# Optimizing Treatment Outcomes in Patients at Risk for Chemotherapy-Induced Nausea and Vomiting

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Prevention of chemotherapy-induced nausea and vomiting (CINV) is crucial in maximizing patients' quality of life and optimizing outcomes of cancer therapy, and can be done more effectively than ever before. Appropriate antiemetic therapy combined with targeted patient education, clear communication, and management of patient expectations results in optimal emetogenic control. Oncology nurses play a critical role in the prevention and management of CINV. This column reviews the history and pathophysiology of treatments for CINV, as well as patient- and chemotherapy-specific risk factors that should be considered to optimize treatment outcomes in patients with CINV.

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Similar to realtors' mantra of "location, location, location," oncology nurses should have the mantra "prevention, prevention, prevention" foremost on their minds when assessing and developing a plan of care for controlling chemotherapy-induced nausea and vomiting (CINV). Patients with cancer often approach chemotherapy treatment with preconceived ideas about what their experience will entail. Many recall difficult experiences of older family members who received treatment before the development of newer antiemetic regimens. Despite advances in oncology care, many people still believe that all patients who receive chemotherapy will experience intractable vomiting.

According to the National Comprehensive Cancer Network (NCCN, 2012a), prevention of nausea and vomiting is the primary goal of antiemetic treatment for all patients receiving cancer therapy. Patients who experience nausea or vomiting despite the use of prophylactic antiemetics frequently require additional medications, hydration, and sometimes hospitalization. Poorly controlled nausea or vomiting associated with chemotherapy increases risk of developing anticipatory nausea and vomiting, which ranges from 18%–57% in incidence (NCCN, 2012a). The primary strategy in treating anticipatory nausea and vomiting is prevention through the consistent use of optimal antiemetic therapy beginning with the initial cycle of treatment (NCCN, 2012a).

Prevention of CINV is pivotal when attempting to maximize patient quality of life during treatment. A study of patients with breast cancer who received aggressive antiemetics demonstrated improved appetite, better control of nausea and vomiting, and subsequent improved quality of life (Roldán et al., 2008). Patients receiving chemotherapy with a goal of cure must receive full doses of standard chemotherapy on schedule to achieve optimal outcomes (Bonadonna et al., 2005). Management of symptoms, including nausea and vomiting, is crucial to preventing delays in treatment related to dehydration or hospitalizations.

## Background

The stereotypes of intractable nausea and vomiting related to chemotherapy originated in past decades when the only available antiemetics were corticosteroids and drugs such as dopamine receptor antagonists, metoclopramide, phenothiazines, and antihistamines. Those agents were significantly less effective than the 5-hydroxytryptamine ($5\text{-HT}_3$) receptor antagonists that were approved for use in the 1990s (Saito & Tsukuda, 2010). Although the

TABLE 1. Incidence of Nausea and Vomiting Associated With Major Chemotherapeutic Regimens

| Tumor Type | Treatment Regimen | Nausea % | Vomiting % |
|---|---|---|---|
| Breast (Martin et al., 2005) | TAC | 81 | 45 |
| Colorectal (Tournigand et al., 2004) | FOLFOX 6 | 67 | 42 |
| Lung (Mok et al., 2009) | Carboplatin + paclitaxel | 44 | 33 |
| Ovarian (Vasey et al., 2004) | Carboplatin + docetaxel | 78 | 37 |

FOLFOX 6—oxaliplatin + leucovorin + 5-fluorouracil; TAC—docetaxel + doxorubicin + cyclophosphamide