Olanzapine and Cannabis Can Help Manage Nausea During Chemotherapy

Recent studies showed that a drug approved for schizophrenia and a cannabis extract relieved nausea and improved quality of life.

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Olanzapine, a medication typically used to treat psychiatric conditions, helped control severe nausea among breast cancer patients undergoing chemotherapy, according to research presented at the American Society of Clinical Oncology (ASCO) Quality Care Symposium in San Francisco. Another recent study found that adding a cannabis extract to standard treatment relieved chemotherapy-induced nausea and vomiting.

Nausea and vomiting are common symptoms of many cancer medications and radiation therapy. These side effects can lead to inadequate nutrition and weight loss; contribute to anxiety, depression and poor sleep; interfere with daily activities; and may cause some patients to stop treatment prematurely. A wide variety of anti-nausea medications (antiemetics) are available. People who use chemotherapy with a high risk for nausea may need to combine multiple antiemetics that work in different ways. Guidelines recommend starting these medications prior to or at the same time as chemotherapy—known as prophylaxis—rather than waiting until nausea occurs.

“Chemotherapy-induced nausea is a highly prevalent and distressing side effect of chemotherapy, which significantly impairs patients’ quality of life,” ASCO expert Oreofe Odejide, MD, MPH, of the Dana-Farber Cancer Institute, said in a news release. “The findings of this study position olanzapine as a promising intervention for patients with refractory chemotherapy-induced nausea.”

Anti-Nausea Medications

Luke Peppone, PhD, of the University of Rochester Medical Center, and colleagues evaluated the effectiveness of two antipsychotic medications, olanzapine (Zyprexa) and prochlorperazine (Compazine), during chemotherapy. Both drugs, which target receptors in the brain that trigger nausea, are included in ASCO’s guidelines for managing nausea, but it is unclear which works better.

This Phase III trial (NCT03367572) enrolled more than 1,300 women with breast cancer. The median age was approximately 51 years, and about 80% were white. The patients first received standard antiemetic drugs during their first cycle of chemotherapy. Of these, 310 nonetheless experienced at least moderate nausea (a score of 3 or higher on a scale of 1 to 7) and were randomly assigned to add either olanzapine, prochlorperazine or a placebo to the standard antiemetics during their next chemo cycle. They recorded their level of nausea in a diary four times a day, as well as the number of vomiting episodes, nausea medications taken and visits to an emergency department.

Both olanzapine and prochlorperazine significantly reduced nausea during chemotherapy, decreasing average nausea scores by about 1.0 point, while placebo recipients reported a 0.5-point decline. However, olanzapine was more effective than prochlorperazine for patients with severe nausea. Olanzapine recipients saw a 2.6-point decrease in their maximum nausea score compared with a 2.0-point decline for prochlorperazine recipients. Women who received olanzapine—but not those who got prochlorperazine—also reported a significant improvement in their overall quality of life compared with the placebo group.

“These important findings highlight the potential for olanzapine to provide more effective relief for patients who suffer from severe nausea despite standard antiemetic treatments,” Peppone said. “This is valuable evidence for health care providers to help guide treatment strategies….This could ultimately make the chemotherapy experience more tolerable and manageable, contributing to better overall outcomes and patient satisfaction.”

Cannabis Extract

In the second study, published in the in the Journal of Clinical Oncology, Peter Grimison, MBBS, PhD, MPH, of Chris O’Brien Lifehouse in Sydney, and colleagues evaluated the efficacy of an oral cannabis extract in adults who experienced refractory nausea or vomiting during IV chemotherapy despite using guideline-consistent antiemetic prophylaxis.

Prior research has shown that cannabis is widely used by people with cancer. Although medical marijuana studies have been limited by federal restrictions, a research review by the National Academies of Sciences, Engineering and Medicine concluded that cannabis and its components can reduce chronic pain and help manage chemotherapy-induced nausea.

This Phase II/III trial enrolled 147 evaluable patients between 2016 and 2022. People who were currently using marijuana outside the study were excluded, as were those unable to avoid driving—a challenge in rural areas that lack public transportation. For standard antiemetic therapy, 97% received a corticosteroid (such as dexamethasone) and a 5-HT3 antagonist (such as ondansetron), 80% received a NK-1 antagonist (such as aprepitant) and 10% received olanzapine.

The participants were randomly assigned to add oral capsules containing 2.5 milligrams each of tetrahydrocannabinol (THC) and cannabidiol (CBD)—two active components of marijuana—or placebo capsules three times daily on days 1 to 5 of the first chemotherapy cycle after study

entry. They then crossed over to the opposite assignment for the second cycle and chose the regimen they preferred for the third cycle. They could increase their dose depending on tolerance, and the most common dose was two capsules thrice daily.

Participants who received the THC/CBD capsules were three times more likely than placebo recipients to experience a complete response, meaning no vomiting or retching and no use of rescue medications after the first cycle of chemotherapy (24% versus 8%, respectively). Those who received the cannabis extract were also more likely to report no significant nausea (20% versus 7%), had fewer daily vomiting episodes (0.2 versus 0.5) and had higher scores on a nausea quality-of-life questionnaire.

There were no serious adverse events attributed to the cannabis extract, but THC/CBD recipients reported more frequent bothersome side effects than those in the placebo group, including sedation (18% versus 7%), dizziness (10% versus 0%) and temporary anxiety (4% versus 1%). Two people discontinued THC/CBD due to neuropsychiatric side effects after the first dose.

As for limitations of the study, the researchers noted that many participants completed their chemotherapy within one or two cycles after enrollment, so this trial was not able to provide information about longer-term efficacy over multiple cycles. Only 10% were treated with olanzapine, which is now included in standard antiemetic therapy in clinical practice guidelines.

“THC/CBD is an effective adjunct for chemotherapy-induced nausea and vomiting despite standard antiemetic prophylaxis but was associated with additional adverse events,” the study authors concluded. “Drug availability, cultural attitudes, legal status and preferences may affect implementation.”

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