



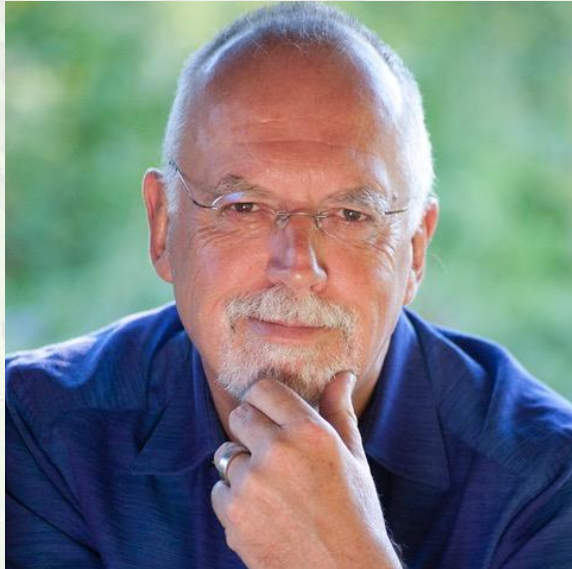
holisticcannabis

A C A D E M Y

holisticcannabisacademy.com



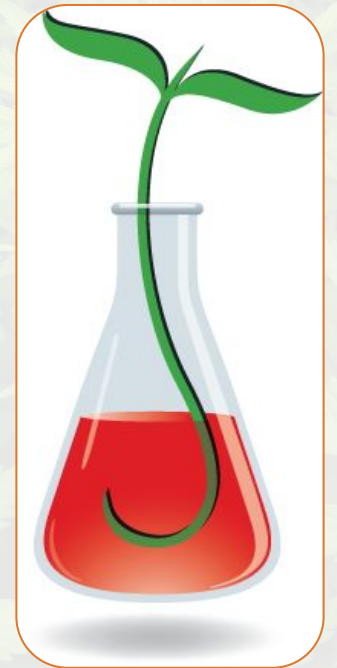
The Cancer Frontier: Managing Symptoms + More



Jonathan Treasure,
MA MNIMH

(Member National Institute of Medical Herbalists)

cannabisandcancer.oncoherb.com



holisticcannabis
ACADEMY



Is Cannabis an Anti-Cancer Agent?

- Yes, based on internet anecdotal miracle claims, misinformation + conspiracy theory
- No, dismissed via evidence-based medicine + FDA requirements for cancer treatment approvals
- Yes, based on preclinical data of cancer pathophysiology interacting with endocannabinoid system + phytocannabinoids have ability to inhibit cancer aspects in various tumors





Determining the Truth

- Challenge to extrapolate from bench to bedside due to:
 - Partial + incomplete information
 - Complexities + contradictory findings
 - Effects of cannabis on cancer + role of ECS in cancer





The Natural History of Cancer

- Tumorigenesis: initial tumor formation from cancer stem cells (initiation)
- Proliferation: cell division + growth + evasion of cell death maintenance
- Metastasis: spread through migration or tissue invasion, or spread





Where Does Cannabis Fit In

- No known relevance in tumorigenesis
- Preclinical data suggest most impact in proliferation + metastasis





Cellular Biology of Cancer

- Hallmarks of cancer
 - Self-sufficiency + growth signaling
 - Insensitivity to anti-growth signaling
 - Limitless reproductive potential
 - Evasion of apoptosis
 - Invasion of tissues + sustained angiogenesis (blood supply)
 - Aerobic glycolysis: Warburg effect (why ketogenic diet is effective with glioblastoma)
 - Tumor promoting inflammation





Cause or Effect?

- Most Hallmarks are affected by cannabis
- Phytocannabinoids can affect malignancy
- Warburg effect, genomic instability, avoid immune destruction have less clear cannabis connection





A Complex Cannabis Answer

- Some hallmarks may be stimulated by dysregulation of ECS or exogenous cannabinoids
- Cannabis is a medicinal herb
 - The Thinking Patient's Guide to Cannabis and Cancer





Co-Management + Anti-neoplastic Herbs

- Beneficial herb-drug interactions
 - Botanicals to co-manage (prevent, reduce, or treat) adverse effects of conventional treatment
- Anti-neoplastic herbs directly attack cancer cells
 - Chemotherapy drugs derived from botanicals with molecular tweaking





Chemopreventive Herbs

- Molecular multitaskers – dietary herbs (eg: curcumin from turmeric) address multifactorial nature of malignancy
- Dose determines prevention or treatment use
- Active cancer will require large quantities isolated active ingredients





Elite Cancer Herbs

- Herbs that affect one or more of the three treasures (Traditional Chinese Medicine)
 - Energy
 - Spirit
 - Soul
- Adaptogenic herbs
 - Panax ginseng – immune- modulating
 - Astragalus – medicinal mushrooms
- Cannabis impacts emotional + spiritual to fit into this elite category





Cannabis as a Molecular Multitasker

- Cannabis fits into co-management with conventional treatments
- Anti-neoplastic + anti-proliferative
- Elite cancer herb





Cannabis in Herbal Care

- Synergy is norm in herbal medicine
- Little data about what dose + stage of cancer responds best
- “Precision Herbal Medicine” = right herb to right patient at right time
- Cannabis can co-manage chemo-induced peripheral neuropathy (CIPN) with ginkgo, lipoic acid, N-acetyl cysteine
- Actual Precision Medicine needs tumor + host biomarkers for determining treatment targets
- Currently, biomarkers (eg: CBR expression, endocannabinoid levels) unavailable





ECS + Cancer

- ECS seems to be upregulated in cancer, not an endocannabinoid deficiency
- Cannabinoid receptor (CBR) levels are elevated in tumors, but vary based on tumor location, tissue of origin + disease staging, for example
 - Prostate cancers with high CBR1 levels have poorer prognosis
 - Head + neck cancers with high CBR1 levels are associated with better prognosis





Cancer as an Upregulator of ECS

- 2-AG is a ligand for CB2 receptor leading to pro-cancer activation
- CB2 activation creates M2 tumor-associated macrophages (M2 TAMS) increasing inflammation
- Anandamide levels decrease as tumor increases in size





Patient Questions + Concerns

- Notion that natural treatment is superior may delay decisions about conventional treatment
- Conventional treatment viewed as over invasive, *over* toxic, *over* treatment
- Should cannabis be used before any mainstream, or conventional, treatment?





Determining Appropriate Cannabis Use

- Is there a window in early diagnosis for active surveillance
- Is it being used in place of other treatments
- What type + stage of cancer
- Patient's health status + preferences





Cannabis for Late Stage Cancers

- Most appropriate for glioblastoma + metastatic pancreatic cancers
- Studies suggest synergistic interaction between cannabis + Temodar (preferred chemo for glio)
- Some data suggest cannabinoids can inhibit pancreatic cell lines
- Patients using cannabis for palliative care experience tumor reduction at low doses





Cannabis in a Cancer Setting

- Whole plant bud or extract versus isolated cannabinoids
- Lab testing a sample of the medicine is key to know cannabinoid profiles + quality
- Different cancers will respond to different cannabinoid ratios
(but we do not know which!)





Dosing Guidance

- Highly individualized by cancer type, medications, cannabinoid profile + patient
- Glioblastoma may have biphasic response (different response with high or low dose)
- Most studies have been done with cell lines versus rodent versus human to yield different results
- Suggest high doses for anti-cancer effects – 200-3000 mg daily best achieved with concentrates





Finding the Spot between Extremes

- Cannabis as anti-cancer tool is only relevant for certain populations
- Patients must establish their manageable dose + tolerance
- Identify and measure the intent with a baseline marker to cure, inhibit, or reverse progression
- N=1 trial

