Editorial

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Medicinal *Cannabis* in supportive breast cancer care: cannabinoids for chemotherapy-associated symptoms and topical applications

Abstract

Medicinal *Cannabis* has emerged as a complementary therapeutic strategy in oncology supportive care, particularly for patients experiencing chemotherapy-associated adverse effects. In breast cancer management, cannabinoids are increasingly investigated for their ability to alleviate nausea, vomiting, neuropathic pain, sleep disturbances, anxiety, and inflammatory symptoms. The biological basis of these effects involves modulation of the endocannabinoid system (ECS), a regulatory signaling network involved in nociception, immune responses, mood regulation, and physiological homeostasis.[1] This paper reviews current evidence regarding oral and topical cannabinoid formulations in supportive breast cancer care. Particular attention is given to full-spectrum *Cannabis* extracts containing Δ9-tetrahydrocannabinol (THC), cannabidiol (CBD), and terpenes, as well as topical cannabinoid creams formulated with coconut cream, shea butter, and medium-chain triglyceride (MCT) oil. An integrative supportive protocol involving oral full-spectrum THC extract (5%) administered three times daily, oral CBD extract (2.5%) twice daily, topical full-spectrum cream applied to the hands and feet, and evening CBD cream application is discussed in the context of chemotherapy-induced peripheral neuropathy and inflammatory symptom management. Current evidence supports medicinal *Cannabis* primarily as a supportive intervention aimed at improving quality of life rather than as a curative therapy for breast cancer itself.[2]

Keywords: cannabidiol, nociception, cancer, chemotherapy, Protocol

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Introduction

Breast cancer remains the most frequently diagnosed malignancy among women worldwide. Although advances in chemotherapy, hormonal therapy, targeted treatment, and immunotherapy have significantly improved survival, treatment-associated adverse effects continue to compromise patient quality of life and therapeutic adherence. Common complications include chemotherapy-induced nausea and vomiting (CINV), peripheral neuropathy, chronic pain, insomnia, fatigue, anxiety, and inflammatory skin reactions. Medicinal *Cannabis* has gained increasing scientific and clinical attention as a complementary strategy for supportive oncology care. Cannabinoids derived from *Cannabis sativa*, especially THC and CBD, interact with the ECS, a lipid signaling system involved in regulation of pain perception, appetite, sleep, emotional processing, immune responses, and inflammation.[1]

The therapeutic potential of cannabinoids in oncology supportive care is supported most strongly in the management of refractory chemotherapy-induced nausea and vomiting. Synthetic cannabinoid medications such as dronabinol and nabilone have demonstrated antiemetic efficacy in patients inadequately controlled with conventional antiemetic regimens.[2] More recent investigations have expanded toward neuropathic pain, anxiety, appetite regulation, sleep disorders, and topical cannabinoid applications.

Cannabinoids and chemotherapy-associated symptoms

Cannabinoids exert multimodal pharmacological effects through CB1 and CB2 receptors, transient receptor potential vanilloid channels (TRPV1), serotonin receptors, and inflammatory signaling pathways.[3] THC functions primarily as a partial agonist at CB1 receptors within the central nervous system, contributing to antiemetic, analgesic, sedative, and appetite-stimulating effects. CBD displays more complex pharmacology involving TRPV1 modulation, serotonin 5-HT1A receptors, adenosine signaling, and anti-inflammatory pathways.[3] Chemotherapy-induced peripheral neuropathy (CIPN) is among the most debilitating complications experienced by breast cancer patients, particularly those treated with taxanes or platinum-based agents. Symptoms frequently include burning pain, tingling, numbness, hypersensitivity, and impaired dexterity affecting the hands and feet. Experimental and emerging clinical evidence suggests that cannabinoids may attenuate neuropathic pain through suppression of neuroinflammation, modulation of excitatory neurotransmission, and regulation of TRPV1 signaling pathways.[4] Clinical studies have also suggested that cannabinoids may improve sleep quality and emotional distress in cancer patients. THC-containing formulations may enhance appetite and reduce nausea, while CBD may contribute anxiolytic and anti-inflammatory effects.[5]

Integrative cannabinoid supportive protocol

An example integrative supportive-care protocol may involve combined oral and topical cannabinoid formulations administered under medical supervision. The oral component consists of a full-spectrum *Cannabis* extract containing approximately 5% THC administered as 20 drops three times daily. In addition, a 2.5% CBD extract may be administered twice daily. Full-spectrum cannabinoid formulations contain multiple cannabinoids and terpenes that may contribute to synergistic interactions commonly described as the "entourage effect".[5] Potential supportive goals of oral cannabinoid administration include reduction of chemotherapy-associated nausea, appetite stimulation, improvement of sleep quality, attenuation of

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chronic pain, and reduction of anxiety-related symptoms. Topical formulations may include medicinal *Cannabis* infused into lipid-rich carriers such as coconut cream, shea butter, and MCT oil. These lipid matrices facilitate dermal penetration of lipophilic cannabinoids (Brunetti et al. 2020). Full-spectrum cannabinoid cream may be applied in the morning and afternoon to the hands and feet, particularly in patients experiencing chemotherapy-induced neuropathy. CBD cream may additionally be applied in the evening to support anti-inflammatory and analgesic effects.

A recent case series evaluating topical cannabinoids in chemotherapy-induced neuropathy reported improvements in pain, burning sensations, and tingling among cancer patients using topical THC- and CBD-containing preparations.[6] Although preliminary, these findings support further investigation into localized cannabinoid therapies for neuropathic symptom management. Some complementary medicine practices also report topical cannabinoid application around the nose or umbilical region for inflammatory irritation or herpes simplex lesions. However, scientific evidence supporting antiviral efficacy remains limited. Conventional antiviral agents such as acyclovir remain the standard treatment for herpes simplex infection. Because chemotherapy patients may be immunocompromised, topical applications involving mucosal tissues require caution and medical supervision.

Clinical limitations and safety considerations

Despite growing clinical interest in medicinal *Cannabis*, important limitations remain. Many studies involve small sample sizes, heterogeneous cannabinoid preparations, inconsistent dosing strategies, and variable outcome measures. Psychoactive effects associated with THC may additionally limit tolerability in some individuals. Potential adverse effects of THC include dizziness, sedation, cognitive impairment, anxiety, tachycardia, and impaired concentration. CBD may alter hepatic cytochrome P450 activity and interact with medications metabolized through CYP3A4, CYP2C9, and CYP2C19 pathways.[7] These interactions are particularly relevant in oncology patients receiving complex multidrug regimens. Furthermore, cannabinoid product composition varies substantially between manufacturers, complicating standardization and reproducibility. Long-term safety data regarding medicinal *Cannabis* use during cancer treatment remain limited, emphasizing the importance of multidisciplinary medical supervision. Importantly, current evidence does not support medicinal *Cannabis* as a curative therapy for breast cancer itself. Cannabinoids should instead be viewed as supportive therapies aimed primarily at symptom reduction and quality-of-life improvement.[2]

Conclusion

Medicinal *Cannabis* represents a promising adjunctive approach in supportive breast cancer care, particularly for management of chemotherapy-associated nausea, neuropathic pain, sleep disturbances, anxiety, and inflammatory symptoms. Oral full-spectrum THC and CBD formulations may exert multimodal effects through the ECS and related signaling pathways, while topical cannabinoid creams may offer localized symptomatic relief for chemotherapy-induced neuropathy affecting the hands and feet. Although preliminary evidence and patient-reported experiences are encouraging, current clinical data remain insufficient to establish standardized cannabinoid protocols in oncology. Future research should prioritize randomized controlled trials, pharmacokinetic studies of topical cannabinoid formulations, long-term safety evaluations, and standardized full-spectrum preparations. The integration of cannabinoid therapeutics into evidence-based oncology supportive care will require rigorous translational research and careful clinical oversight.[8]

Acknowledgments

None.

Conflicts of interest

None.

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