The Effects of Cannabidiol (CBD) use in Patients with Chronic Pain

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Background

Chronic Pain Statistics
- 20% of population worldwide
- 20% of doctor's visits annually
- $560 -$635 billion disbursed annually for chronic pain treatment and lost of productivity

Opioids
- 115 daily opioid deaths
- 33,000 estimated accidental opioid deaths
- 26-36 million people abuse opioids worldwide

(CDC, 2017, Argueta et al., 2020, Treede et al., 2015; Rivit & Ballantyne, 2016; Scholl et al., 2018, Dupont, 2018)

Problem

Inappropriate use of opioids and the mismanagement and treatment of chronic pain has led to the opioid epidemic in the US (Argueta et al., 2020). Due to the addictive properties and opioid misuse, evidence suggests alternative pain methods are needed (National Center for Complementary and Integrative Health [NCCIH], 2016

Purpose

The purpose of this DSP is to examine the use of cannabinoids (CBD) in patients with chronic pain and determine if pain and frequency of opioid use will decrease.

Methods

Design

Convenience Sample

Sample

Patients 21 years and older

Current opioid users

Chronic pain patients

Seeking the use of CBD

Intervention

Opioid use

Current opioid use/CBD during the pre-assessment

Seeking pain control/Using CBD

Evaluation 5 weeks post-assessment

Data

McGill Pain Scale Short Form (SF-MPQ-2)
Pre and Post Questionnaire
Composed of 31 items
Outcomes found in the literature
Effective in evaluating pain characteristics
Reliability and Validity
Cronbach's alpha showed the questionnaire's reliability and validity to be α = 0.98
Qualtrics

Data Analysis

Data was analyzed using IBM SPSS version 6

Results

Table 1 describes the demographic characteristics for the entire sample (N=18). The sample was composed of 12 males (66.7%) and six females (33.3%). Seventeen (94.4%) participants were African American, and one participant was Hispanic (5.6%). The ethnicity composition was the same for the pre-and post-intervention samples. Sixty-three percent (n=12) of the sample reported previous CBD use pre-intervention while 32% (n=6) had not. Within the pre-intervention sample, 52.6 % (n=10) are currently using opioids, and 44.4% (n=8) do not use opioids for pain control. Participants reported a wide variety of chronic pain causes, 10.5 % of the sample participants experienced back pain, and 10.5% experienced pain from arthritis. The remaining participants experienced other types of pain. Reliability analysis was conducted on the McGill Pain Questionnaire. Comprised of 31 items, Cronbach's alpha showed the questionnaire's reliability and validity to be α = 0.98.

Inferential Statistics

Pain characteristics analyzed by the Wilcoxon Signed Rank Test to compare pre-and post-pain characteristics. There was a statistically significant improvement in several of the pain characteristics from pre- to post-intervention. The results indicate that the use of CBD significantly decreased some pain characteristics, such as throbbing, sharp, hot, and burning, heavy, and aching ($p < .001$).

An independent samples *t*-test was conducted to examine statistical differences between participants' pre-and post-intervention pain levels. While statistically non-significant ($p>.05$), the mean pain score decreased by 0.57, a clinical significanceChi-square analyses were conducted to examine the relationship between nominal level variables. The chi-square revealed a statistically significant decrease in daily opioid use between pre-and post-intervention groups ($p<.01$). The null hypothesis was rejected, ($\chi 2_{(1)} = 5.657$, $p < .01$).

Limitations

COVID-19
Small sample size
Cancellations of appointments
Unaware of CBD dosages
Unaware of opioid dosages

Recommendations for Nursing Practice

Providers are responsible for using caution when recommending CBD for pain control until further studies are concluded, because of the variability of cannabinoid compounds, their active ingredients and systemic effects.

Providers are responsible for staying informed about alternative pain control methods and should share the knowledge from evidence regarding the safety and efficacy of CBD.

Objectives

PICO

Can the use of CBD in conjunction with opioids reduce the amount of opioid use in patients with chronic pain?

Anticipated Outcomes

Opioid use will decrease when taken in conjunction with CBD.
Pain levels will decrease with the use of CBD.

Interventions

Participants enrolled in the project are currently using prescription opioids or seeking to use CBD. Participants were asked to complete the pre-assessment survey before the initiation of concurrent CBD use. Participants routinely follow up with their healthcare provider in the clinic for maintenance care. At least five weeks following the initiation of concurrent opioid and CBD use, the participant completed the post-assessment survey regarding CBD's pain effects.

Demographic Characteristics of the study sample (N = 18)

Frequencies	*n*	*%*
Gender		
Male	12	66.7
Female	6	33.3
Race		
African American	17	94.4
Hispanic	1	5.6
Are you currently using opioids?		
Yes	10	52.6
No	8	44.4
Have you used CBD in the past?		
Yes	12	63.2
No	6	31.6
What kind of pain do you have?		
Hip	1	5.3
Back Pain	2	10.5
Right Ankle Pain	1	5.3
Arthritis	2	10.5
Post-Surgical Pain	1	5.3
Foot Pain	1	5.3
Peripheral Vascular Disease	1	5.3
Sciatica	1	5.3
Left Shoulder Pain	1	5.3
Knee Pain	1	5.3
Back, Knee and Shoulder	1	5.3
Sharp	1	5.3
Diabetic Foot Ulcer	1	5.3
Neuropathy and Osteoarthritis	1	5.3

Pre and Post Mean, standard deviation, and range (N = 18)

Variable	*M*	*SD*	Range
Age	44.4	15.6	24-66

Confidence Scale of McGill Pain characteristics with Significant Wilcoxon Ranks

	Mean Rank			
	Negative	Positive		
Pre-throbbing Post-throbbing	5.19	3.50	-2.332	.020*
Pre-sharp Pre-shooting	4.20	3.50	-1.265	.206
Pre- sharp Post-sharp	5.13	4.00	-2.310	.021*
Pre-cramping Post-cramping	4.20	3.50	-1.265	.206
Pre-hot and burning Post-hot and burning	4.64	3.50	-2.126	.033*
Pre-aching Post-aching	5.00	.00	-2.739	.006**
Pre-heavy Post-heavy	3.50	.00	-2.333	.020*
Pre-tiring and exhausting Post-tiring and exhausting	5.25	3.00	-2.373	.180
Pre-sickening Post- sickening	4.83	3.50	-1.613	.107
Pre-punishing and cruel Post- punishing and cruel	3.75	5.50	-1.474	.140
Pre-tender Post-tender	2.00	.00	-1.633	.102

*p = .05
**p = .01

Paired Samples t-test of Intervention Status by Group (N = 18)

	M	*SD*
Pre-intervention pain score	6.99	2.97
Post-intervention pain score	6.42	2.25

$T_{(17)} = 0.369$, $p \geq .05$, 95% C.I= - .723-1.85

Chi-Square between Pre-intervention and Post-intervention Opioid Use

Daily use of opioids	Postintervention	Total
	n	
Yes	7	
No	11	18

$\chi^2_{(1)} = 5.657$, $p < .01$.

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