
A Pilot Study of a Medical Cannabis - Opioid Reduction Program

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Abstract: Many chronic pain patients are prescribed opioids at doses exceeding the current Guideline. Tapering the dose can be difficult, as patients fear a return to a state of overwhelming pain. Several factors can increase the likelihood of success: the patient's readiness for change, psychological support, pharmacological support and careful monitoring. This pilot study addressed these four factors. Six hundred patients took part. Each was taking daily opioid doses ranging from 90-240 mg morphine equivalent dose (MED). All indicated they were prepared to reduce their opioid dose. Over a six-month period, opioid doses were tapered according to individual needs, usually 10% every 1-2 weeks. Psychological support was provided through a freely available web-based mental health and wellness tool. Medical cannabis provided pharmacological support at the rate of 0.5g/day for each 10% reduction in opioid dose, as needed. Physicians monitored patients regularly according to each patient's needs. After 6 months, 156 patients (26%) had ceased taking opioids. An additional 329 patients (55%) had reduced their opioid use by an average of 30%. One hundred fourteen patients (19%) neither increased nor decreased their opioid use. The one patient whose opioid dose was increased had poorly controlled pain and an aggravated pain condition. The success of this medical cannabis – opioid reduction program in a large proportion of patients is grounds for further investigation.

Keywords: Opioids, Pain Management, Cannabis, Tapering

1. Introduction

Opioids are regularly prescribed to help chronic pain patients manage their condition and regain control of their lives. The 2017 Canadian Guideline for Opioids for Chronic Non-Cancer Pain recommends a maximum daily dose (watchful dose) equivalent to 90 mg morphine (MED) [1], yet higher doses are often used. The recent steep rise in opioid-related deaths, many tied to prescribed medications [2], causes great concern. As a result, physicians are considering tapering the opioid regimens for many of their chronic pain patients, using a patient-centered approach. Tapering requires as much care as prescribing opioids.

Patients' greatest fear when tapering opioids is returning to their previous state of overwhelming chronic pain. Effectively communicating the expected improved function without worsening pain can be reassuring, but patients must

be ready for such an important change in their lives. Prochaska's Transtheoretical Model of the Stages of Change [3] provides a framework for assessing the patient's readiness for change [4]. A positive relationship and strong therapeutic alliance of patient and physician is paramount.

Tapering opioids requires a concrete plan to which the patient can commit. Taper rates must be appropriate for each patient, inversely related to the duration of opioid treatment [5], and maintaining scheduled dosing as long as possible [6]. A weekly decrease of 10% is usually safe and effective [5]. Providing both pharmacological and psychological support can improve outcomes of tapering opioids [5].

Cannabis shows promise as a pharmacological support through tapering, helping to manage pain [7]. In a recent study, chronic pain patients using medical cannabis reported "significant decreases in medication side effects that affected their daily functioning (including opioids), decreases in total number of medications being taken, and improvements in

quality of life” [8]. The mean decrease in opioid use for these patients was 64%, without any structured tapering program. In another study, chronic pain patients using cannabis for pain relief reported 70% pain relief (where 100% is no pain) from marijuana, as opposed to 50% from their other medications (including opioids) [9]. In a randomized controlled trial, patients inhaling 25 mg of dried cannabis with 9.4% tetrahydrocannabinol (THC) three times daily reported reduced pain intensity and improved sleep [10]. Cannabis enhances pain relief in patients co-medicated with opioids [11]. Since Canada authorized the use of medical cannabis, use of opioids has declined by 16% and benzodiazepines by almost 30% [12]. Cannabis is amenable to self-titration, not only giving patients a better sense of control in their life, but also enabling reduced drug use.

Psychological therapies form part of multi-disciplinary pain management programs. The most common are Cognitive Behavior Therapy (CBT), Acceptance and Commitment Therapy (ACT), mindfulness and relaxation. Brief meditation training can decrease patients’ pain ratings and sensitivity to pain [13].

Regular monitoring, scheduled according to each patient’s needs and level of risk, is critical.

2. Methods

The Research Ethics Board of IRB Services approved the protocol for this pilot study of a Medical Cannabis – Opioid Reduction Program (MCORP). Six hundred adult chronic pain patients at Toronto Poly Clinic provided written informed consent to participate. Each participant was taking daily opioid doses ranging from 90 to 240mg morphine equivalent (average 120mg MED). (Table 1) All indicated they were prepared to reduce their opioid use.

Table 1. Opioid doses of participants at outset of a Medical Cannabis – Opioid Reduction Program.

# patients	Original daily opioid dose (MED)
255	90mg
150	120mg
100	150mg
50	180mg
20	200mg
15	220mg
10	240mg
Total: 600	120mg (average)

MED = morphine equivalent dose.

A tapering plan was prepared for each patient, according to individual needs. Opioid doses were tapered at a rate suitable for the patient, usually 10% every 1-2 weeks.

Psychological support was provided via ZENDOSE, a validated web-based mental health and wellness tool [14]. ZENDOSE uses such evidence-based techniques as CBT, Dialectical Behavior Therapy (DBT), ACT, mindfulness and relaxation. It offers patient education materials relevant to living with chronic pain. ZENDOSE provides customized mental health care plans targeting patient’s unique difficulties

using brief assessments. Patients can record their goals and set reminders on the site. Participants used a daily log on ZENDOSE to track relevant aspects of their medical, physical, and mental well-being (e.g. blood pressure, glucose levels, appointments, sleep, mood). The ZENDOSE Twitter feed suggests a topic related to improving quality of life each day; participants were encouraged to spend 15-30 minutes daily in meditative reflection.

Medical cannabis provided pharmacological support throughout the tapering process. Authorizations for cannabis specified cannabidiol (CBD) and THC in the range of 4-6%. Doses related directly to the opioid taper: 0.5 g/day for each 10% reduction in opioid dose, as needed. Use of cannabis was restricted to sublingual, oral or inhalation by vaporization (vaping) routes.

Physicians monitored patients regularly at intervals suited to the individual patient’s needs, typically every 1-2 weeks. At each visit, the patient’s pain, sleep, function, quality of life, benefits of tapering, use of non-pharmacological therapies, effects of medical cannabis, opioid risk, and opioid withdrawal symptoms were assessed.

Data on patient wellness, opioid doses and medical cannabis use were collected at each visit and after six months.

3. Results

Six months after beginning MCORP, 156 patients (26%) had stopped using opioids altogether. An additional 329 patients (55%) had reduced their opioid use by an average of 30%. Cannabis use among these patients ranged from 1-3g per day.

There was no change in the opioid use of 114 patients (19%) – neither reduction nor escalation in opioid dose. One patient with poorly controlled pain and an aggravated pain condition increased opioid intake.

With that one exception, all patients expressed satisfaction with their pain control, sleep and quality of life. No opioid withdrawal symptoms were noted in follow-up appointments.

4. Discussion

MCORP was very helpful to many patients, but its implementation comes with several cautions. Not all patients are appropriate candidates for cannabis therapy: those under 25 years of age; those with a personal or strong family history of psychosis; patients who are pregnant, breast-feeding or planning a pregnancy; and patients with an active substance use disorder, cardiovascular, respiratory, severe liver, or severe kidney disease. Caution should be exercised with patients with concurrent mood or anxiety disorders, those who smoke tobacco or drink alcohol heavily, those with risk factors for cardiovascular disease, and patients taking high doses of sedating medications [15].

For patients unfamiliar with cannabis, low starting doses are advised, with titration to effect. Selected routes of administration reduce potential for harm: vaporization, sub-

lingual sprays or edible products. In vaping, cannabis vapor is inhaled over five seconds, held for 10 seconds, and slowly exhaled [15]. Cannabis vaporizes at a lower temperature than combustion, and the vapor is less noxious than its smoke. Vaping extracts cannabinoids more efficiently than smoking, and is amendable to self-titration. Ingestion provides a slower onset and longer duration of action [16]. Patients were advised to consume cannabis in a comfortable and familiar environment, and to wait a few minutes between inhalations, or 30-60 minutes after ingesting small amounts of cannabis, in order to assess its impact [16].

MCORP participants in this program consumed a moderate amount of cannabis (1-3g/day). This pilot study covered a period of six months. In a recent Dutch study, where 43% of medical marijuana users were simultaneously prescribed opioids, the average duration of cannabis use was 251 days [17].

Taper rates for each patient were established at the outset of the program. Plans typically reduced the amount of medication by 10% every 1-2 weeks until the smallest available dosage unit was reached. At that point, time between reductions was doubled. Some flexibility was required, as determined during monitoring visits. Tapering was paused if there was a worsening of pain, mood or function, and in times of intense stress.

Participating patients were encouraged to continue any psychological support program that was part of their multimodal chronic pain therapy. Cognitive behavioral therapy is recommended during opioid tapering [5]. Mindfulness training is an effective self-management technique for multiple medical conditions, including pain [13, 18], depression [19] and anxiety [20] – all of concern during a tapering program. Such therapeutic approaches are often uninsured, and can be prohibitively expensive for many patients. This pilot study offered patients the validated, free access web-based program, ZENDOSE. Its log feature enabled both patients and healthcare providers to track progress through tapering.

5. Conclusion

It is incumbent on physicians to seek ways to reduce harm to patients. Those related to the use of opioids are serious, including death. This MCORP pilot study outlines a patient-centered approach, with an individualized program for tapering opioid use. The positive results justify further investigation.

Conflicts of Interest

The author declares that there is no conflict of interest.

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