Integrating Aprepitant and Palonosetron Into Clinical Practice: A Role for the New Antiemetics

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Chemotherapy-induced nausea and vomiting (CINV) are among the most feared side effects of cancer treatment. With increasingly more complex chemotherapy treatments, CINV plays an important role in determining patients' quality of life, as well as when to halt potentially lifesaving therapy. Although significant progress has been made in the treatment of CINV, patients undergoing chemotherapy continue to report that this side effect is persistent and distressing. In 2003, two new agents were added to the armamentarium of antiemetic therapy. The U.S. Food and Drug Administration approved palonosetron, a longer-acting serotonin antagonist, and aprepitant, a neurokinin-1 antagonist and the first in a new class of antiemetics, for the treatment of CINV. Although the indications for both agents are similar, they have distinct differences. Decisions regarding placement of these agents into existing antiemetic protocols can be based on national guidelines, review of the literature, and clinical experience. This article will review current antiemetic therapy with an emphasis on the new additions to the treatment of CINV. Aprepitant and palonosetron represent significant changes in the treatment of CINV. Oncology nurses need to know current approaches to maximize effective antiemetic therapy.

Chemotherapy-induced nausea and vomiting (CINV) can be devastating for patients with cancer; in fact, patients in several studies consistently have rated CINV as among the most common and debilitating symptoms of treatment (Coates et al., 1983; Roscoe, Morrow, Hickok, & Stern, 2000). These dismal patient ratings have persisted despite the addition of serotonin antagonists since the early 1990s (Gralla, 2002). Prior to the addition of the first serotonin antagonist, ondansetron, CINV management focused primarily on dopamine antagonist agents. Although ondansetron and subsequent serotonin antagonists played a significant role in decreasing the incidence of CINV, patients still ranked these symptoms as highly distressing. In one study of patients receiving chemotherapy and serotonin antagonists, the antiemetics led to a reduction in vomiting, yet the duration of post-treatment nausea increased (Roscoe et al.). Although management of CINV has improved, these symptoms still are a considerable challenge for many patients undergoing therapy (Kris, 2003).

The inadequate control of CINV can increase healthcare costs because of the need for hydration, repletion of electrolytes lost during vomiting, or hospital admission (Ihbe-Heffinger et al., 2004; Stewart, Dahrouge, Coyle, & Evans, 1999). The addition of the serotonin antagonists triggered worries about the potential for increased medication expenditure for hospital formulary budgets; however, improved control of CINV can lead to decreased healthcare costs (Stewart et al.). The inclusion of the most recently released antiemetics, aprepitant and palonosetron, likely will raise concern about increased antiemetic costs. The appropriate use of these agents, along with practice guidelines, will help to define their role in the armamentarium of antiemetic therapy.

Pathophysiology of Emesis

CINV can be classified as anticipatory, acute, or delayed. Treatment of these separate conditions may differ; therefore, poor control of acute nausea and vomiting plays an important role in ultimate control of delayed CINV (Dibble, Israel, Nussey, Casey, & Luce, 2003). Many different neurotransmitters have been implicated in CINV, including dopamine, acetylcholine, histamine, serotonin, and most recently substance P and the neurokinin-1 (NK-1) receptor antagonists (Hogan & Grant, 1997; Navari, 2003). Because of this, a combination approach in antiemetic therapy typically is used.

Anticipatory Emesis

Anticipatory nausea and vomiting occur prior to the

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