

# Delayed Chemotherapy-Induced Nausea and Vomiting in the Hematology Population: A Review of the Literature

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**Background:** Chemotherapy-induced nausea and vomiting (CINV) is one of the most bothersome problems experienced by patients with cancer and results in serious complications. Considerable progress has been made in the management of acute CINV, but many patients receiving chemotherapy still complain of delayed nausea. In particular, delayed CINV affects patients in the hematology population who typically undergo several frontline chemotherapy regimens, multiday conditioning regimens, and salvage treatments. However, no international guidelines exist for the prevention of CINV in this population.

**Objectives:** This article provides a literature review of the pathophysiologic mechanisms of delayed CINV as well as the etiologies, assessment strategies, and potential therapies in this population.

**Methods:** A narrative review of the literature was performed.

**Findings:** Nurses fulfill an important role in the assessment of delayed symptoms by ensuring adequate measurement of the duration, frequency, severity, and distress caused by nausea, vomiting, and retching. A systematic assessment of retching, in addition to nausea and vomiting, that involves patients' assessment of their own symptoms may enhance the accuracy of clinical reports, leading to improved tolerability of chemotherapy and patient quality of life. In addition, nurses may actively contribute to the development of specific guidelines for hematologic malignancies and a patient risk factor algorithm for optimizing the tolerability of chemotherapy.

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Key words: nausea; vomiting; antiemetics; antineoplastic agents; guidelines; hematology

Digital Object Identifier: 10.1188/15.CJON.438-443

Cancer treatments may cause a wide range of side effects that negatively affect quality of life (QOL) (Baltori & Roila, 2003) and, occasionally, survival. In particular, chemotherapy-induced nausea and vomiting (CINV) is a bothersome and common problem associated with cancer treatment and may cause complications such as electrolyte imbalance, dehydration, and malnourishment (Navari, 2013). Chemotherapy is better tolerated by well-nourished patients who have fewer episodes of low blood counts and infection, experience fewer treatment delays, are able to tolerate higher doses of chemotherapy, and have better QOL (Bozzetti, 2001). Therefore, the management of nausea and vomiting (NV) should be considered in all phases of treatment.

Despite treatment progress and the introduction of new drugs like palonosetron, a second-generation 5-hydroxytryptamine 3 (5-HT<sub>3</sub>) receptor antagonist, and aprepitant, a neurokinin-1 receptor (NK-1R) antagonist, delayed CINV still affects about half of all patients undergoing moderately emetogenic chemotherapy (MEC) or highly emetogenic chemotherapy (HEC) (Aapro et al., 2012). Poor management of CINV may lengthen the hospital stay, increase medical costs, and contribute to a patient's physical and mental deterioration.

The incidence of delayed CINV is often underestimated by healthcare professionals. A study by Grunberg et al. (2004) showed that, although physicians and nurses accurately predicted the incidence of acute CINV, more than 75% underestimated