ISSN: 2573-9565

Case Study

Journal of Clinical Review & Case Reports

A Clinical Case Study of a 45 y/o Female Suffering with PTSD, Bipolar D/O, Depression, Anxiety and Chronic Pain Syndrome Taking 42-58 Pills Per Day and Weaned off of All Medications Using Medical Cannabis

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Submitted: 16 Dec 2018; **Accepted**: 21 Dec 2018; **Published**: 05 Jan 2019

Abstract

Post-traumatic stress disorder (PTSD) is a prevalent, chronic, and disabling depression and anxiety disorder that may develop following exposure to a traumatic event.

Although the use of Medical Cannabis for the treatment of physical and psychological disorders is controversial, medical marijuana is currently legal in Canada, 33 states in the United States and many countries around the world.

Studies published in Molecular Psychiatry and Science Daily showed that treatment using particular compounds found in cannabis may benefit those with PTSD, and that "plant-derived cannabinoids [psychoactive chemicals] such as cannabis may possess some benefits in individuals with PTSD by helping relieve haunting nightmares and other symptoms of PTSD" and as a result of taking medical cannabis, participants reported a decrease in re-experiencing the trauma, less avoidance of situations that reminded them of the trauma, and a decline in hyper-arousal, respectively.

There's also convincing evidence from multiple studies for reduced endocannabinoid availability in PTSD, i.e., reduced levels of the endocannabinoid anandamide and compensatory increase of CB1 receptor availability in PTSD, and an association between increased CB1 receptor availability in the amygdala and abnormal threat processing, as well as increased severity of hyperarousal, but not dysphoric symptomatology, in trauma survivors.

Other studies suggest that Medical Cannabis therapy, as an adjunct to a traditional analgesic therapy, can be an efficacious tool to make more effective the management of chronic pain and its consequences on functional and psychological dimensions.

The patient in this case study had been treated for over 20 years with multiple opiates, Selective Serotonin Re-Uptake Inhibitors (SSRIs), Serotonin Norepinephrine Re-Uptake Inhibitors (SNRIs), typical and atypical antipsychotics, antiepileptics, etc. to manage her multiple medical conditions, i.e., migraine headaches, seizures/tremors, general anxiety disorder with panic attacks, major depressive disorder-moderate and recurrent, attention deficit disorder, fibromyalgia, hot flashes and generalized edema. We will review how she was weaned off of the majority of the pharmacological treatments solely using Medical Cannabis in less than one year

INTRODUCTION

Cannabaceae is a small family of flowering plants [1-3]. This family includes about 170 species grouped in about 11 genera, including Cannabis (hemp, marijuana), Humulus (hops) and Celtis (hackberries) [4]. Various types of Cannabis have been described and variously classified as species (C sativa), subspecies (C sativa, C indica, C ruderalis), or varieties [5-8]:

- Plants cultivated for fiber and seed production, described as low-intoxicant, non-drug, or fiber types.
- Plants cultivated for drug production, described as high-intoxicant or drug types.
- Escaped, hybridised, or wild forms of either of the above types.

Cannabis plants produce a unique family of terpeno-phenolic compounds called cannabinoids, some of which produce the "high/euphoria" which may be experienced from consuming a subspecies of cannabis. There are 483 identifiable chemical constituents known to exist in the cannabis plant, and at least 85 different cannabinoids have been isolated from the plant [9, 10]. The two cannabinoids usually produced in greatest abundance are cannabidiol (CBD) and/or Δ9-tetrahydrocannabinol (THC), but only THC is psychoactive [11].

Since the early 1970s, Cannabis plants have been categorized by their chemical phenotype or "chemotype", based on the overall amount of THC produced, and on the ratio of THC to CBD [12]. Although overall cannabinoid production is influenced by environmental

factors, the THC/CBD ratio is genetically determined and remains fixed throughout the life of a plant [13].

Non-drug plants produce relatively low levels of THC and high levels of CBD, while drug plants produce high levels of THC and low levels of CBD. When plants of these two chemotypes cross-pollinate, the plants in the first filial (F1) generation have an intermediate chemotype and produce intermediate amounts of CBD and THC. Female plants of this chemotype may produce enough THC to be utilized for drug production [14].

Medical cannabis is cannabis and cannabinoids that are recommended by physicians for their patients [15]. The use of cannabis as medicine has not been rigorously tested due to production restrictions and other governmental regulations [16]. Limited evidence suggests that cannabis can reduce nausea and vomiting during chemotherapy, improve appetite in people with HIV/AIDS, and reduce chronic pain and muscle spasms [17-19].

The Cannabis plant has a history of medicinal use dating back thousands of years in many cultures [20].

The Endocannabinoid System was discovered by Dr. Raphael Mechoulam, being a pioneer in this area in the mid-1960s [21]. Endogenous cannabinoids are the chemicals our own bodies make to naturally stimulate the cannabinoid receptors, which are CB1, CB2 and non-CB1/CB2 aka GPR55 and the endogenous cannabinoids are, Anandamide, 2-Arachidonoylglycerol (2-AG), noladin ether, Virodhamine and N-arachidonoyl-dopamine (NADA) [22]. Physical, mental or emotional stressors support the endogenous production of cannabinoids.

The theory of Clinical Endocannabinoid Deficiency (CED) was presented in 2001 in two publications, but more thoroughly explored in 2004 in an article that has subsequently been cited frequently in the literature with the greatest evidence for CED being for migraine, fibromyalgia, and irritable bowel syndrome (IBS) [23].

The theory of CED was based on the concept that many brain disorders are associated with neurotransmitter deficiencies, affecting acetylcholine in Alzheimer's disease, dopamine in Parkinsonian Syndromes, serotonin and norepinephrine in depression, and that a comparable deficiency in endocannabinoid levels might be manifest similarly in certain disorders that display predictable clinical features as sequelae of this deficiency [24].

All humans possess an underlying endocannabinoid tone that reflects of levels of anandamide (AEA) and 2-arachidonoylglycerol (2-AG), the centrally acting end cannabinoids, their synthesis, catabolism, and the relative density of cannabinoid receptors in the brain. If endocannabinoid function were decreased, it follows that a lowered pain threshold would be operative, along with derangements of digestion, mood, and sleep among the almost universal physiological systems sub served by the endocannabinoid system (ECS) [25].

Studies suggest that Medical Cannabis therapy, as an adjunct to a traditional analgesic therapy, can be an efficacious tool to make more effective the management of chronic pain and its consequences on functional and psychological dimensions [26-28].

An extensive list of other disorders previously cited that may fall under the CED rubric include many conditions, however, specific to this patient, aside from the ones mentioned above, i.e., fibromyalgia, migraine headaches and irritable bowel syndrome, are post-traumatic stress disorder (PTSD) and bipolar disorder.

Posttraumatic stress disorder (PTSD) is a psychiatric disorder that can occur in people who have experienced or witnessed a traumatic event such as a natural disaster, a serious accident, a terrorist act, war/combat, rape or other violent personal assault [29].

About 7 or 8 out of every 100 people (or 7-8%) of the population will have PTSD at some point of their lives and about 10 out of every 100 women (10%), develop PTSD sometime in their lives, compared with about 4 out of every 100 men (4%) [30].

The patient in this case study had been treated for over 20 years with multiple opiates, SSRIs, SNRIs, typical and atypical antipsychotics, antiepileptics, etc. to manage her multiple medical conditions, i.e., migraine headaches, seizures/tremors, general anxiety disorder with panic attacks, major depressive disorder-moderate and recurrent, attention deficit disorder, fibromyalgia, hot flashes and generalized edema. We will review how she was weaned off of the majority of the pharmacological treatments solely using Medical Cannabis in less than one year

CASE PRESENTATION

Meet the patient:

- 45-year-old, Caucasian, Female
- Height: 68 inches (172.7 cm)
- Weight: 180 lbs (81.8 kg)
- BMI: 27.37 kg/m2
- Presented on Dec. 15, 2017, for initial visit to be evaluated for medical cannabis treatment.

Medical Conditions:

- Migraine Headaches (since 1997)
- Seizures (since 1997)
- PTSD
- General Anxiety Disorder with panic attacks
- Major Depressive Disorder, moderate and recurrent
- Attention Deficit Disorder (ADD)
- Fibromyalgia
- Hypothyroidism
- Lower Extremity Edema (swelling)
- Hot Flashes
- Cigarette Smoker (1 pack per day)
- Overweight

Medications and Treatments used in the past:

- Hydrocodone - Acetaminophen (Lortab/Norco)
- Morphine (ER and IR)
- Fentanyl Patches
- Hydromorphone (Exalgo ER)
- Oxymorphone (Opana and Opana ER)
- Methadone
- Tapentadol (Nucynta ER)
- ALL Triptans (Imitrex, Maxalt, Zomig, Relpax, etc.)
- Botox
- Neurostimulator Implantation (2011)
- Duloxetine (Cymbalta)
- Gabapentin (Neurontin)

- Methocarbamol (Robaxin)

Medications being used at the time of the initial evaluation:

- Oxycodone-Acetaminophen (Percocet) 7.5 mg/325 mg—one tablet 3x/day
- Oxycodone (Oxycontin XR) 30 mg—one tablet 2x/day
- Topiramate (Topamax) 10 mg—two tablets 2x/day
- Cyclobenzaprine (Flexeril) 10 mg—one tablet 3x/day
- Ondansetron (Zofran) 4 mg—two tablets every 2-4 hours
- Linaclotide (Linzess) 72 mcg—One tablet 2x/day
- Levothyroxine (Synthroid) 100 mcg—One tablet every morning
- Dexmethylphenidate (Focalin & Focalin XR) 10 mg & 20 mg—one capsule each 2x/day
- Lamotrigine (Lamictal) 200 mg—one tablet daily
- Clonazepam (Klonopin) 1 mg—one tablet 2x/day
- Aripiprazole (Abilify) 15 mg—one tablet daily
- Furosemide (Lasix) 20 mg—one tablet daily
- Conjugated estrogens /medroxyprogesterone acetate (Premphase) 0.625mg/ 5mg –One tablet daily
- Paroxetine (Paxil) 20 mg—one tablet daily

On her initial visit, patient MEB was taking between 42 and 58 pills per day!

MANAGEMENT AND OUTCOMES

On February 12, 2018, patient MEB received her medical cannabis card from the state of Florida Department of Health , which allows her to purchase medical cannabis in the state and MED was recommended:(rather than prescribed; because in the United States cannabis is federally illegal and physicians can only recommend and not prescribe cannabis for medical purposes)

- Sativa, Hybrid and Indica (Oral Oil Tincture). Start with 5 mg (0.5 ml) Sativa in am, 5 mg (0.5 ml) Hybrid midday and 5 mg (0.5 ml) Indica in pm for five days and increase by 2.5 mg (0.25 ml) every five (5) days to a maximum of 20 mg (2 ml) of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). Start with 1 inhalation (2 mg) every 2-4 hours of Sativa before 1 pm, Hybrid between 1 pm and 7 pm and Indica after 7 pm for five days and increase by one inhalation (2 mg) every five (5) days to a maximum of ten inhalations (20 mg) of each.
- She was to follow up in one month.

On March 9, 2018, MED reported the following:

- She was using 12.5 mg and 10 mg of the Sativa, Hybrid and Indica Tincture Oils and Vapor Cartridges, respectively.
- She was ***off of*** the Percocet--she replaced the Percocet dosage with inhalation of the medical cannabis.
- She was no longer taking the Zofran for her nausea.
- The tremors/seizures had disappeared.
- The lower extremity edema was resolved and was no longer on the Lasix.
- She quit smoking cigarettes.

February 12, 2018	March 9, 2018
Oxycodone -Acetaminophen (Percocet)	OFF
Oxycodone (Oxycontin XR) 30 mg	Oxycodone (Oxycontin XR) 20 mg
Topiramate (Topamax) 10 mg	Topiramate (Topamax) 10 mg
Cyclobenzaprine (Flexeril) 10 mg	Cyclobenzaprine (Flexeril) 10 mg
Ondansetron (Zofran) 4 mg	OFF
Linaclotide (Linzess) 72 mcg	Linaclotide (Linzess) 72 mcg
Levothyroxine (Synthroid) 100 mcg	Levothyroxine (Synthroid) 100 mcg
Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg	Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg
Lamotrigine (Lamictal) 200 mg	Lamotrigine (Lamictal) 200 mg
Clonazepam (Klonopin) 1 mg	Clonazepam (Klonopin) 1 mg
Aripiprazole (Abilify) 15 mg	Aripiprazole (Abilify) 15 mg
Furosemide (Lasix) 20 mg	OFF
Conjugated estrogens /medroxyprogesterone acetate (Premphase)	Conjugated estrogens /medroxyprogesterone acetate (Premphase)
Paroxetine (Paxil) 20 mg	Paroxetine (Paxil) 20 mg

From February 12, 2018 to March 9, 2018, she reduced her medication intake to 22 pills per day! And was recommended the following:

- Sativa, Hybrid and Indica (Oral Oil Tincture). Continue with 12.5 mg (1.25 ml) Sativa in am, 12.5 mg (1.25 ml) Hybrid midday and 12.5 mg (1.25 ml) Indica in pm and increase by 2.5 mg (0.25 ml) every five (5) days, as needed to a maximum of 20 mg (2 ml) of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). Continue with 1-2 inhalations (2-4 mg) every 2-4 hours of Sativa before 1 pm, Hybrid between 1 pm and 7 pm and Indica after 7 pm for five days and increase by one inhalation (2 mg) every five (5) days, as needed, to a maximum of ten inhalations (20 mg) of each.
- Discontinue Oxycontin 30 mg 2x/day and started on Oxycontin 20 mg 2x/day
- Follow up in one month.

On April 6, 2018 MED reported the following:

- She was using 20 mg and 10 mg of the Sativa, Hybrid and Indica Tincture Oils and Vapor Cartridges, respectively.
- She was ***off of*** the Focalin ER, Klonopin and Flexeril.
- She was ready to reduce the Oxycontin XR from 20 mg 2x/day to 10 mg 2xday.
- Her hot flashes had also improved.

February 12, 2018	April 6, 2018
Oxycodone -Acetaminophen (Percocet)	OFF
Oxycodone (Oxycontin XR) 30 mg	Oxycodone (Oxycontin XR) 10 mg
Topiramate (Topamax) 10 mg	Topiramate (Topamax) 10 mg
Cyclobenzaprine (Flexeril) 10 mg	OFF
Ondansetron (Zofran) 4 mg	OFF
Linaclotide (Linzess) 72 mcg	Linaclotide (Linzess) 72 mcg
Levothyroxine (Synthroid) 100 mcg	Levothyroxine (Synthroid) 100 mcg
Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg	Dexmethylphenidate (Focalin)10 mg
Lamotrigine (Lamictal) 200 mg	Lamotrigine (Lamictal) 200 mg
Clonazepam (Klonopin) 1 mg	OFF
Aripiprazole (Abilify) 15 mg	Aripiprazole (Abilify) 15 mg
Furosemide (Lasix) 20 mg	OFF
Conjugated estrogens /medroxyprogesterone acetate (Premphase)	Conjugated estrogens /medroxyprogesterone acetate (Premphase)
Paroxetine (Paxil) 20 mg	Paroxetine (Paxil) 20 mg

From February 12, 2018 to April 6, 2018, she reduced her medication intake to 15 pills per day! And was recommended the following:

- Sativa, Hybrid and Indica (Oral Oil Tincture). Continue with 20 mg (2 ml) Sativa in am, 20 mg (2 ml) Hybrid midday and 20 mg (2 ml) Indica in pm and increase by 2.5 mg (0.25 ml) every five (5) days, as needed to a maximum of 30 mg (3 ml) of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). Continue with 1-2 inhalations (2-4 mg) every 2-4 hours of Sativa before 1 pm, Hybrid between 1 pm and 7 pm and Indica after 7 pm for five days and increase by one inhalation (2 mg) every five (5) days, as needed, to a maximum of ten inhalations (20 mg) of each.
- Discontinue Oxycontin XR 20 mg 2x/day and started on Oxycontin XR 10 mg 2x/day
- Follow up in one month.

On May 7, 2018 MED reported the following:

- She was using 25 mg and 10 mg of the Sativa, Hybrid and Indica Tincture Oils and Vapor Cartridges, respectively.
- She was ***off of*** the Oxycodone XR, Focalin, Lamictal, Topamax, Linzess, Abilify, Paxil and Premphase.
- Her psychiatrist ***replaced*** all of her antidepressants with Vortioxetine (Trintellix) 10 mg, however, MED was being weaned off by 5 mg every week for two more weeks and then she would be ***off of*** this medication as well.

February 12, 2018	May 7, 2018
Oxycodone -Acetaminophen (Percocet)	OFF
Oxycodone (Oxycontin XR) 30 mg	OFF
Topiramate (Topamax) 10 mg	OFF
Cyclobenzaprine (Flexeril) 10 mg	OFF
Ondansetron (Zofran) 4 mg	OFF
Linaclotide (Linzess) 72 mcg	OFF
Levothyroxine (Synthroid) 100 mcg	Levothyroxine (Synthroid) 100 mcg
Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg	OFF
Lamotrigine (Lamictal) 200 mg	OFF
Clonazepam (Klonopin) 1 mg	OFF
Aripiprazole (Abilify) 15 mg	OFF
Furosemide (Lasix) 20 mg	OFF
Conjugated estrogens /medroxyprogesterone acetate (Premphase)	OFF
Paroxetine (Paxil) 20 mg	OFF
	Vortioxetine (Trintellix) 10 mg

From February 12, 2018 to May 7, 2018, she reduced her medication intake to 2 pills per day! And was recommended the following:

- Sativa, Hybrid and Indica (Oral Oil Tincture). Continue with 25 mg Sativa in am, 25 mg Hybrid midday and 25 mg Indica in pm (2.5 ml of each) and increase as needed to a maximum of 50 mg (5 ml) of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). Continue with 1-2 inhalations (2-4 mg) every 2-4 hours of Sativa before 1 pm, Hybrid between 1 pm and 7 pm and Indica after 7 pm for five days and increase as needed, to a maximum of ten inhalations (20 mg) of each.
- Follow up in 30 days.

On June 8, 2018 MED reported the following:

- Pt states she was still doing very well and felt so much improvement with the cannabis—she had no complaints at this visit. Pt stated that she hadn't had this much pain relief in 20 years!
- Her psychiatrist put her back on Lamotrigine (Lamictal) and added Brexpiprazole (Rexulti) 1 mg for her bi-polar issues and kept her on the Vortioxetine (Trintellix) 10 mg.
- She was using 25 mg of the Sativa, Hybrid and Indica Tincture Oils and only vapes for breakthrough pain, which she was having very little of.

February 12, 2018	June 8, 2018
Oxycodone -Acetaminophen (Percocet)	OFF
Oxycodone (Oxycontin XR) 30 mg	OFF
Topiramate (Topamax) 10 mg	OFF
Cyclobenzaprine (Flexeril) 10 mg	OFF
Ondansetron (Zofran) 4 mg	OFF
Linaclotide (Linzess) 72 mcg	OFF
Levothyroxine (Synthroid) 100 mcg	Levothyroxine (Synthroid) 100 mcg
Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg	OFF
Lamotrigine (Lamictal) 200 mg	Lamotrigine (Lamictal) 200 mg
Clonazepam (Klonopin) 1 mg	OFF
Aripiprazole (Abilify) 15 mg	OFF
Furosemide (Lasix) 20 mg	OFF
Conjugated estrogens /medroxyprogesterone acetate (Premphase)	OFF
Paroxetine (Paxil) 20 mg	OFF
	Vortioxetine (Trintellix) 10 mg
	Brexpiprazole (Rexulti) 1 mg

From May 7, 2018 to June 8, 2018, she increased her medication intake from 2 to 4 pills per day, and was recommended the following:

- Sativa, Hybrid and Indica (Oral Oil Concentrate). Start with 45 mg Sativa in am, 45 mg Hybrid midday and 45 mg Indica in pm and increase as needed to a maximum of 90 mg of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). As needed for breakthrough pain, to a maximum of ten inhalations (20 mg) of each.
- Follow up in 90 days.

On September 11, 2018 MED reported the following:

- Patient was doing very well on her regimen of medical cannabis. She was able to control chronic pain, depression, and anxiety issues. She had been more active. She had ***returned to work*** and was ***volunteering*** two days per week at her church.
- Her psychiatrist took her ***off of*** the Lamotrigine (Lamictal) and left her on the Brexpiprazole (Rexulti) 1 mg and the Vortioxetine (Trintellix) 10 mg.
- Patient continued to take the Concentrated Oils orally 3x/day and via inhalation as needed.

February 12, 2018	September 11, 2018
Oxycodone -Acetaminophen (Percocet)	OFF
Oxycodone (Oxycontin XR) 30 mg	OFF
Topiramate (Topamax) 10 mg	OFF
Cyclobenzaprine (Flexeril) 10 mg	OFF
Ondansetron (Zofran) 4 mg	OFF
Linaclotide (Linzess) 72 mcg	OFF
Levothyroxine (Synthroid) 100 mcg	Levothyroxine (Synthroid) 100 mcg
Dexmethylphenidate (Focalin and Focalin XR) 10 mg and 20 mg	OFF
Lamotrigine (Lamictal) 200 mg	OFF
Clonazepam (Klonopin) 1 mg	OFF
Aripiprazole (Abilify) 15 mg	OFF
Furosemide (Lasix) 20 mg	OFF
Conjugated estrogens /medroxyprogesterone acetate (Premphase)	OFF
Paroxetine (Paxil) 20 mg	OFF
	Vortioxetine (Trintellix) 10 mg
	Brexpiprazole (Rexulti) 1 mg

On Sept. 11, 2018, the patient was taking three (3) pills per day, an approximate 94% decrease in daily medication intake from her initial visit! MEB was recommended:

- Sativa, Hybrid and Indica (Oral Oil Concentrate). Continue with 45 mg Sativa in am, 45 mg Hybrid midday and 45 mg Indica in pm and increase as needed to a maximum of 90 mg of each.
- Sativa, Hybrid and Indica (Concentrated Oil for Vaping). As needed for breakthrough pain, to a maximum of ten inhalations (20 mg) of each.
- Follow up in 180 days.

MEB reported the following:

- I am doing great! I am completely off of ALL narcotics, anti-anxiety pills, sleep medicine, ADD medicine and almost off of all antidepressants!
- I have NO hot flashes.
- I no longer have panic attacks or live depressed and have lost 30 pounds (14 kg).
- I feel amazing and I am so glad that I found this solution to ALL of my medical problems; I have my life back and my husband has a new and improved wife.

DISCUSSION

Although the patient was still on one antidepressant and one anti-psychotic, the significant reduction in the major pharmacological treatments that patient was receiving clearly reveals the effectiveness of cannabis as both a chemoactive and psychoactive drug. There are various strategies to treat Clinical Endocannabinoid Deficiency (CED). A direct approach with CB1 agonists must recognize the fact that the Endocannabinoid System (ECS) operates as a homeostatic regulator that sometimes requires a gentle pharmacological nudge, rather than a forceful shove, by synthetic full agonists, thus, small doses of a weak partial agonist (e.g., THC) should be considered, which would not induce tolerance and may jump-start the ECS [31].

However, THC alone is poorly tolerated or appreciated by patients and standardized whole cannabis extracts that contain additional synergistic and buffering components, such as CBD and cannabis terpenoids, are certainly preferable [32].

CONCLUSION

In this case study, cannabis was found to relieve the symptoms of chronic pain, attention deficit disorder, PTSD, anxiety, depression, migraine headaches, cigarette addiction, and unwanted side effects of other prescription medications. According to Zach Walsh, associate professor of psychology at University of British Columbia's Okanagan campus "Research suggests that people may be using cannabis as an exit drug to reduce use of substances that are potentially more harmful, such as opioid pain medication. This comprehensive review of research on medical cannabis use and mental health also found some evidence that cannabis may help with symptoms of depression, PTSD and social anxiety [33]. The case study findings are obviously in line with Dr. Walsh's deduction on medical Cannabis, as the patient was successfully weaned off of the majority of the pharmacological treatments in less than one year using solely Medical Cannabis.

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