

Palliative Care To Remission: USE OF LOW DOSE CANNABIS OIL IN AN 8 YEAR OLD PATIENT WITH METASTASIS

Debra Kimless, M.D., ForwardGro

Deborah Miran, Maryland Medical Cannabis Commission

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HISTORY:

- **MULTIPLE CHEMOTHERAPY AND RADIATION TRIALS**
- **BONE MARROW TRANSPLANT**
- **HOSPICE**



CHIEF COMPLAINTS:

- **CHRONIC NAUSEA**
- **LACK OF APPETITE**
- **HEADACHE**
- **LACK OF ENERGY**



EVALUATION:

- **LETHARGIC**
- **NON-COMMUNICATIVE**
- **SWOLLEN**



MEDICATIONS

METHADONE 10 mg/day

MORPHINE 13.5 mg/day

BOTH IN DIVIDED DOSES





MRI FEBRUARY 18, 2015





GOALS:

- **IMPROVE PAIN**
- **IMPROVE QUALITY OF LIFE**
- **TRANSITION OFF OPIOIDS**



TREATMENT:



CANNABINOID PROFILE

THCA 0.54mg

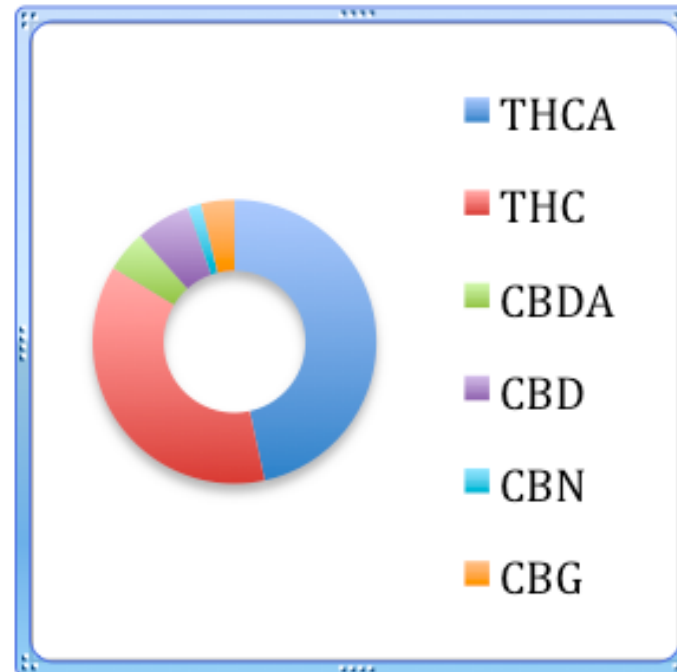
THC 0.43mg

CBDA 0.055mg

CBD 0.072mg

CBG 0.044mg

CBN 0.018mg





RESPONSE

- **INITIAL REDUCTION AND THEN REPLACEMENT OF ALL OPIOIDS**
- **MORE ACTIVE**
- **“APPROPRIATE” DEMEANOR**



MRI APRIL 30, 2015



COMPARISON



SURPRISING RESULTS?

Munson AE, Harris LS, Friedman MA, Dewey WL, Carchman RA “Antineoplastic Activity of Cannabinoids” J.National Cancer Inst. 1975 55(3): 597-602.

Powles, T. et.al. “ Cannabis Induced Cytotoxicity in Leukemic Cell Lines; The Role of the Cannabinoid Receptors and the MAPK Pathway”. Blood 105 (2005): 1214-1221.

Herrera, R. et.al. “The CB2 Cannabinoid Receptor Signals Apoptosis via Ceramide-Dependent Activation of the Mitochondrial Intrinsic Pathway” Experimental Cell Research 312.11 (2006): 2121-2131.

Jia, W. et.al. “Delta-9-Tetrahydrocannabinol Apoptosis in Jurkat Leukemia T Cells is Regulated by Translocation of Bad to Mitochondria” Molecular Cancer Research 4.8 (2006): 549-562.

McKallip, R. et.al. “Cannabidiol- Induced Apoptosis in Human leukemia Cells: A Novel Role of CBD in the Regulation of p22 phox and Nox4 Expression” J. Molecular Pharmacology 70(3) (2006): 897-908.





ADDITIONAL STUDIES

Ligresti et al. “Antitumor Activity of Plant Cannabinoids With Emphasis on the Effect of Cannabidiol on Human Breast Carcinoma” *J Pharmacol Exp Ther.* 2006;318:1375–1387.

Liu, W. “Enhancing the in-vitro Cytotoxic Activity of Delta-9-Tetrahydrocannabinol in Leukemic Cells Through a Combinatorial Approach” *Leukemia and Lymphoma* 49(9) (2008): 1800-1809.

Scott, Katherine Ann et al. “Enhancing the Activity of Cannabidiol and other Cannabinoids In Vitro Through Modifications to Drug Combinations and Treatment Schedules” *ANTICANCER RESEARCH* 33: 4373-4380 (2013)

Singh, Y. et.al. “Cannabis Extract Treatment for Acute Lymphoblastic Leukemia with a Philadelphia Chromosome Mutation” *Case Reports in Oncology* 6.3 (2013): 585-592.

LIGRESTI ET AL 2006

Effect of cannabinoids and *Cannabis* extracts on cancer cell growth

Various epithelial cell lines of various tumoral origin were treated with different concentrations of drugs, and after 4 days, the cell number was measured with Crystal Violet Vital staining (see *Materials and Methods*). Data are reported as mean \pm S.E. of IC₅₀ values (micromolar) calculated from three independent experiments. CBG, cannabigerol; CBC, cannabichromene; CBD-A, cannabidiol-acid; THC-A, THC-acid; CBD-rich, cannabidiol-enriched cannabis extract; THC-rich, THC-enriched cannabis extract.

	MCF-7	C ₆	DU-145	KiMol	CaCo-2	MDA-MB-231	RBL-2H3	AGS
Δ^9 -THC	14.2 \pm 2.1	23.0 \pm 4.2	>25	23.2 \pm 1.5	16.5 \pm 0.2	24.3 \pm 4.2	15.8 \pm 3.7	19.3 \pm 1.5
THC-A	9.8 \pm 0.4	18.0 \pm 5.3	>25	21.0 \pm 2.7	21.5 \pm 1.4	18.2 \pm 5.3	10.0 \pm 3.4	>25
CBD	8.2 \pm 0.3	8.5 \pm 0.8	20.2 \pm 1.8	6.0 \pm 3.0	7.5 \pm 0.5	10.6 \pm 1.8	6.3 \pm 1.5	7.5 \pm 1.3
CBD-A	21.7 \pm 3.2	18.0 \pm 4.2	>25	12.7 \pm 3.0	>25	>25	>25	>25
CBG	9.8 \pm 3.4	13.0 \pm 2.1	21.3 \pm 1.7	8.2 \pm 0.7	9.0 \pm 1.4	16.2 \pm 2.1	9.0 \pm 0.7	8.2 \pm 0.7
CBC	14.2 \pm 1.4	13.0 \pm 2.6	>25	7.3 \pm 3.0	12.0 \pm 2.4	20.4 \pm 2.6	15.8 \pm 4.2	18.3 \pm 3.0
THC-rich	21.0 \pm 0.5	18.5 \pm 3.3	>25	23.0 \pm 2.0	16.0 \pm 0.5	25.2 \pm 3.3	14.6 \pm 3.1	22.0 \pm 2.0
CBD-rich	6.0 \pm 1.0	4.7 \pm 0.6	20 \pm 4.6	6.2 \pm 2.9	12.3 \pm 1.2	14.1 \pm 1.6	7.0 \pm 0.6	10.0 \pm 1.9



UPDATE

Patient was 17 months in remission.





THANK YOU

