

Cannabis, Concussion, and Chronic Pain

A Retrospective Analysis

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Abstract

Objective
Examine medical cannabis (MC) as treatment for concussion-related chronic pain in an active and established MC clinic.

Study Design
Individuals with concussion often experience chronic discomfort from post-traumatic headaches. MC treatment was approved for use in chronic pain by New York State in 2017. DENT has treated 5,260 patients with MC, including 4,017 for chronic pain and 399 with concussion symptoms.

Results

- Improvement attributed to MC treatment was recorded in 77.0% of patients (67 patients). This improvement was quantified through the Patient Global Impression of Improvement (PGI-I) scale and revealed 86.6% of patients (58 patients) who experienced improvement experienced significant improvement in activity limitations, symptoms, emotions, and overall quality of life.
- Five common concussion symptoms (headache, mood, sleep, attention/concentration, and dizziness) were tracked if endorsed. MC treatment provided improvement to sleep (68 patients [78.2%]), headache (64 patients [73.6%]), mood (64 patients [73.6%]), dizziness (33 patients [47.8%]), and attention/concentration (46 patients [59.0%]).
- The routes of administration that produced optimal benefit were 1:1 (THC:CBD) oral tincture at an average dose of 1.5mL TID, a combination of 20:1 (THC:CBD) oral tincture at an average dose of 1.6 mL TID for prophylaxis and 20:1 vapor inhalation pen PRN pain, or a combination 1:20 (THC:CBD) at 1mL TID and 1:1 vapor inhalation PRN pain. Adverse side effects were reported in 18.4% of patients (16 patients). No patients discontinued MC due to side effects.
- Quality of Life after Brain Injury (QOLIBRI) scores from 84 patients active on MC treatment gave a mean score equal to 47.5. Thirty-seven patients who were not on MC gave a mean score equal to 39.6.
- Of the 24 patients on opioid pain medications, 42% of patients decreased or discontinued these medications. For the 87 patients on other concussion related medications, 16% decreased or discontinued those medications.

Conclusions
Results support MC as an option for treatment of concussion-related chronic pain. While prospective studies are required, these preliminary results lay the foundation for investigating MC as a valid treatment for concussion-related chronic pain.

Study Design

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| <p>Inclusion/Exclusion Criteria</p> <ul style="list-style-type: none"> Certified for New York State MC by DENT UCNS board certified physician or their nurse Cases must have been seen at least twice at DENT, an initial consult and a reevaluation. Patients were on MC treatment for at least one month. | <p>Subjects</p> <ul style="list-style-type: none"> 215 patients were diagnosed with concussion and certified for MC Patients were excluded due to lack of follow-up or resolved concussion symptoms prior to MC certification 28.7% were male, 71.3% were female The age range was between 18 and 76 years, with the average age being 43.2 years. | <p>Study Population</p> <ul style="list-style-type: none"> 87 patients meet inclusion criteria and initiated MC treatment. 42 patients meet inclusion criteria but did not initiate MC treatment <p>Reasons for failure to initiate MC treatment included:</p> <ul style="list-style-type: none"> Employment drug screenings Financial barriers Hesitation due to social stigma |
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Approved by the Western Institutional Review Board

Discussion

There exists a paucity of literature regarding MC treatment in individuals with chronic pain related to concussion and post-traumatic headaches. Due to the prohibition regarding prospective studies from schedule one licensing, this study was designed to retrospectively study MC as a treatment option for concussion and chronic pain.

In New York State, MC is routinely tested for contaminants (heavy metals, fungal toxins, microbiology) which makes the product ideal to study due to quality and stability of the product. However, out-of-pocket cost was an average of \$238 per month, posing an economic barrier to treatment. Other variables, including nature of the injury, socioeconomic status, and pending litigation could have influenced outcome results. Dose and ratio of product may have influenced outcomes as well.

While these results are retrospective in nature, they do provide evidence and support for future prospective studies that can examine MC and concussion-related chronic pain management with a placebo-controlled protocol.

Conclusion

- Medical cannabis is a potential treatment for chronic pain associated with concussion. This study showed improvements in many of the factors associated with concussion including the greatest improvement in sleep, headache, and mood.
- Quality of life (QOLIBRI) scores showed improvement on MC.
- No patients discontinued because of side effects on MC treatment
- MC treatment correlated with reduction in opioid pain and other concussion medications
- Improvement may be dose and titration dependent. Future prospective studies are recommended to assess benefit and dosing guidelines.

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Author Disclosures:
Dr. McVige: Speaker for Amgen, Avainir, Depomed, Eli Lilly, Oxtellar, Promius, and Teva.
Dr. Mechtler: Speaker for Amgen, Avainir, Promius, Allergan, and Teva.
All other authors report no disclosures.

Results

