STM
Systematically Testing the Evidence on Marijuana

Cannabis Use Among Individuals with Cancer

By Shannon M. Nugent, PhD

It is estimated that as many as 20-50% of patients with cancer use cannabis at some point following their cancer diagnosis.[1-5] According to a 2024 publication of aggregated data from over 4,000 patients across 12 National Cancer Institute (NCI)-designated cancer centers, the most common reasons that patients with cancer use cannabis are (in decreasing order of frequency): (1) sleep, (2) pain, (3) stress and mood changes, (4) recreation, and (5) digestive problems.[6] Among this cohort, cannabis had the highest reported benefits for: (1) sleep, (2) mood, and (3) pain. Data from this same cohort suggest that 10% of individuals with cancer believe that cannabis can treat cancer itself, and about 6% use cannabis as an adjunctive or replacement treatment for cancer itself.[6]

In 2024, the American Society of Clinical Oncology (ASCO) released a guideline about cannabis use in cancer[7] which recommends that clinicians routinely and non-judgmentally ask adults with cancer about cannabis use and be prepared to hold evidence-based discussions about its health effects. Here we highlight evidence and recommendations about some common uses of cannabis among patients with cancer.

It is notable that the quality of the evidence provided below is limited by the significant heterogeneity of the populations included, as well as cannabis products studied not being representative of the variety of products that are commercially available in dispensaries, limiting the generalizability and applicability of the literature. Further complicating the landscape is the variability of state cannabis laws and available products.

Evidence Highlights

Pain

The most recent and comprehensive review examining the effectiveness of cannabis or cannabinoids for cancer-related pain, conducted in 2023, found a total of only 14 studies.[8] The authors concluded that there was moderate certainty evidence that neither nabiximols (an oromucosal spray containing THC and CBD) nor THC alone were effective in reducing pain among opioid-refractory patients with cancer. Similarly, they found low certainty evidence that neither synthetic THC nor CBD oil were effective in reducing pain. The 2023 Multinational Association for Supportive Care in Cancer (MASCC) and the 2024 ASCO guidelines do not recommend cannabis use for pain, given the evidence of limited benefit.[7,9]

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Sleep

A systematic review and meta-analysis from 2022 found most studies examining the effects of cannabis on sleep outcomes were conducted in patients with chronic non-cancer pain and a smaller number in patients with chronic cancer pain.[10] Overall, the review found moderate to high certainty evidence that cannabis or cannabinoids results in small improvements in sleep quality and sleep disturbance. The ASCO guideline does not recommend for or against the use of cannabis for sleep.

Chemotherapy-induced Nausea and Vomiting

From several systematic reviews, there is moderate evidence that dronabinol and nabiximols—synthetic cannabinoids—can be effective in reducing chemotherapy-induced nausea and vomiting.[11-13] There is low certainty evidence that a 1:1 THC:CBD ratio can be an effective antiemetic.[11,13,14] No evidence exists for cannabis and radiotherapy-induced nausea and vomiting. The ASCO Guideline recommends "weakly in favor" of use of dronabinol and nabiximols for chemotherapy-induced nausea and vomiting that are not controlled by standard antiemetics.[7]

Appetite and Weight

One systematic review of 4 trials (including several different forms of cannabinoids) concluded that there was no effect on weight gain or appetite.[15] The ASCO guideline does not recommend for or against the use of cannabis for appetite and weight.

Fatigue

Fatigue has not been examined in a trial as a primary outcome, so there is no evidence to inform whether cannabis may improve cancer-related fatigue.

Anti-Cancer

Very few studies have examined the effects of cannabis as a sole or adjunctive cancer treatment.[16-18] There is not sufficient data to draw conclusions about its effects. Given the uncertainty about the benefits and harms of cannabis as a cancer treatment, clinicians should recommend against the use of cannabis and/or cannabinoids as an anti-cancer treatment.

Anxiety or Depression

Few studies have examined cannabis or cannabinoids to improve anxiety or depression in individuals with cancer. Mood outcomes have typically been secondary outcomes in studies. Across 6 studies in patients with cancer, cannabis or cannabinoids were found not to have an effect on depression or anxiety.[19] No recommendation exists for the use of cannabis to improve mood among those with cancer.

Interactions with Immunotherapy

Due to the immunomodulating role of cannabis

on the immune system,[20] there is a plausible pathway by which cannabis may decrease the effectiveness of immunotherapy. Several small, methodologically limited studies are collectively inconclusive about the clinical importance of this theoretic interaction; two earlier cohort studies had suggested that patients who were using cannabis had decreased immunotherapy response rates,[21,22] but a more recent cohort study found that observed differences in outcomes were likely because patients with more advanced cancers were more likely to use cannabis to address symptom burden than those with less aggressive cancers.[23] Nevertheless, given the uncertainty and the theoretic concerns, the MASCC guideline recommends against the use of cannabis while on immune checkpoint inhibitors.[9]

Safety

Among those with cancer, the literature captures several potential cannabis-related harms including dizziness, sedation, dry mouth, and for a small proportion, confusion/feeling disoriented.[7] Potential harms of cannabis that have been described more broadly in non-cancer populations include increased risk of motor vehicle accident, increased risk of mania or psychosis (among those with prior history), and cannabinoid hyperemesis syndrome.

Clinical Considerations

Patient Communication and Assessment

Given the lack of data to support the recommended use of cannabis and the high prevalence of cannabis use in this population, the ASCO guideline first recommends clinicians routinely ask in a non-judgmental way about patient cannabis use to engage in informed decision making, including:

- goals of use
- formulation
- product supply
- route of administration
- dosing schedule
- perceived benefits
- perceived side effects
- concomitant medications
- cannabis use history
- sources of information on cannabis

Safety Recommendations

ASCO recommends providing consultation to patients about safety issues such as appropriate storage, not operating motor vehicles for up to 12 hours after taking cannabis and related products, as well as awareness of individual patient factors (e.g., history of substance use disorder or psychotic disorders, use of medications that may interact with the endocannabinoid system, cannabis naïve) that may increase the likelihood of cannabis-related adverse events.

Bottom Line

- Cannabis use is common among those with cancer, so it is important to ask about it.
- The best evidence for certain formulations of cannabinoids (e.g., nabiximols) are for nausea and vomiting, as well as pain, with more mixed data for other side effects of cancer treatment like sleep, quality of life, mood, and appetite. Any potential benefits should be balanced with the potential for adverse events.
- Cannabis may have short-term side effects, such as sedation, dizziness, dry mouth, confusion, or feeling high. Clinicians should also be aware of those who are potentially at higher risk for cannabis-related adverse events such as falling or psychosis.
- Cannabis or cannabinoids have not been adequately studied as a treatment for cancer and their use for this purpose should be discouraged.
- Cannabis or cannabinoids can theoretically interact with immunotherapy, and current guidelines advise against their use in patients who are on immunotherapy.
- Overall, the evidence base is limited by heterogeneity of included patient samples and study products not being representative of commercially available products, and is further complicated by differing state laws across the country.

References

1. Azizoddin DR, Cohn AM, Ulahannan SV, et al. Cannabis use among adults undergoing cancer treatment. Cancer. 2023;129(21):3498-3508. doi: 10.1002/cncr.34922.
2. McClure EA, Walters KJ, Tomko RL, Dahne J, Hill EG, McRae-Clark AL. Cannabis use prevalence, patterns, and reasons for use among patients with cancer and survivors in a state without legal cannabis access. Support Care Cancer. 2023;31(7):429. doi: 10.1007/s00520-023-07881-6.
3. Nugent S, Latour E, Lim J, Shannon J, Morasco BJ. Cannabis Use Is Associated with Pain Severity and Interference Among Cancer Survivors. Integr Med Rep. 2024;3(1):81-91. doi: 10.1089/imr.2024.0001.
4. Osaghae I, Chido-Amajuoyi OG, Khalifa BAA, Talluri R, Shete S. Cannabis Use among Cancer Survivors: Use Pattern, Product Type, and Timing of Use. Cancers (Basel). 2023;15(24). doi: 10.3390/cancers15245822.
5. Worster B, Ashare R, Meghani SH, et al. Prevalence and perceptions of cannabis use among racially diverse patients with

cancer pain: Results from a multi-site survey. Journal of Clinical Oncology. 2022;40(16_suppl):12125-12125. doi: 10.1200/JCO.2022.40.16_suppl.12125.

6. Ellison GL, Helzlsouer KJ, Rosenfield SM, et al. Perceptions, prevalence, and patterns of cannabis use among cancer patients treated at 12 NCI-Designated Cancer Centers. J Natl Cancer Inst Monogr. 2024;2024(66):202-217. doi: 10.1093/jncimonographs/lgae029.

7. Braun IM, Bohlke K, Abrams DI, et al. Cannabis and Cannabinoids in Adults With Cancer: ASCO Guideline. J Clin Oncol. 2024;42(13):1575-1593. doi: 10.1200/JCO.23.02596.

8. Hauser W, Welsch P, Radbruch L, Fisher E, Bell RF, Moore RA. Cannabis-based medicines and medical cannabis for adults with cancer pain. Cochrane Database Syst Rev. 2023;6(6):CD014915. doi: 10.1002/14651858.CD014915.pub2.

9. To J, Davis M, Sbrana A, et al. MASCC guideline: cannabis for cancer-related pain and risk of harms and adverse events. Support Care Cancer. 2023;31(4):202. doi: 10.1007/s00520-023-07662-1.

10. AminiLari M, Wang L, Neumark S, et al. Medical cannabis and cannabinoids for impaired sleep: a systematic review and meta-analysis of randomized clinical trials. Sleep. 2022;45(2). doi: 10.1093/sleep/zsab234.

11. Chow R, Valdez C, Chow N, et al. Oral cannabinoid for the prophylaxis of chemotherapy-induced nausea and vomiting-a systematic review and meta-analysis. Support Care Cancer. 2020;28(5):2095-2103. doi: 10.1007/s00520-019-05280-4.

12. Hesketh PJ, Kris MG, Basch E, et al. Antiemetics: ASCO Guideline Update. J Clin Oncol. 2020;38(24):2782-2797. doi: 10.1200/JCO.20.01296.

13. Smith LA, Azariah F, Lavender VT, Stoner NS, Bettiol S. Cannabinoids for nausea and vomiting in adults with cancer receiving chemotherapy. Cochrane Database Syst Rev. 2015;2015(11):CD009464. doi: 10.1002/14651858.CD009464.pub2.

14. Grimison P, Mersiades A, Kirby A, et al. Oral THC:CBD cannabis extract for refractory chemotherapy-induced nausea and vomiting: a randomised, placebo-controlled, phase II crossover trial. Ann Oncol. 2020;31(11):1553-1560. doi: 10.1016/j.annonc.2020.07.020.

15. Simon L, Baldwin C, Kalea AZ, Slee A. Cannabinoid interventions for improving cachexia outcomes in cancer: a systematic review and meta-analysis. J Cachexia Sarcopenia Muscle. 2022;13(1):23-41. doi: 10.1002/jcsm.12861.

16. Caputo MP, Rodriguez CS, Padhya TA, Mifsud MJ. Medical Cannabis as Adjunctive Therapy for Head and Neck Cancer Patients. Cureus. 2021;13(9):e18396. doi: 10.7759/cureus.18396.

17. Twelves C, Sabel M, Checketts D, et al. A phase 1b randomised, placebo-controlled trial of nabiximols cannabinoid oromucosal spray with temozolomide in patients with recurrent glioblastoma. Br J Cancer. 2021;124(8):1379-1387. doi: 10.1038/s41416-021-01259-3.

18. Hanganu B, Lazar DE, Manoilescu IS, et al. Controversial Link between Cannabis and Anticancer Treatments-Where Are We and Where Are We Going? A Systematic Review of the Literature. Cancers (Basel). 2022;14(16). doi: 10.3390/cancers14164057.

19. De Feo G, Case AA, Crawford GB, et al. Multinational Association of Supportive Care in Cancer (MASCC) guidelines: cannabis for psychological symptoms including insomnia, anxiety, and depression. Support Care Cancer. 2023;31(3):176. doi: 10.1007/s00520-023-

07628-3.

20. Khoury M, Cohen I, Bar-Sela G. "The Two Sides of the Same Coin"-Medical Cannabis, Cannabinoids and Immunity: Pros and Cons Explained. Pharmaceutics. 2022;14(2). doi: 10.3390/pharmaceutics14020389.

21. Bar-Sela G, Cohen I, Campisi-Pinto S, et al. Cannabis Consumption Used by Cancer Patients during Immunotherapy Correlates with Poor Clinical Outcome. Cancers (Basel). 2020;12(9). doi: 10.3390/cancers12092447.

22. Taha T, Meiri D, Talhamy S, Wollner M, Peer A, Bar-Sela G. Cannabis Impacts Tumor Response Rate to Nivolumab in Patients with Advanced Malignancies. Oncologist. 2019;24(4):549-554. doi: 10.1634/theoncologist.2018-0383.

23. Waissengrin B, Leshem Y, Taya M, et al. The use of medical cannabis concomitantly with immune checkpoint inhibitors in non-small cell lung cancer: A sigh of relief? Eur J Cancer. 2023;180:52-61. doi: 10.1016/j.ejca.2022.11.022.

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