Original Article

American Journal of Hospice & Palliative Medicine®
2020, Vol. 37(8) 589-593

DOI: 10.1177/1049909119900378
journals.sagepub.com/home/ajh
SAGE

Tetrahydrocannabinol and Cannabidiol Use in an Outpatient Palliative Medicine Population

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Abstract

Background: Palliative medicine physicians are challenged by lack of guidance regarding effectiveness and dosing of cannabis products in the setting of their emerging popularity. **Objective:** The aim of this study was to describe early patterns of tetrahydrocannabinol (THC) and cannabidiol (CBD) use in Florida following passage of the state's first medical marijuana law. We describe here the perceived benefits, side effects, and beliefs expressed by patients in a single outpatient academic palliative medicine practice. **Methods:** A cross-sectional survey was performed of a sequential convenience sample of patients who presented to an outpatient academic palliative medicine clinic over a 3-month period. **Results:** In all, 24% (14/58) of respondents reported THC use, with half using THC on a daily basis. Patients reported improvements in pain, appetite, and nausea. In all, 71% (10/14) began using THC after the diagnosis of their chronic illness, and the most common form of usage was vaping. In all, 24% (14/58) of patients reported CBD use. Patients reported improvements in pain, and the most common form of usage was topical application. None of the patients had used CBD prior to the onset of their chronic illness. In all, 21% (3/14) of THC users and 21% (3/14) of CBD users thought that their substance was helping to cure their illness. Individual reported side effects in both groups were minimal. **Conclusions:** Approximately a quarter of outpatient palliative care patients use THC or CBD, often on a daily basis. Palliative care providers should be aware of the frequency, diverse usage, and beliefs behind cannabis product use in this patient population.

Keywords

THC, CBD, CBD oil, palliative, palliative care

Background

Over the past decade, the availability and use of cannabis products in the United States have increased significantly.[1] Many patients have taken to utilizing both prescribed and nonprescribed cannabinoids for symptom control.[2] During the 2017 Special Legislative Session, the Florida Legislature passed Senate Bill 8-A which included many changes to creating physician certifications for qualifying patients. There are now over 350 000 permanent or seasonal residents diagnosed with a qualifying condition who have an ID card and are filling low tetrahydrocannabinol (THC) and cannabidiol (CBD) at 162 certified Medical Marijuana Treatment Centers.[3]

There is moderate-quality evidence that cannabinoids are effective for the treatment of chronic pain and spasticity. Additionally, there is some lesser quality evidence that cannabinoids may improve chemotherapy-related nausea and vomiting, insomnia, appetite, anxiety, and posttraumatic stress disorder.[4,5] Some have suggested that cannabinoids may be an effective alternative to opiates, with a more favorable side effect profile in palliative care patients.[6] High-quality data on effectiveness and appropriate dosing of these substances continues to be limited, monitoring is poor, and regulatory frameworks are confusing and constantly changing.[7]

Palliative medicine physicians are especially challenged by the emerging popularity of THC and CBD. Data suggest that there is significant use of cannabinoids in both geriatric patients and patients with cancer.[8-11] A recent study from an outpatient palliative care practice demonstrated 27% of patients were using some form of cannabis, and the most common reasons for use were pain, anorexia, and nausea.[12] In a retrospective review of patients presenting to a supportive care oncology clinic, 19% of patients tested positive for THC, and use was associated with younger age and certain symptoms

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including poor appetite, dyspnea, fatigue, insomnia, anxiety, and depression.[13] Data are limited on the side effects and method of use of cannabis products in palliative care patients.

Several studies have demonstrated that patients desire information about cannabis from their primary care physicians and oncologists.[8,14] Despite this, physicians report limited knowledge and poor comfort level counseling on these medications.[14,15] This is further complicated by the lack of clarity regarding the content of available cannabis products. In a recent study evaluating labeling of online purchased CBD products, 26% contained less CBD than labeled, and 21% contained THC.[16]

The aim of this study was to better characterize manner of use and perceived symptom benefits of cannabis products in palliative care patients. Limited data are available regarding side effects, method of usage, and perceptions of cure. The study also aimed to investigate the use of CBD specifically in palliative care patients, which has not yet been described to our knowledge.

Methods

Study Design

We performed a cross-sectional survey of a sequential convenience sample of patients who presented to the outpatient palliative medicine service at Mayo Clinic in Jacksonville, Florida, from February through April 2018.

Setting

The outpatient palliative care service at the Mayo Clinic in Jacksonville, Florida, sees approximately 1100 patients annually. This includes visits seen in the primary palliative medicine clinic as well as the supportive care oncology clinic in which a duo of boarded medical oncologist and palliative medicine physician is embedded.

Participants

Fifty-eight patients from Mayo Clinic completed a survey regarding their experience with THC and/or CBD in managing their chronic illness. Eighteen patients reported using THC or CBD and 40 did not. The survey consisted of 12 specific questions regarding THC and 9 specific questions regarding CBD which intended on summarizing length, frequency, and method of substance use.

Study Procedures

Trained desk staff were asked to present patients with a survey upon appointment arrival. Patients were provided a sealable envelope and were asked to place completed surveys in a locked box following the end of their visit. Study was approved by the institutional review board as exempt due to anonymized, voluntary data.

Table 1. Demographics of Survey Respondents.[a]

Patient Characteristics	n (%)
Age	
≤30	1 (1.7)
31-50	2 (3.4)
51-70	34 (58.6)
≥71	19 (32.8)
No response	2 (3.5)
Reason for palliative care visit	
Cancer	37 (63.8)
Lung disease	7 (12.1)
Heart disease	7 (12.1)
Other	16 (27.6)
Prescribed opiates	
Yes	35 (60.3)
No	23 (39.7)
THC and CBD use	
THC	14 (24.1)
CBD	14 (24.1)
Both THC and CBD	10 (17.2)

Abbreviations: CBD, cannabidiol; THC, tetrahydrocannabinol.
[a]N = 58.

Statistical Analysis

All continuous variables were summarized with median and range, while categorical variables were summarized with frequency and percentage. The Wilcoxon rank-sum test was used to compare age at the time of the survey, and the Pearson chi-square test was used to compare proportional differences in the patients' reasons for their palliative care visit between those who reported using THC or CBD and those who did not. All tests were 2-sided, and P values <.05 were considered statistically significant. Due to low frequency among the 4 groups of patients, multiple comparison statistical tests regarding CBD or THC use and outcomes were not performed. With respect to THC usage and outcomes, patients who only used CBD had no record of THC usage and were not included among the THC-specific subanalysis. A similar situation occurred regarding patients who used THC only with no record of CBD usage. All statistical analysis was performed in R Statistical Software (version 3.4.2; R Foundation for Statistical Computing, Vienna, Austria).

Results

Patient age and reason for palliative care visit are summarized in Table 1 for the 58 survey participants. The overall median age was 67 years, where the youngest patient was 23 years and the oldest was 97 years. In all, 63.8% (37/58) of patients were visiting palliative care for cancer as a diagnosis. There was a trending difference in age between those who reported not using THC or CBD and those who did ($P = .065$). Users of both CBD and THC were younger with a median age of 61 years (range: 23-97 years). There were no major differences in specific reason for the palliative care visit among patients ($P \geq .20$).

Table 2. Description of THC Use.[a]

THC Use	n (%)
Prescribed opiates?	
No	4 (28.6)
Yes	10 (71.4)
Onset of use	
Before disease	4 (28.6)
After disease	10 (71.4)
Registration card for medical marijuana	
No	6 (42.9)
Yes	7 (50.0)
No response	1 (7.1)
Frequency of use	
Daily	7 (50.0)
Weekly	2 (14.3)
Monthly	1 (7.1)
Rarely	2 (14.3)
No response	2 (14.3)
Method	
Smoke	3 (21.4)
Vape	5 (35.7)
Drink	1 (7.1)
Eat	1 (7.1)
Other[b]	7 (50.0)
Symptoms improved	
No	0 (0.0)
Yes	14 (100.0)
Help cure illness	
No	10 (71.4)
Yes	3 (21.4)
No response	1 (7.1)

Abbreviation: THC, tetrahydrocannabinol.
[a]N = 14.
[b]Other uses of THC were listed as pill form, oil form, and sublingual.

Usage and Outcomes of THC

Answers regarding THC usage are summarized in Table 2. In all, 24% (14/58) of the population reported using THC, and 71% (10/14) of patients who expressed using THC were prescribed opiates for pain. In all, 29% (4/14) of patients were using THC prior to the start of their chronic illness, and the median age first use was 20 (range: 14-28) years. Half of patients who use THC report having a Florida registration card for medical marijuana.

Seven (50%) of 14 patients reported using marijuana on a daily basis. The most common form of usage was vaping. All patients reported that marijuana improves their symptoms. In all, 57% (8/14) of THC users reported improvements in pain, 50% (7/14) reported improvements in appetite, and nausea was improved in 43% (6/14) of patients. The overall median score assigned to how well marijuana helps improve symptoms was 6 (range: 5-9) classified as between moderate to significant improvement. Of the patients, 21% (3/14) felt that THC was helping cure their illness; 36% (5/14) of patients reported side effects in the setting of THC use, but there was not specific side effect that was reported by more than 1 patient.

Table 3. Description of CBD Use.[a]

CBD Use	n (%)
Prescribed opiates	
No	5 (35.7)
Yes	9 (64.3)
Onset of use	
Before disease	0 (0.0)
After disease	14 (100)
Frequency of use	
Daily	6 (42.9)
Weekly	4 (28.6)
Monthly	0 (0.0)
Rarely	3 (21.4)
No response	1 (7.1)
Method	
Vape	3 (21.4)
Spraying under the tongue	5 (35.7)
Eating edibles	1 (7.1)
Pills	3 (21.4)
Topical	5 (35.7)
Symptoms improved	
No	3 (21.4)
Yes	10 (71.4)
No response	1 (7.1)
Help cure illness	
No	10 (71.4)
Yes	3 (21.4)
No response	1 (7.1)

Abbreviation: CBD, cannabidiol.
[a]N = 14.

Usage and Outcomes of CBD

Answers regarding CBD usage are summarized in Table 3. In all, 24% (14/58) of the population reported using CBD. None of the patients had used CBD prior to the onset of their disease, and 43% (6/14) of patients who took CBD reported daily use. Symptoms mostly improved by CBD were pain in 50% (7/14) of patients, appetite in 29% (4/14) of patients, and insomnia in 29% (4/14) of patients. Median score assigned to how well CBD improves symptoms was 5 (range 1-9) classified as moderate.

Of the patients, 21% (3/14) thought CBD oil was helping cure their illness, and 29% (4/14) reported using CBD together with marijuana to get an enhanced effect. The most common forms of usage were topical application of CBD in 43% (6/14) of patients and spraying under the tongue in 36% (5/14) of patients, with 21% (3/14) patients reporting taking pills and 21% (3/14) reporting vaping. One patient was using CBD edibles; 21% (3/14) patients reported side effects, but no specific side effect was reported by more than 1 patient.

Limitations

This study is exploratory and has several limitations that need be considered. The first is the very small sample size. This limited our ability to identify statistically significant differences between patients who report THC and CBD use versus

those who did not. We also did not have a large enough frequency to substantially test for differences in usage and outcomes between the identified patient groups among THC or CBD users. The second limitation involves nonresponse from survey participants. With the survey soliciting voluntary answers and participation, patients did not always fill out the necessary questions resulting in limited information. Following the passage of the legislation in Florida, it took almost a year to set up dispensaries and provide ID cards to eligible patients. This study represents voluntary data from patients in the first year of the law.

Discussion

Despite its limitations, this survey contributes several important things to the growing available literature regarding cannabis use in palliative care populations. First, to our knowledge, patterns of CBD use have not previously been described in a palliative care patient population. The sale of CBD products is has grown rapidly into a US$190 million dollar industry last year. Products including CBD range from skin care creams, to coffee, to jelly beans, and there are widely reported benefits ranging from improvements in anxiety and depression to reduction in inflammation and pain.[17,18]

About a quarter (24%) of palliative care patients in our survey reported using CBD, and all of these patients initiated usage following their diagnosis; 43% were using it on a daily basis. Patients are using CBD in a variety of ways and reporting improvements in pain, appetite, and insomnia. Usage of CBD is prevalent in our population, and physician awareness of patient perceived benefits may facilitate counseling when questions arise.

Our survey is also important in its assessment of cannabis use in older patients. The median age of THC and CBD users in our survey was 61 years (range: 23-97 years), and only 29% of patients had used THC prior to the onset of their illness. This indicates that older patients are initiating cannabis products later in life. This raises concerns regarding safety, particularly in a patient population prone to increased adverse drug effects and drug interactions.[19] Although one study suggests that cannabis use may actually decrease the frequency of geriatric falls due to potential for decreased reliance on opiates and other prescription medications, further data in this area are warranted.[20] Cannabis use in older patient populations is an important area to focus research, especially when facing an increasingly aging population.[21]

The finding that several patients thought THC and CBD are curing their illness is notable. This might be due to availability of misleading public information regarding curative effects of THC and CBD, despite a lack of evidence to support these claims.[22] Delivery of high-quality palliative care involves seeking to understand the perspective of the person with illness, eliciting their story and attempting to "see" the world as patients do. These data underscore patient beliefs that might be overlooked if not specifically explored. Asking questions regarding the beliefs and values driving the usage of unprescribed substances allows palliative physicians to better understand the patient's framework.[23]

The frequency of initiation of cannabis following the onset of illness in our survey is itself important to note. Only 29% of patients used THC prior to the onset of their illness, and none had used CBD prior to their diagnosis. This helps dispel the myth that patients with chronic illness using cannabis are predominantly previous recreational users and supports the findings of previous studies.[24]

Of note, 43% of patients indicated confidentially that they obtained marijuana through means other than the official state sponsored programs. The "cash-only" business of medical marijuana may inhibit participation in the official dispensaries. Indeed, the Office of Medical Marijuana prominently states on the applications that while this is legal in the state of Florida, it is still illegal federally.

Despite a quarter of palliative care patients using cannabis products, palliative care physicians are challenged with limited evidence to assist in guiding counseling for these patients.[7] Surveys of both oncologists and primary care physicians have demonstrated that physicians feel unequipped to make recommendations regarding cannabis, despite a belief that it can be helpful.[25,26] Palliative physicians likely harbor the same trepidation.

These data are important in reinforcing the importance of further research on clinical efficacy and ideal dosing of these substances. Patients are using these substances frequently, often on a daily basis. The majority of patients reported first starting these products after their diagnosis was made, suggesting these substances are being sought out due to their perceived benefits in chronic illness. Better research will allow us to understand the physiologic effects of these substances. Prior to this, physicians should be aware of the frequency of cannabis use in palliative care populations and inquire not only about the manner of use but also about the beliefs behind the usage.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

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