

# Cisplatin-Based Therapy and CINV

## Optimal antiemetics during germ cell testicular cancer treatment

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**BACKGROUND:** Cisplatin-based chemotherapy regimens are the backbone of chemotherapy for germ cell testicular cancer. Cisplatin is administered for five days, causing an overlap of acute and delayed chemotherapy-induced nausea and vomiting (CINV). Although CINV is widely researched, studies involving multiday chemotherapy regimens are limited.

**OBJECTIVES:** This article synthesizes the research in antiemetics used in multiday cisplatin-based chemotherapy regimens and provides recommendations to optimize antiemetic therapy.

**METHODS:** A literature review was conducted for articles examining antiemetics in multiday cisplatin-based chemotherapy regimens. Results were synthesized, and findings were applied to existing antiemetic strategies.

**FINDINGS:** Although an optimal regimen has not been identified, patients receiving multiday cisplatin chemotherapy should have an antiemetic administered on each day of chemotherapy and two to three days after chemotherapy. Antiemetics should include an NK<sub>1</sub> antagonist, 5-HT<sub>3</sub> receptor antagonist, and dexamethasone.

### KEYWORDS

cisplatin; antiemetics; germ cell testicular cancer; nausea; vomiting; chemotherapy

### DIGITAL OBJECT IDENTIFIER

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**THE QUALITY OF LIFE OF PATIENTS WITH CANCER** can be negatively affected by chemotherapy-induced nausea and vomiting (CINV) and further complicate their ability to tolerate chemotherapy and adhere to planned chemotherapy regimens. Cisplatin is categorized as highly emetogenic chemotherapy (HEC), with 90% frequency of emesis if antiemetics are not administered (National Comprehensive Cancer Network [NCCN], 2017). According to Lorusso (2016), nausea remains the side effect with the highest impact on quality of life among patients undergoing chemotherapy. Uncontrolled nausea and vomiting can lead to dehydration, electrolyte imbalances, and nutritional deficits (NCCN, 2017). The most significant risk factor associated with CINV is the chemotherapeutic agent being used to treat the cancer.

CINV is classified into three groups based on time of onset of nausea and vomiting: anticipatory, acute, and delayed (Hesketh, 2017). Anticipatory emesis is a learned response that occurs in patients who experienced uncontrolled CINV in previous chemotherapy cycles. Acute emesis occurs in the first 24 hours after chemotherapy and typically begins within hours of treatment if appropriate antiemetics are not administered. Delayed emesis is any episode of emesis that begins more than 24 hours after chemotherapy and is most common with high-dose cisplatin chemotherapy. Understanding the different timing of nausea and vomiting is crucial to optimizing antiemetic therapy. Because chemotherapy is given with curative intent for patients with germ cell testicular cancer, avoiding any potential treatment delays from dehydration, poor performance status, or poor compliance with chemotherapy is critical.

Cisplatin-based combination chemotherapy regimens have resulted in a cure rate of greater than 90% for patients with germ cell testicular cancer (Chabner et al., 2011). Cisplatin is classified as HEC regardless of dose; therefore, any regimens containing cisplatin chemotherapy require proper antiemetics to prevent CINV (NCCN, 2017). The previously standard antiemetic regimen consisting of a serotonin (5-hydroxytryptamine) receptor antagonist (5-HT<sub>3</sub>RA) and dexamethasone results in prevention of nausea and vomiting episodes in fewer than 60% of patients (Hamada et al., 2014). Managing CINV during multiday cisplatin regimens is more challenging because patients are vulnerable to nausea and vomiting on all five days of therapy and at risk of overlapping acute and delayed nausea throughout their