Medical Cannabis in Cancer
Is the Smoke Clearing?

Paul Daeninck, MD MSc FRCPC

Departments of Internal & Family Medicine
University of Manitoba and CancerCare Manitoba
Conflict of interest disclosure

Faculty: Paul Daeninck

Relationships with commercial interests:

Grants/Research Support:
- CancerCare Manitoba Foundation

Scientific Advisor/Honoraria:
- Bonify, ABcann Medicinals-Advisory Board
- InVentive-Consultant
- Mylan-CME presentation
- Tweed-CME presentations
Mitigating potential bias

No commercial entity had any involvement in the development of this presentation.
The steering committee had full control over the program development.
All faculty members completed the University of Manitoba Disclosure Declaration Form and disclosed any identified potential conflicts to participants in accordance with the CFPC standards of Conflicts of Interest and Transparency to Learners.
Generic names will be used.
Potential faculty conflicts of interest were reviewed and addressed by the steering committee.
Objectives

At the conclusion of this workshop, participants will be able to:

- Describe the epidemiology of cannabinoids and cannabis use by patients with cancer
- List the indications and evidence for cannabinoids as part of a supportive therapy program for cancer patients
- Explore the reasons some patients believe cannabinoids are a “cure” for malignant disease
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

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

202,400
Canadians will be diagnosed with cancer in 2016

1 in 4
Canadians will die from cancer

78,800
Canadians will die of cancer in 2016
Case 1

57 y o man with NSCLC
progressive disease post chemo
c/o anorexia, weight loss and pain
no further chemo planned, on PC Pgm
he asks for medical cannabis

Would you authorize? How do you counsel him as to product and dose?
Case 2

35 y o woman with met CRC
refused adjuvant chemotherapy
3/12 F/U – progressive disease
c/o anorexia, insomnia
regularly using cannabis “to relax”
asks about cannabis to “cure cancer”

Would you authorize? How do you counsel her as to product and dose?
Who uses cannabis as medicine?

2% use cannabis for medical purposes (2000)
>37,000 people registered with MMAR (Mar 2013)
>98,000 people registered with MMPR (Sept 2016)
201,398 registrants with ACMPR (to Jun 2017)
>5800 kg dried product sold (Apr –Jun 2017)
>6194 kg oil product sold (Apr –Jun 2017)
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
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
Why are people asking for cannabis? What is the evidence?
Endocannabinoids

Evidence supports a wide range of roles

- Immune function
- Inflammation
- Appetite
- Metabolism and energy homeostasis
- Cardiovascular function
- Digestion
- Bone development and bone density
- Pain
- Reproduction
- Psychiatric disease
- Psychomotor behavior
- Memory
- Wake/sleep cycles
- Regulation of stress and emotional state
- Learning
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:
PTSD
Anxiety / depression
Insomnia
Spasticity / bladder symptoms (MS)
Dementia-related symptoms
Cancer
Neuropathic / mixed pain
Chronic daily headache
Fibromyalgia
Anorexia / cachexia
Neurodegenerative diseases
Epilepsy
Inflammatory Bowel Disease
Symptom prevalence in cancer patients

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Prevalence</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: 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 and prevention of enzyme degradation
Peripheral application effective, few A/E
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

Russell K. Portenoy,* Elena Doina Ganae-Motan,† Silvia Allende,‡ Ronald Yanagihara,§ Lauren Shaiova,¶ Sharon Weinstein,# Robert McQuade,** Stephen Wright,†† and Marie T. Fallon‡‡
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
Cannabinoids for Medical Use
A Systematic Review and Meta-analysis

Penny F. Whiting, PhD; Robert F. Wolff, MD; Sohan Deshpande, MSc; Marcello Di Nisio, PhD; Steven Duffy, PgD;
Adrian V. Hernandez, MD, PhD; J. Christiaan Keurentjes, MD, PhD; Shona Lang, PhD; Kate Misso, MSc;
Steve Ryder, MSc; Simone Schmidtkofer, MSc; Marie Westwood, PhD; Jos Kleijnen, MD, PhD
### Figure 2. Improvement in Pain

<table>
<thead>
<tr>
<th>Improvement in Pain With Cannabinoid vs Placebo by Study</th>
<th>Cannabinoid Events</th>
<th>Placebo Events</th>
<th>Odds Ratio (95% CI)</th>
<th>Weight, %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tetrahydrocannabinol (smoked)</strong></td>
<td>No.</td>
<td>Total No.</td>
<td>No.</td>
<td>Total No.</td>
</tr>
<tr>
<td>Abrams et al,77 2007</td>
<td>13</td>
<td>25</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td><strong>Nabiximols</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GW Pharmaceuticals,22 2005</td>
<td>54</td>
<td>149</td>
<td>59</td>
<td>148</td>
</tr>
<tr>
<td>Johnson et al,69 2010</td>
<td>23</td>
<td>53</td>
<td>12</td>
<td>56</td>
</tr>
<tr>
<td>Langford et al,65 2013</td>
<td>84</td>
<td>167</td>
<td>77</td>
<td>172</td>
</tr>
<tr>
<td>Nurmikko et al,76 2007</td>
<td>16</td>
<td>63</td>
<td>9</td>
<td>62</td>
</tr>
<tr>
<td>Portenoy et al,67 2012</td>
<td>22</td>
<td>90</td>
<td>24</td>
<td>91</td>
</tr>
<tr>
<td>Selvarajah et al,70 2010</td>
<td>8</td>
<td>15</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Serpell et al,88 2014</td>
<td>34</td>
<td>123</td>
<td>19</td>
<td>117</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>241</td>
<td>660</td>
<td>209</td>
<td>660</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>254</td>
<td>685</td>
<td>215</td>
<td>685</td>
</tr>
</tbody>
</table>

The plots represent the odds ratios for each study, with the size of the markers indicating the weight of each study in the overall analysis.
CPS neuropathic pain guideline revision

TCA ↔ Gabapentin or pregabalin ↔ SNRI †

Tramadol or Controlled-release opioid analgesic

Cannabinoids

Fourth-line agents †

†methadone, lamotrigine, topiramate, valproic acid, lidocaine.
‡Do not add SNRIs to TCAs

Add additional agents sequentially if partial but inadequate pain relief

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>
Cannabinoids in nausea

**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
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

Levitt et al, *JCO* 1984 abstract C-354
<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/nature2015.16957
doi: 10.1038/nature14260
Appetite and weight loss

Table 1
Clinical Trials With Cannabinoids: Cachexia and Anorexia

<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

What is the evidence?

<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 CB₂ 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

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
RESEARCH PAPER

Activation of cannabinoid CB₁ and CB₂ receptors suppresses neuropathic nociception evoked by the chemotherapeutic agent vincristine in rats

EJ Rahn¹, A Makriyannis² and AG Hohmann¹

Cannabidiol for the Prevention of Graft-versus-Host-Disease after Allogeneic Hematopoietic Cell Transplantation: Results of a Phase II Study
What is the evidence?

<table>
<thead>
<tr>
<th>Insomnia</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>-</td>
</tr>
<tr>
<td>Clinical</td>
<td>++*</td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
</tr>
<tr>
<td>Pre-clinical</td>
<td>++</td>
</tr>
<tr>
<td>Clinical</td>
<td>-</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
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??
<table>
<thead>
<tr>
<th>Cancer therapy</th>
<th>Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-clinical</td>
<td>+++</td>
</tr>
<tr>
<td>Clinical</td>
<td>Anecdote</td>
</tr>
<tr>
<td>Clinical trials</td>
<td>+</td>
</tr>
<tr>
<td>In Progress</td>
<td></td>
</tr>
</tbody>
</table>
# 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)²</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>95</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)³</td>
<td>✓ (WIN 55,212-2)³</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)²</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. ³WIN 55,212-2 produces a cytoplasmic vacuolization (autophagic-like) phenotype in mantle cell lymphoma, an effect that seems to be CB receptor-independent.

Proposed mechanisms

Figure 2 | General mechanisms of cannabinoid antitumour action. Cannabinoids block tumour growth by inhibiting cancer cell proliferation, inducing autophagy, and suppressing angiogenesis and metastasis.
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

Review by Abrams, Curr Onc 2016
“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

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

Yadvinder Singh, Chamandeep Bali
Cannabinoids and cancer treatment

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

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
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 temo + CBD:THC vs 9 temo + 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
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)

All registered at ClinicalTrials.gov (accessed Sept 4, 2017)
Assessment of Hospice Health Professionals’ Knowledge, Views, and Experience with Medical Marijuana

Tanya J. U

Pradel, Ph.D.

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
Use of cannabinoids in cancer care: palliative care

S.K. Aggarwal MD PhD*

Use for symptoms, but also integrate into holistic approach
Case 1

57 y o man with NSCLC
progressive disease post chemo
c/o anorexia, weight loss and pain
no further chemo planned, on PC Pgm
he asks for medical cannabis
Case 1

57 y o man with NSCLC
Yes to authorize
suggest balanced THC:CBD product
oil ideal (long duration), vape prn
advise re: hospital use and travel
Case 2

35 y o woman with met CRC
refused adjuvant chemotherapy
3/12 F/U – progressive disease
c/o anorexia, insomnia
regularly using cannabis “to relax”
asks about cannabis to “cure cancer”
Case 2

35 y o woman with met CRC
review indications for use in cancer pts
inform re: cancer therapy
review risks of “street product”
offer of ACMPR registration
advise re: hospital use and travel
Summary

Cannabis & cannabinoids have active role in supportive cancer care

Evidence of clinical benefits in pain, nausea, appetite

Pre-clinical work as cancer agent evolving

Clinical trial evidence still lacking

The field continues to be “interesting”
QUESTIONS?