An audit of patients currently using legally acquired cannabis as a means of managing chronic pain

Abstract

Introduction: Chronic pain constitutes a significant challenge to healthcare today. In Canada, it is estimated that it costs healthcare over $6 billion per year. This audit investigates the medically approved use of cannabis in the treatment of chronic pain in 29 patients at the Alan Edwards Pain Management Unit of the Montreal General Hospital (MGH).

Methods: Twenty-nine patient charts were accessed at MGH. Relevant patient and usage information were collected from both patient charts and Marijuana Medical Access Regulations (MMAR) documents and compiled into a spreadsheet for analysis.

Results: Information gathered from 19 males and 10 females revealed that chronic back pain was the most common cause of chronic pain. In addition to cannabis, 11 were currently taking prescribed narcotic medications, five were taking synthetic cannabinoids, and five were using over-the-counter medications. The remaining eight used cannabis alone as their primary means of managing pain. All patients reported improvements in pain after using cannabis.

Conclusions: This audit suggests that cannabis can be effective at managing mild to moderate levels of pain in patients suffering from a variety of pathologies. Considering the economic, psychological and physical burden associated with pain, and the growing problem of prescribed narcotic dependency around the world, the need for further research into the uses of cannabis as an alternative method of pain management is clear.

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Introduction

Chronic pain is one of the most significant challenges facing healthcare today. It is defined as "pain that persists beyond the expected time of healing, or more than three to six months".[1] In Canada, it is estimated that chronic pain costs healthcare more than $6 billion per year, more than cancer, heart disease and HIV combined. Lost productivity related to job loss and sick days cost an estimated $37 billion per year.[2] This illustrates the immense burden of chronic pain on the healthcare system, the economy and, most importantly, the everyday life of many Canadian citizens, and suggests the need for improvement in chronic pain management. Current medical practices offer patients treatment options ranging from mild analgesics to strong narcotics, along with more invasive approaches such as nerve blocks. These options have been shown to help many patients; however, issues such as opiate dependency and adverse pharmacological effects have led some Canadians to pursue alternative treatments. One such alternative has become a hotly debated therapy in Canada: the use of cannabis and its derivatives.

A Canadian study reported that up to 15% of patients presenting to tertiary care pain management centres have used cannabis, and that 10% continue to use it as a means of managing their pain.[3] One study of 30 patients using cannabis to treat various pathologies showed that 93% (n=28) of these patients reported pain relief greater than or equal to 6/10.[4] Therefore, in order to accommodate patients suffering from various conditions who find cannabis an effective therapy, the Canadian Government established The Canadian Marijuana

Medical Access Regulations (MMAR) in 2001. This programme allows Canadian patients with a prescription to apply for an exemption to Section 56 of the Criminal Code of Canada, which, if approved, would provide them with legal access to and the right to possess medicinal marijuana. However, an online survey of 607 physicians conducted by the Canadian Medical Association in June 2012 suggested that Canadian physicians have been reluctant to consider it a management option due to a lack of research and established prescribing guidelines for cannabis.

The following audit will investigate the medically approved use of cannabis in the treatment of chronic pain in 29 patients at the Alan Edwards Pain Management Unit of the Montreal General Hospital (MGH). Using qualitative and quantitative data collected from medical charts, this audit will attempt to illustrate patient experiences and needs when managing chronic pain with cannabis, with the goal of providing insight into how cannabis is used medicinally in Canada.

Methods

Ethical approval

A proposal establishing study aims and methods was compiled and submitted to the McGill University Health Center research ethical review board for approval. Once ethical approval was granted, access to patient medical files was provided.

Study population

Patient charts from the Alan Edwards Pain Management Unit were consulted. All patients currently being treated with cannabis and registered with the MMAR were included. MMAR registration was determined by cross-referencing patient files with MMAR documents and ensuring that the MMAR documents were not expired. No other patient selection restrictions such as age, sex, race, etc., were imposed.

Data collection

A list was compiled (n=29) of all included patients. Their charts were then accessed and relevant patient and usage information, such as current medications, dosages, illnesses, symptoms, adverse effects, address and monthly cannabis allowance, was collected from both patient charts and MMAR documents and compiled into an Excel spreadsheet (Microsoft Excel 2010; Microsoft Corporation, WA, USA). Patient information was coded with initials and hospital chart number. Collected data never left the hospital with identifying information. Once all patient information was organised into Excel, two tables were created to clearly present patient diagnoses and patient accounts regarding symptomatic relief attributed to cannabis. Four graphs were also generated, two illustrating quantitative data, including daily frequency of cannabis use and average daily dose, and two illustrating qualitative data, including method of cannabis consumption and symptomatic relief reported by patients.

Data analysis

Using the data collected regarding individual patient experience, similarities and differences that arose between reports regarding levels of pain relief, dosage requirements, frequency of use, needs of adjunctive pain relief, other symptomatic relief (apart from pain) attributed to cannabis use and methods of acquiring cannabis were considered. Trends observed while analysing this data were then used to form and justify relevant conclusions.

Results

Patient demographics

Of the 29 patients included in this study, 10 were female and 19 were male. The patient age range was 26-70 with a median age of 47.

Aetiology of chronic pain

Table 1 lists the medical diagnoses responsible for the chronic pain suffered by individual patients included in this audit. This table illustrates the vast array of medical conditions causing chronic pain within this patient population, ranging from multiple sclerosis and phantom limb pain to spinal cord trauma and arthritis. Chronic back pain was the most common complaint, with a total of eight patients experiencing such discomfort.

Medication used by patients to manage pain

A total of 21 patients were on medications other than cannabis to reduce pain (this includes prescription cannabinoids such as nabilone and nabiximols, over-the-counter products such as paracetamol and narcotic medications). Of these 21 patients, 11 were taking an opioid, five were on prescription cannabinoids, and five were using over-the-counter medication. The remaining eight used cannabis as their primary means of managing pain. These eight patients reported that, based on prior experience with more traditional pain medication, cannabis was comparatively the most effective remedy for their pain with the fewest adverse effects. Before cannabis was used as an intervention for pain in these patients, all of the patients included in this study had been prescribed a narcotic medication to help manage their pain. In many cases, these medications were abandoned due to adverse effects or dependency issues, factors that eventually led many of these patients to try cannabis instead.

Symptomatic improvement attributed to cannabis use

Of the 29 patient charts, 20 had recorded average pain levels using a visual analogue pain scale (VAS) (0 = no pain, 10 = agonising pain), with a range of 4-9 and a mean of 7. Nine patient charts had no recorded pain levels. All patients expressed noticeable improvement in their pain after medicating with cannabis. Seven reported improvements in quality of sleep, one reported relief from nausea, two reported relief from muscle spasms, two reported relief from stress and anxiety, one reported improvement in appetite, one reported decreased diarrhoea, and one reported relief from cramps (**Figure 1**). Four of the 29 patients gave specific accounts regarding the degree of symptomatic relief attributed to cannabis. One reported complete relief, one indicated a five-point improvement on the VAS, one reported "great" relief, and the last reported a dramatic decrease in pain for three to four hours following cannabis consumption. Degree of symptomatic relief was not described in the remaining 25 patient files.

Table 1: Pathologies causing pain in 29 patients using cannabis therapeutically. Common conditions include chronic back pain, chronic pain as a result of trauma, autoimmune conditions and various neuropathies.

Age (years)	Sex	Pain diagnosis
26	M	Pain secondary to spinal cord trauma
28	F	Chronic daily headaches
32	F	Complex regional pain syndrome (type 1)
33	F	Chronic myofascial back pain after road traffic accident (with muscle spasms)
33	M	Severe pain and muscle spasm secondary to spinal cord trauma
34	F	Systemic lupus erythematosus and transverse myelitis
35	M	Herniated disc
37	M	Pain in legs following fracture of vertebra T3
39	M	Neuropathic pain due to nerve entrapment
41	M	Trochanteric bursitis
42	M	Right shoulder pain following work accident
43	M	Generalised myofascial pain secondary to trauma
45	F	Neck pain radiating to occipital region secondary to whiplash injury
49	F	Spondylolisthesis of lumbar spine and degenerative disc disease
49	F	Myofascial pain syndrome affecting face and chronic tension headaches
49	M	Pain radiating from back to arms and legs secondary to cervical vertebrae fracture
52	F	Lingual pain affecting jaw and face
53	M	Idiopathic intestinal pseudo-obstruction
53	M	Arthritis and diarrhoea associated with Crohn's disease
53	M	Post-traumatic neuropathic pain in right hand; lower back pain
55	M	Iatrogenic pain (post neuroma removal) affecting head, neck, shoulders and arms
57	M	Common peroneal nerve entrapment affecting left calf; lower back pain
57	F	Chronic neuropathic facial pain secondary to brain tumour removal
58	M	Scapular pain following concurrent humerus fracture and shoulder dislocation
58	F	Multiple sclerosis
59	M	Phantom limb pain
62	M	Severe arthritic pain
64	M	Left common peroneal nerve neuropathy
70	M	Degenerative disc disease, spondylosis, stenosis of lumbar spine

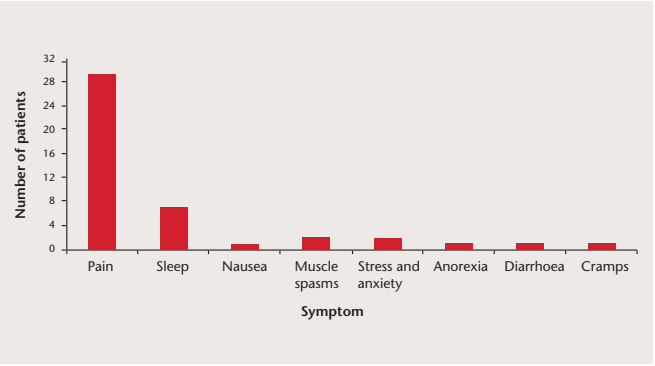

FIGURE 1: Symptoms reportedly improved using cannabis. This figure shows that apart from pain relief, cannabis provided relief from other symptoms such as sleep disturbance (n=7), nausea (n=1), muscle spasms (n=2), stress and anxiety (n=2), anorexia (n=1), diarrhoea (n=1) and cramps (n=1).

Patient cannabis use

Under MMAR regulations, seven patients were allowed to possess up to 30g of cannabis per month, eight were allowed to possess up to 60g/month, 10 were allowed up to 90g/month, one was allowed up to 120g/month, two were allowed up to 150g/month and one was allowed up to 450g/month. Average length of cannabis use to treat symptoms was reported in 28 patients. There was a range of one to 13 years of use and a mean of 6.3 years of use. Of these 28 patients, 25 reported daily use, two reported weekly use and one reported use as needed. Of the 29 patient charts, 25 had documented frequency of daily use (**Figure 2**) and four had no documentation. Grams of cannabis used per day were documented in 27 patients and ranged from less than 1g to 15g. Twenty-three patients reported using less than 3g per day, while three reported using more than 3g per day, and two had no reported daily use (**Figure 3**). Cannabis was consumed by smoking (pipe or joint), vaporisation, and in edible forms (**Figure 4**). Occasional use of cannabis for recreational purposes (use for the purpose of enhancing recreational experience and not for medicinal reasons) was reported by three patients, 21 reported using solely for medicinal purposes, and five patients did not have information regarding motivation for use documented.

Patient comments regarding their cannabis treatment

Table 2 shows comments made by 17 patients regarding their treatment with cannabis. Of the 17 patient comments, 11 claimed improvement in pain when using cannabis. Some examples include:

- "Cannabis decreases pain and increases sleep."
- "Cannabis decreases pain, anxiety and depression and increases functionality."

Four of the 17 patients claimed that the nature of the pain relief associated with cannabis use was best described as a disconnect or loss of focus on the pain itself:

- Cannabis "disconnects pain."
- "Cannabis takes mind off pain, able to enjoy activities."

Five patients described an increased ability to participate in

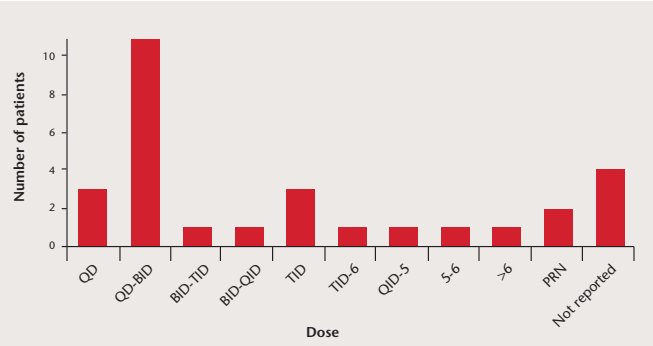

FIGURE 2: Number of times cannabis is consumed per day. This figure shows that for 11 patients in this study, consuming cannabis between once and twice daily was sufficient to manage their symptoms. Nine needed to consume more than twice a day, three consumed once daily, one consumed as needed and four had no reported frequency of use on a given day. (QD = daily, BID = twice daily, TID = three times daily, QID = four times daily, TID-6 = three to six times daily, QID-5 = four to five times daily, etc.)

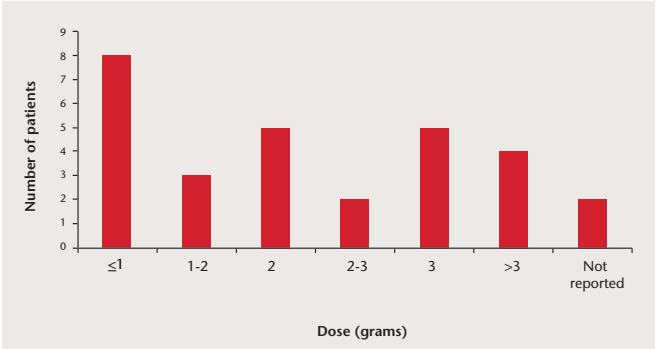

FIGURE 3: Daily dose of cannabis. This figure demonstrates a wide range of dosage requirements among patients. Requirements ranged from less than 1g per day to as much as 15g per day. Two patients had no reported daily dosage.

activities of daily living, two mentioned decreased reliance on opiates to manage pain when using cannabis, two claimed that cannabis was more effective at controlling their pain than prescription cannabinoids (nabilone and nabixamols):

- Pain is reduced from 8-9 to 3-4 after smoking cannabis and "cannot tolerate" prescription cannabinoids.
- "Cannabis use prevents need to use morphine sulphate."
- Cannabis better than nabilone for relief and decreases opiate need. Increases appetite, prevents cramps, increases relaxation.

Reported side effects of cannabis

Three patients reported side-effects associated with their cannabis use, which included decreased motivation, apathy, drowsiness, throat irritation, increased libido, palpitations and mild sadness. There was insufficient information regarding side-effects experienced by the remaining 26 patients.

Supply of cannabis

Cannabis was acquired by patients from four sources: Health Canada (n=16), compassion clubs (n=9), miscellaneous underground sources (e.g., friends, dealers and other unqualified distributors) (n=5), and self-grown (n=6). Eight patients used a combination of sources. One patient did not report source of cannabis.

Discussion

The data collected from 29 patients at the Alan Edwards Pain Management Unit at the MGH provides an insight into medical cannabis use in Canada. It indicates that cannabis may very well be a viable alternative or adjunctive treatment for chronic pain. The variety of the study participant pain diagnoses (outlined in **Table 1**) and their use of cannabis to help manage their pain, illustrates the potentially versatile applications of this drug. However, the small sample size and limited reporting of variables such as pain levels before and after the consumption of cannabis, detailed dosing patterns, and descriptions of side-effects, mean that it is difficult to establish a definitive position regarding the effectiveness of this treatment. An important limitation is the lack of statistical significance owing to the small sample size. This being said, studies have been conducted that provide more concrete evidence of the analgesic properties of cannabis. In a separate study of 30 patients using cannabis to treat pain, 28 reported pain relief greater than or equal to 6/10 (on an 11-point numeric scale where 0 = no relief and 10 = complete relief) following the consumption of cannabis.[3] If future studies support these findings, the implications for the future of pain management are significant. Furthermore, if cannabis reduces widespread patient opioid reliance, this could lead to a reduction in drug dependency along with other unwanted side-effects. This audit indicated that of the 29 included patients, only 11 were currently consuming prescribed narcotics while also consuming cannabis. However, before adding cannabis to their treatment regimen, the majority of the patients required prescribed narcotics to manage their pain. This suggests the possibility that cannabis may have helped to reduce the need for narcotic medication to manage pain in up to 62% of the patients in this audit. However, it would be premature to attribute this dramatic decrease in use of narcotic medications solely to the effectiveness of cannabis as it was not explicitly described in patient charts as the reason for the reduction. However, this is a hypothesis that warrants further investigation.

When considering the dosing of cannabis (**Figures 2 and 3**), it is evident that individual patient requirements in this context varied from one case to another with no observable pattern. Current research regarding marijuana dosing acknowledges this variability between patients and suggests that a patient-determined, self-titrated dosing model is recommended and relatively safe considering the low toxicity of cannabis.[5]

Finally, it is important to consider adverse effects associated with using cannabis and the sequelae related specifically to smoking the drug.

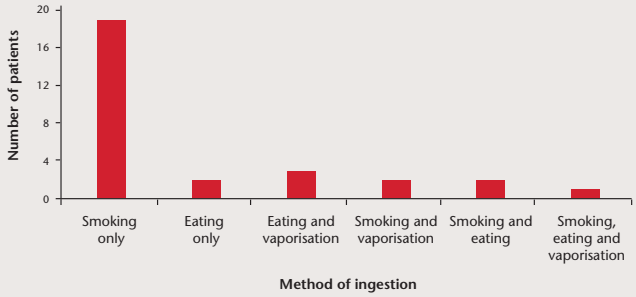

FIGURE 4: Method of cannabis consumption. This figure illustrates that smoking is by far the most popular route of administration among the patients in this study. Twenty-four patients described smoking as at least one of their chosen methods of consumption.

Side-effects reported in four patient charts included decreased motivation, apathy, drowsiness, throat irritation, increased libido, palpitations and mild sadness. Due to the low number of patients reporting side-effects, it is impossible to identify the incidence and prevalence of the reported side-effects on a large scale; however, this issue will be addressed in a follow-up study where patients will answer a questionnaire. It would also be necessary to assess whether or not long-term use of cannabis can lead to dependency.

Smoking cannabis is the most common method of consumption among the patients in this audit (**Figure 4**). Current research is divided regarding the long-term health effects of smoking cannabis such as links between smoking cannabis and the development of cancer. Considering the known consequences of smoking tobacco, it is imperative that further studies be carried out to help establish definitive conclusions. Another concern regarding long-term use of cannabis involves the development of psychiatric disorders. Studies have demonstrated links between significant adolescent cannabis use and schizophrenia, as well as cognitive impairment (such as short-term memory loss). These risks must therefore be carefully considered.

Conclusion

In conclusion, data collected in this audit suggests that cannabis can be effective at managing mild to moderate levels of pain in patients suffering from a variety of pathologies. Considering the economic, psychological and physical burden associated with pain, and the growing problem of prescribed narcotic dependency around the world, the need for further research into the uses of cannabis as an alternative to pain management is clear and definitive. With the possibility of a new and effective treatment comes hope for millions around the world who suffer every day with debilitating pain.

Table 2: Summary of patient comments on cannabis effectiveness. Patients reported reduction in pain and concentration on pain, reduced reliance on narcotic medications, increased functionality, and increased participation in daily activities.

Comment
Cannabis decreases pain, anxiety and depression, and increases functionality
Pain is reduced from 8-9/10 to 3-4/10 after smoking cannabis. Did not tolerate prescription cannabinoids
Cannabis helps sleep
Cannabis helps with pain
Cannabis use prevents need to use morphine sulphate
Cannabis "numbs" pain. Pain increases significantly when cannabis is stopped. Now only uses cannabis but has tried Neurontin, Voltaren, Celebrex and Vioxx in the past without much improvement. Mentioned that he doesn't want to go out when stoned (negative side-effect)
Cannabis helps decrease pain and increase activity
Cannabis "disconnects pain". Increased energy and communication
Feels cannabis the only prescription needed (doesn't need prescriptions when on cannabis)
Cannabis decreases pain, increases sleep
Cannabis decreases focus on pain allowing for increased activity
Dramatic decrease in pain with cannabis. Nabiximols helped but wasn't always effective.
Cannabis better than nabilone for relief and decreases opiate need. Increases appetite, prevents cramps, increases relaxation
Cannabis decreases hospitalisation and increases sleep
Cannabis "keeps me from going crazy"
Cannabis takes mind off pain, able to enjoy activities
Cannabis helps with pain

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