.7%) approved for cannabis use
Most w advanced cancer, >40% died within 6 mo
Improvement in symptoms in majority of pts
Fig. 1. Efficacy of cannabis use in patients, as perceived by patients who completed a detailed questionnaire (n = 69).
USE OF CANNABINOIDS IN CANCER CARE

Guest Editor: Mark Ware, MD
Patient’s tale of requesting, acquiring and benefits of cannabis to help symptoms associated with cancer and its treatment
How does cannabis work?
Cannabis: What’s in it?

Cannabis sativa

Marijuana (dried leaves / flowering heads)

Isolated pure compounds

> 400 chemical compounds

Non-cannabinoids

> 80 types of cannabinoids

Cannabinoids

Most potent psychoactive ingredient

Psychoactive

Δ⁹-THC

Δ⁸-THC

cannabinol (weak)

Active, not psychoactive

cannabidiol

Inactive?

> 70 compounds

active in several conditions

Kalant H. Pain Res Manage 2001;6:80-91
1) Neurotransmitter (NT) released from vesicles within the presynaptic neuron activates the postsynaptic neuron

2) Activation of postsynaptic neuron leads to synthesis and release of endocannabinoid

3) The endogenous CB1 ligand diffuses back to and binds to the presynaptic CB1 receptor

4) The CB1 receptor activates a G-protein, which lead to presynaptic events that result in inhibition of NT release

5) Exogenous drugs directly activate CB1 receptors to stimulate the endogenous cannabinoid system, enhancing its function

Cappendijk S Modulators of Drug Dependence Phenomena 2010
Why are people asking for cannabis? What is the evidence?
Stoned

A DOCTOR'S CASE FOR MEDICAL MARIJUANA

David Casarett, M.D.
Cannabinoid indications

**On-label indications:**
Nausea and vomiting from chemotherapy
Chronic pain (neuropathic pain in MS and cancer)
Anorexia associated with HIV / AIDS

**Off-label indications/emerging evidence for:**

<table>
<thead>
<tr>
<th>PTSD</th>
<th>Neuropathic / mixed pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>Chronic daily headache</td>
</tr>
<tr>
<td>Insomnia</td>
<td>Anorexia / cachexia</td>
</tr>
<tr>
<td>Spasticity (MS)</td>
<td>Spasticity</td>
</tr>
<tr>
<td>Bladder spasms (MS)</td>
<td>Epilepsy</td>
</tr>
<tr>
<td>Fibromyalgia</td>
<td></td>
</tr>
</tbody>
</table>
# Symptom prevalence in cancer patients

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>35 - 96%</td>
</tr>
<tr>
<td>Depression</td>
<td>3 - 77%</td>
</tr>
<tr>
<td>Anxiety</td>
<td>13 - 79%</td>
</tr>
<tr>
<td>Confusion (delirium)</td>
<td>6 - 93%</td>
</tr>
<tr>
<td>Fatigue</td>
<td>32 - 90%</td>
</tr>
<tr>
<td>Breathlessness (dyspnea)</td>
<td>10 - 70%</td>
</tr>
<tr>
<td>Nausea</td>
<td>6 - 68%</td>
</tr>
<tr>
<td>Constipation</td>
<td>23 - 65%</td>
</tr>
<tr>
<td>Anorexia</td>
<td>30 - 92%</td>
</tr>
</tbody>
</table>

Solano et al, JPSM 2006; 31: 58-69
Symptoms responsive to cannabinoids

Pain
Depression
**Anxiety**
Confusion (delirium)
Fatigue
Breathlessness (dyspnea)
**Nausea**
Constipation
**Anorexia**
What is the evidence?

<table>
<thead>
<tr>
<th>Pain</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>++</td>
</tr>
<tr>
<td>Clinical</td>
<td>+++</td>
</tr>
</tbody>
</table>
Pre-clinical data: cancer pain

Robust *in vitro* evidence cancer pain responds to cannabinoid treatment

Use in bone pain/neuropathic pain has strongest evidence

Direct use of agonists/antagonists
Peripheral cannabinoids attenuate carcinoma-induced nociception in mice

A cannabinoid 2 receptor agonist attenuates bone cancer-induced pain and bone loss

A Decrease in Anandamide Signaling Contributes to the Maintenance of Cutaneous Mechanical Hyperalgesia in a Model of Bone Cancer Pain
Research Report

The cannabinoid receptor agonist, WIN 55, 212-2, attenuates tumor-evoked hyperalgesia through peripheral mechanisms

Carl Potenzieri\textsuperscript{a,b}, Catherine Harding-Rose\textsuperscript{a}, Donald A. Simone\textsuperscript{a,b,*}

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Role of cannabinoid 2 receptor in the development of bone cancer pain


Clinical data: Pain

Trial evidence supports oral use in cancer pain, in addition to usual therapy
Small studies using smoking/vaporization
None using edibles or oils
Reduction in use of pain meds noted
Few A/E
Multicenter, Double-Blind, Randomized, Placebo-Controlled, Parallel-Group Study of the Efficacy, Safety, and Tolerability of THC:CBD Extract and THC Extract in Patients with Intractable Cancer-Related Pain

Nabiximols for Opioid-Treated Cancer Patients With Poorly-Controlled Chronic Pain: A Randomized, Placebo-Controlled, Graded-Dose Trial
MEDICAL CANNABIS: DOES IT REDUCE THE AMOUNT OF OPIOID MEDICATION REQUIRED BY PATIENTS WITH CANCER PAIN?

Cudmore J¹ and Daeninck PJ¹,²,³

¹Department of Internal Medicine, University of Manitoba, Winnipeg, MB, Canada
²Departments of Medical Oncology and Hematology CancerCare Manitoba, Winnipeg, MB, Canada
³WRHA Palliative Care Program, Winnipeg, MB, Canada

THE USE OF CANNABINOIDS (CBs) FOR THE TREATMENT OF CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN): A RETROSPECTIVE REVIEW

J. Gingerich, D. Wadhwa, L. Lemanski, M. Krahn, P. J. Daeninck
University of Manitoba, Winnipeg, MB, Canada; St. Boniface Hospital, Winnipeg, MB, Canada

Abstract e20743
What is the evidence?

<table>
<thead>
<tr>
<th>Nausea</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>++</td>
</tr>
<tr>
<td>Clinical</td>
<td>+++</td>
</tr>
</tbody>
</table>
### Table 2

**Clinical Trials With Cannabinoids: Emesis**

<table>
<thead>
<tr>
<th>DRUG(S)</th>
<th>SUBJECTS</th>
<th>OUTCOME</th>
<th>REFERENCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nabilone vs prochlorperazine</td>
<td>Pediatric chemotherapy patients</td>
<td>Nabilone more effective</td>
<td>56</td>
</tr>
<tr>
<td>Nabilone and prochlorperazine vs metoclopramide and dexamethasone</td>
<td>Chemotherapy patients</td>
<td>Better control of emesis with metoclopramide combination, but nabilone combination better tolerated</td>
<td>57</td>
</tr>
<tr>
<td>Nabilone vs metoclopramide</td>
<td>Patients undergoing irradiation</td>
<td>No difference in effectiveness; more adverse effects with nabilone</td>
<td>58</td>
</tr>
<tr>
<td>Nabilone vs alizapride</td>
<td>Chemotherapy patients</td>
<td>Nabilone more effective but with more adverse effects (especially at higher doses)</td>
<td>59</td>
</tr>
<tr>
<td>Nabilone vs domperidone</td>
<td>Chemotherapy patients</td>
<td>Nabilone more effective</td>
<td>60</td>
</tr>
<tr>
<td>Nabilone vs metoclopramide</td>
<td>Chemotherapy patients</td>
<td>No difference in efficacy</td>
<td>61</td>
</tr>
<tr>
<td>Oral THC vs prochlorperazine</td>
<td>Chemotherapy patients</td>
<td>No difference in efficacy</td>
<td>62</td>
</tr>
<tr>
<td>Oral THC vs prochlorperazine vs placebo</td>
<td>Chemotherapy patients</td>
<td>Oral THC more effective than prochlorperazine or placebo</td>
<td>63</td>
</tr>
<tr>
<td>Dronabinol and metoclopramide and prochlorperazine</td>
<td>Chemotherapy patients</td>
<td>No added benefit of dronabinol</td>
<td>64</td>
</tr>
<tr>
<td>Dronabinol and prochlorperazine</td>
<td>Chemotherapy patients</td>
<td>Dronabinol effective alone, but combination more effective</td>
<td>65, 53</td>
</tr>
<tr>
<td>Nabilone and prochlorperazine</td>
<td>Chemotherapy patients</td>
<td>Nabilone more effective</td>
<td>66</td>
</tr>
<tr>
<td>Oral THC vs prochlorperazine</td>
<td>Chemotherapy patients</td>
<td>Oral THC more effective</td>
<td>67</td>
</tr>
</tbody>
</table>

THC = Δ⁸-tetrahydrocannabinol

Martin & Willey J Support Onc 2004;2: 305-16
CBs may be superior to conventional therapies in low-medium emetogenic setting

Patient preference for CBs ranged from 38-90% (P 4-20%)

CBs produced significantly more A/E effects (good & bad), more pt withdrawals

“In selected patients, cannabinoids may be useful as mood enhancing adjuvants for the control of chemotherapy related sickness”
Inhaled cannabis

Three studies, associated with chemo administration
Some new users, many previous cannabis users
All studies showed benefit, but high incidence of side effects
25-35% pts prefer marijuana

Chang et al, Ann Int Med 1979 91:819
Levitt et al, JCO 1984 abstract C-354
### What is the evidence?

<table>
<thead>
<tr>
<th>Appetite/wt loss</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>++</td>
</tr>
<tr>
<td>Clinical</td>
<td>+</td>
</tr>
</tbody>
</table>
Marijuana flips appetite switch in brain

Sudden attacks of 'the munchies' triggered by changes in hormone pro-opiomelanocortin (POMC) release by neurons

Hypothalamic POMC neurons promote cannabinoid-induced feeding

doi: 10.1038/nature.2015.16957
doi: 10.1038/nature14260
# Appetite and weight loss

<table>
<thead>
<tr>
<th>Table 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical Trials With Cannabinoids: Cachexia and Anorexia</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DRUG(S)</th>
<th>SUBJECTS</th>
<th>OUTCOME</th>
<th>REFERENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dronabinol and megestrol</td>
<td>Cancer patients</td>
<td>No effect of dronabinol or combination on appetite or body weight</td>
<td>37</td>
</tr>
<tr>
<td>Dronabinol</td>
<td>Cancer patients</td>
<td>Increased appetite</td>
<td>38</td>
</tr>
<tr>
<td>Dronabinol and megestrol</td>
<td>AIDS patients</td>
<td>No effect of dronabinol or combination on appetite</td>
<td>39</td>
</tr>
<tr>
<td>Dronabinol vs placebo</td>
<td>HIV-positive patients</td>
<td>Increased body fat and increased appetite</td>
<td>40</td>
</tr>
<tr>
<td>Dronabinol vs placebo</td>
<td>Alzheimer’s patients with anorexia</td>
<td>Increased body weight and decrease in disturbed behavior</td>
<td>41</td>
</tr>
<tr>
<td>Dronabinol vs placebo</td>
<td>AIDS patients</td>
<td>Increased appetite; stabilized weight</td>
<td>42</td>
</tr>
<tr>
<td>Dronabinol vs placebo</td>
<td>Late-stage AIDS patients</td>
<td>Stable body weight for 7 months</td>
<td>43</td>
</tr>
</tbody>
</table>

Nelson K et al. *J Pall Care* 1994;10:14-18  
Beal JE et al. *J Pain Symptom Manage* 1997;14:7-14
Dronabinol: taste alterations

Pilot trial to improve taste, smell changes in advanced cancer patients
THC 2.5 mg BID or TID vs placebo x 18 days, n=21
Questionnaires / interviews revealed significant improvement in taste / smell, increased appetite and protein intake
QoL measures found improved relaxation, quality of sleep
Adverse effects same in both groups

<table>
<thead>
<tr>
<th>Neuroprotection</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>+/-</td>
</tr>
<tr>
<td>Clinical</td>
<td>+</td>
</tr>
</tbody>
</table>
Selective Activation of Cannabinoid CB$_2$ Receptors Suppresses Neuropathic Nociception Induced by Treatment with the Chemotherapeutic Agent Paclitaxel in Rats

Elizabeth J. Rahn, Alexander M. Zvonok, Ganesh A. Thakur, Atmaram D. Khanolkar, Alexandros Makriyannis, and Andrea G. Hohmann

RESEARCH PAPER

Activation of cannabinoid CB$_1$ and CB$_2$ receptors suppresses neuropathic nociception evoked by the chemotherapeutic agent vincristine in rats

EJ Rahn$^1$, A Makriyannis$^2$ and AG Hohmann$^1$
Cannabidiol for the Prevention of Graft-versus-Host-Disease after Allogeneic Hematopoietic Cell Transplantation: Results of a Phase II Study

Brief Report

A Double-Blind, Placebo-Controlled, Crossover Pilot Trial With Extension Using an Oral Mucosal Cannabinoid Extract for Treatment of Chemotherapy-Induced Neuropathic Pain

Mary E. Lynch, MD, FRCPC, Paula Cesar-Rittenberg, MD, FRCPS, and Andrea G. Hohmann, PhD
## What is the evidence?

<table>
<thead>
<tr>
<th></th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Insomnia</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-clinical</td>
<td>-</td>
</tr>
<tr>
<td>Clinical</td>
<td>++*</td>
</tr>
<tr>
<td><strong>Anxiety</strong></td>
<td></td>
</tr>
<tr>
<td>Pre-clinical</td>
<td>++</td>
</tr>
<tr>
<td>Clinical</td>
<td>In progress</td>
</tr>
</tbody>
</table>

*secondary finding*
Many epidemiologic studies 
Older studies support increased risk of cancer 
More recent studies, improved methodology 
not clear if causative or protective effect 
Smoked cannabis contributes to pulm damage 
Vaporized cannabis oil may produce carcinogens¹

¹) Troutt et al, J Alt Compl Med Mar 2017
20 Medical Studies That Prove Cannabis Can Cure Cancer


Cannabis Cures Cancer

https://dl.dropboxusercontent.com/u/27713298/Web/cure/How_It_Works.html

Run From The Cure: How Cannabis Cures Cancer And Why No One Knows

Cannabis sativa hemp, the miracle plant, contains the cure for cancer and other ailments  By Rick Simpson - Friday, March 7 2008

http://www.cannabisculture.com/articles/5169.html
Cannabis is not a cure for cancer...

but can it be a cancer therapy??
What is the evidence?

Cancer therapy

Pre-clinical
Clinical
Clinical trials

Evidence

+++ Anecdote
+ In Progress
Proposed mechanisms

Figure 2 | General mechanisms of cannabinoid antitumor action. Cannabinoids block tumor
Cannabinoids as anticancer agents

Table 1 | Cannabinoids activate a similar pro-apoptotic mechanism in different types of cancer cells*

<table>
<thead>
<tr>
<th>Cancer cell</th>
<th>CB receptor involved</th>
<th>Ceramide synthesis</th>
<th>ER stress</th>
<th>p8-TRIB3 induction</th>
<th>AKT inhibition</th>
<th>Autophagy</th>
<th>Apoptosis</th>
<th>Refs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glioma</td>
<td>CB1 and CB2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>39</td>
</tr>
<tr>
<td>Pancreatic cancer</td>
<td>CB2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>39,41</td>
</tr>
<tr>
<td>Hepatocellular carcinoma</td>
<td>CB2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>40</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>CB2</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>✓</td>
<td>✓ (UO)‡</td>
<td>✓</td>
<td>94</td>
</tr>
<tr>
<td>Rhabdomyosarcoma</td>
<td>CB1</td>
<td>ND</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>ND</td>
<td>✓</td>
<td>94</td>
</tr>
<tr>
<td>Mantle cell lymphoma</td>
<td>CB1 and CB2</td>
<td>✓</td>
<td>✓</td>
<td>ND</td>
<td>ND</td>
<td>✓ (WIN 55,212-2)§</td>
<td>✓ (WIN 55,212-2)§</td>
<td>96</td>
</tr>
<tr>
<td>Leukaemia</td>
<td>CB2</td>
<td>✓</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
<td>✓</td>
<td>86,97,98</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>CB2</td>
<td>✓</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
<td>✓</td>
<td>99,100</td>
</tr>
<tr>
<td>Melanoma</td>
<td>CB2</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>✓</td>
<td>✓ (UO)‡</td>
<td>✓</td>
<td>42</td>
</tr>
<tr>
<td>Lung carcinoma</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>ND</td>
<td>✓</td>
<td>ND</td>
<td>✓</td>
<td>56</td>
</tr>
</tbody>
</table>

CB, cannabinoid; ER, endoplasmic reticulum; ND, not determined; TRIB3, tribbles-homologue 3; UO, unpublished observations. *The existence of experimental evidence for the participation of CB receptors, de novo-synthesized ceramide, ER stress induction, upregulation of p8 and/or of TRIB3, autophagy induction or apoptosis in cannabinoid-induced death for each type of cancer cell is indicated by a tick. ‡G.V., C.S. and M.G., unpublished observations. §WIN 55,212-2 produces a cytoplasmic vacuolization (autophagic-like) phenotype in mantle cell lymphoma, an effect that seems to be CB receptor-independent.
Pre-clinical work

CBs + gemcitabine act synergistically against pancreatic cancer cells.
Adding THC to chemotherapy increased brain tumour sensitivity.
Addition of CBD to THC enhanced anti-tumour activity using temozolamide.
Similar synergism seen using radiation with THC and CBD in a murine model of glioma.

“But again, mice and rats are not people, and what is observed in vitro does not necessarily translate into clinical medicine. The preclinical evidence that cannabinoids might have direct anticancer activity is provocative as well, but more research is warranted.”

*Donald Abrams, 2016*
Anecdotal reports

Spontaneous regression of septum pellucidum/forniceal pilocytic astrocytomas—possible role of Cannabis inhalation

Mansoor Foroughi • Glenda Henderson • Michael A. Sargent • Paul Steinbok
Anecdotal reports

Cannabis Extract Treatment for Terminal Acute Lymphoblastic Leukemia with a Philadelphia Chromosome Mutation

Yadvinder Singh\textsuperscript{a} Chamandeep Bali\textsuperscript{b}
Cannabinoids and cancer treatment

A pilot clinical study of $\Delta^9$-tetrahydrocannabinol in patients with recurrent glioblastoma multiforme

M Guzmán*,1, MJ Duarte2, C Blázquez1, J Ravina2, MC Rosa2, I Galve-Roperh1, C Sánchez1, G Velasco1 and L González-Feria*2

THC delivered to tumour bed 3-6 days post-resection
- cell growth effects noted in 8/9 pts
- no survival benefit (mean 24 wks)
- no psychoactive effects

Treatment was safe, set stage for further investigation
Current clinical trials

Israel: cannabis extracts (CBD) in patients resistant to usual chemotherapy protocols (NCT02255292)

US: Safety of dexanabinol in pts with advanced cancers (NCT01489826, NCT02423239)

Cannabis (high CBD concentration) for pain and inflammation in lung carcinomas (NCT02675842)

Medical marijuana in the pediatric CNS tumor population (NCT03052738)

All registered at ClinicalTrials.gov (accessed July 2017)
A two-part safety and exploratory efficacy randomized double-blind, placebo-controlled study of a 1:1 ratio of the cannabinoids cannabidiol and delta-9-tetrahydrocannabinol (CBD:THC) plus dose-intense temozolomide in patients with recurrent glioblastoma multiforme (GBM).

Presented Monday, June 5, 2017 as a poster

*J Clin Oncol* 35, 2017 (suppl; abstr 2046)

n=21 pts, 12 temozolomide + CBD:THC vs 9 placebo

Median survival: >550 d experimental group vs 369 d placebo

1YS: 83% chemo + CBD:THC vs 53% placebo (p=0.042)

CBD:THC adverse events: dizziness and nausea

NCT01812603
Cannabis in Palliative Care?
Assessment of Hospice Health Professionals’ Knowledge, Views, and Experience with Medical Marijuana

FIG. 1. Hospice providers’ views on medical marijuana (% respondents).
Observational study, >100 pts cancer PC setting
Significant improvement in N/V, pain, mood disorders, fatigue, wt loss, anorexia, constipation, sexual function, sleep disorders, itching
43% reported dose reduction in pain meds
33% reduced anti-depression/anxiety meds
Bar-Sela et al

Significant adverse effects not noted in cannabis users

Reported reduction in memory in 20% - 40%

Improvement in symptom and distress scores

Limitations of the study:

- observational nature
- lack of a control group
- reliance on self-report
Use of cannabinoids in cancer care: palliative care

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Use for symptoms, but also integrate into holistic approach for overall well being and patient benefit
Medical cannabis use in an outpatient palliative care clinic: A retrospective chart review

Noah Spencer, BASc(C), Erynn Shaw, MD, and Marissa Slaven*, MD


Cannabinoids in Palliative Medicine

Psychiatric Complications of Cannabis Oil Use in Cancer Patients: Whose Responsibility Is It To Manage?

Notes from the Editor