

Dronabinol is an effective adjunct to antiemetic regimens during cancer treatment in several populations of patients with cancer. However, it has been used little in central nervous system (CNS) cancers because of concerns regarding potential CNS adverse events. This secondary analysis explored CNS adverse events reported by adults with primary brain tumors while receiving dronabinol during chemotherapy. The occurrence of CNS adverse events in this population was similar to that reported by patients in other oncology populations.

#### AT A GLANCE

- CNS adverse events from dronabinol therapy are similar in adults with primary brain tumors and those with other cancer diagnoses.
- CNS adverse events attributed to dronabinol therapy include somnolence, dizziness, cognitive disturbance, and aphasia.
- Dronabinol therapy may be a useful adjunct to standard antiemetic therapy in adults with primary gliomas.

#### KEYWORDS

chemotherapy-induced nausea and vomiting; dronabinol; adverse events

#### DIGITAL OBJECT IDENTIFIER

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# Dronabinol Therapy

## Central nervous system adverse events in adults with primary brain tumors

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Chemotherapy-induced nausea and vomiting (CINV) remains a symptom priority for clinicians and patients (National Comprehensive Cancer Network [NCCN], 2018; Oncology Nursing Society [ONS], 2017). Although CINV management has improved through antiemetic regimens of corticosteroids, serotonin antagonists, neurokinin-1 receptor antagonists, and atypical antipsychotic agents, it is estimated that more than 20% of patients receiving chemotherapy report breakthrough, refractory, or delayed CINV (Tafelski, Häuser, & Schäfer, 2016).

Cannabinoids act on endogenous cannabinoid receptors in the cerebral cortex and may promote a synergistic effect when combined with first- or second-line antiemetics. The combination may be a useful adjunct therapy for management of CINV (Todaro, 2012). Although cannabinoids have shown effectiveness for CINV management, their side-effect profile, particularly for central nervous system (CNS) side effects, has limited their use.

Survival rates for most cancers, including primary brain tumors (PBTs), have increased because of technological advances in diagnosis and treatment (Ostrom et al., 2018). Unique to patients with PBTs, effects from tumor location, cerebral edema, or medications may increase CINV risk, particularly for breakthrough, refractory, or delayed CINV (Affronti et al.,

2016). Although most neuro-oncology treatments are not highly emetogenic, new complex treatment regimens have increased emetogenic potential and require thoughtful management (NCCN, 2018; ONS, 2017). This secondary analysis of a pilot study examining the efficacy of low-dose dronabinol therapy for CINV management aims to describe CNS adverse events among adults with PBTs.

#### Methods

The study was approved by the Duke University Institutional Review Board. Adults aged 18 years or older were recruited from the Preston Robert Tisch Brain Tumor Center at Duke Cancer Institute in Durham, North Carolina. Inclusion criteria were as follows:

- PBT histologic confirmation of World Health Organization grade 3 or 4
- Karnofsky Performance Status (KPS) score of 80% or greater, which reflects that the patient maintains normal activity
- Life expectancy of greater than six months

Enrollment was limited to patients who were receiving treatment with chemotherapy. Exclusion criteria consisted of the following:

- Premorbid neurologic conditions (e.g., stroke, head injury, multiple sclerosis)
- Global aphasia
- Unmanaged psychiatric disease
- Premorbid history of alcohol or drug addiction or illicit drug use within previous three months