



AVICANNA™

MEDICAL CANNABIS INSIGHTS

WHAT'S NEW IN THE SCIENCE OF MEDICAL CANNABIS

CANNABINOID APPLICATIONS IN PAIN MANAGEMENT

AVICANNA HIGHLIGHT

In this edition of our newsletter series, we focus on a recent publication that reviews the medical evidence for the treatment of chronic non-cancer pain (CNCP) with medical cannabis.

This publication emphasizes the importance of interpreting the evidence of cannabis-based treatments towards specific CNCP, which aligns with Avicanna's scientific and evidence-based approach for developing its cannabinoid-based products.

In this newsletter, we also provide a perspective on the potential therapeutic benefits of cannabinoids in the treatment of chronic pain from Dr. Hance Clarke, staff anesthesiologist and the Director of Pain Services and the Pain Research Unit at the Toronto General Hospital (TGH), which is part of the University Health Network (UHN). Dr. Clarke is a key opinion leader in Canada, and has played a leading role in educating the Canadian public about pain control, the risk factors for opioid abuse, alternatives to opioids as a primary strategy at TGH, the misconceptions about opioid use, and the need for further studies on understanding the beneficial and adverse effects of medical cannabis.

WHAT'S NEW?

PUBLICATION SPOTLIGHT

Understanding the evidence for medical cannabis and cannabis-based medicines for the treatment of chronic non-cancer pain

Gabrielle Campbell, Emily Stockings,
Suzanne Nielsen

European Archives of Psychiatry and Clinical Neuroscience,
February 2019, Volume 269, Issue 1, pp 135-144



The recent changes in legislation and the emergence of the opioid crisis in Canada and the United States have led to a substantial increase in the number of cannabinoid studies being conducted relating to the treatment of CNCP. We have reviewed the recent publication by Nielsen et al. that describes some of the supporting data and outlines many of the issues that have been observed with clinical trials on medical cannabis and CNCP. We believe that an evidence-based approach will help to identify the effective type of cannabinoid(s), and plant genetics, to optimize the pharmacokinetics, and frameworks for monitoring and determining specific endpoints for trials to ultimately identify the appropriate cannabinoid ratios, doses, and dosage forms.

The evidence for medical cannabinoids in the treatment of chronic pain is growing with a number of recently published studies reporting “moderate” to “substantial” support in providing effective treatment. The National Academies of Science, Engineering and Medicine (NASEM) published a report in 2017, which concluded that there is “substantial evidence that cannabis is an effective treatment for chronic pain in adults”. Unfortunately, the examined studies supporting the treatment of neuropathic pain with cannabis are not conclusive, as they are often conducted with poor experimental design such as lower quality designed trials, small patient numbers, and a bias towards cannabis products resulting in a poor interpretation of their statistically significant results. Although this evidence for neuropathic pain is limited, the authors emphasized the importance of examining the evidence for specific pain conditions instead of generalizing the findings for all CNCP pain conditions. In this way, evidence for the efficacy of cannabinoids for CNCP was reviewed in the following areas: neuropathic pain, multiple sclerosis-related pain, visceral pain and others (fibromyalgia, rheumatoid arthritis and musculoskeletal pain conditions of the back and neck).

The authors have provided several recommendations to improve the quality of evidence generated from clinical trials exploring the potential treatment of CNCP with medical cannabis. These recommendations include increasing awareness of issues with blinding in clinical trials, cannabis use disorders, and developing precautionary frameworks, opioid-sparing effects, and fragmented models of care. The study of treating patients with CNCP using medical cannabis is one of the most active areas of cannabis research but is still in its early stages. Overcoming the limitations for controlled clinical trials and managing patient expectations, potential side effects of cannabis, and expenses will advance the research of cannabinoids on CNCP, especially in older adults.



EXPERT PERSPECTIVE

Cannabinoid Based Medicines and their Future

by: **Dr. Hance Clarke**, MD, PhD.
University Health Network

Uruguay was the first country to legalize recreational cannabis in 2013, five years later Canada has followed suit. Scientific articles continue to be published in the most prominent academic journals (i.e. nature, JAMA) documenting the potential therapeutic benefits of targeting endocannabinoid receptors, by designing drugs that will activate or suppress the CB1 and CB2 receptors. Canada's strength over the next 5-10 years will be its' regulatory framework which will enable medical research to do a rigorous deep dive into the impact of cannabis on everything from Parkinson's disease to Neuropathic Pain. In countries such as the United States, research into cannabis products is not only impaired by Federal laws, but scientists and clinicians also cannot access products that have credible science to back their claims. The lack of reliability or consistency in products being consumed by the public is also problematic.

Canada is poised to be the global leader in the development of cannabinoid based novel dosage form products. These products will meet regulatory drug identification number (DIN) standards, this will lead to wide-scale coverage for future scientifically documented (not anecdotal) therapeutic benefits. As a chronic pain physician, I am able to see the inadequacies of the current venture capitalist lead “medical cannabis” industry. Cannabidiol (CBD) is not a “cure all” medication, that every Canadian should be consuming without direction from their health care provider. Understanding the ratios of CBD and Tetrahydrocannabinol (THC) and the impact of the other many chemical constituents in the cannabis sativa plant is imperative for novel discoveries within patient care. Because of the lack of consistency and reliability in the products today, I am witness to the struggles of my patients as we work together to find a cannabis-based solution to their chronic pain condition. Take for example Mary, a patient suffering with radicular neck pain and with limited financial means. Mary was frustrated after having spent a great deal of money on CBD oil which she hoped would help her neuropathic pain symptoms. Unfortunately, the CBD oil was not effective. After discussing the titration of THC with appropriate dosing, she was able to achieve the symptomatic relief and improved function she was seeking. The concept of CBD being the “good molecule” and THC being the “molecule that gets you high” also needs to be addressed. Discussions regarding dosing, and careful titration are imperative for every patient. Canada is at ground zero regarding medical cannabis and basic science, the next decade will prove to be exciting as the many capabilities of this plant are unlocked. Academic physicians and Institutions should aim to form strong Research and Development partnerships with an industry invested in rigorous scientific and regulatory practices in order to bring the benefits of “clinical cannabis” to the global patient population in the years ahead.

Provided by Avicanna Inc.

Avicanna is a Canadian biopharmaceutical corporation focused on the development, manufacturing and commercialization of plant-derived cannabinoid-based products through its two main business segments, cultivation and research and development. Avicanna's research and product development activities are primarily conducted out of Toronto, Canada including its headquarters in the Johnson & Johnson Innovation Centre, JLABS @ Toronto and the University of Toronto's Faculty of Pharmacy. Avicanna's scientists and researchers collaborate on the optimization and improvement of Avicanna's products. Avicanna's vertically integrated and international operations also include two majority owned cannabis cultivation subsidiaries - Sativa Nativa S.A.S. and Santa Marta Golden Hemp S.A.S., both located in Santa Marta, Colombia. Avicanna's scientists and researchers collaborate on the optimization and improvement of Avicanna's products ranging from cosmetics to phyto-therapeutics to pharmaceutical preparations.

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