

CONTINUING EDUCATION

Compatibility and Stability of 5-HT₃ Receptor Antagonists: A Pharmacology Review

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Purpose/Objectives: To compare stability and compatibility among the 5-HT₃ antiemetics in multidrug cytotoxic regimens.

Data Sources: Published articles, product-prescribing information, and direct communication with manufacturers.

Data Synthesis: Stability and compatibility of ondansetron and granisetron with a variety of other agents used in the oncology setting generally are similar. Granisetron is compatible with all tested Y-site drugs; ondansetron is not compatible with amsacrine or fluorouracil. Information for dolasetron is not as readily available; therefore, comparisons are difficult to make.

Conclusion: Although 5-HT₃ receptor antagonists have made a significant impact in decreasing severe emesis, administration of complex regimens can be confusing at best for nurses because of the lack of compatibility data. By partnering with pharmacists, nurses can develop administration guidelines to minimize complications and improve outcomes.

Implications for Nursing: To maximize patients' outcomes, oncology nurses must be knowledgeable about stability and compatibility of complex multidrug regimens that include the commonly used 5-HT₃ receptor antagonist antiemetics.

Chemotherapy is one of the most common causes of iatrogenic nausea and vomiting in patients with cancer. Highly emetogenic agents, such as cisplatin, induce nausea and vomiting in 90% or more of patients (Craig & Powell, 1987; Love, Leventhal, Easterling, & Nerenz, 1989; Nightengale & Mauch, 1998; Rakel, 1999). Prior to the 1990s, standard therapy for chemotherapy-induced nausea and vomiting mainly consisted of dopaminergic-blocking agents (e.g., metoclopramide, phenothiazines) combined with dexamethasone and lorazepam (Johnson, Moroney, & Gay, 1997; San Angel, 1993). However, the dopaminergic agents often caused distressing side effects, including extrapyramidal symptoms, dystonia, diarrhea, and sedation. The introduction of the 5-HT₃ receptor antagonists in the early 1990s increased effective emetic control in chemotherapy recipients.

Key Points . . .

- ▶ Oncology nurses must be aware of the incompatibilities of 5-HT₃ receptor antagonists to safely manage complex multidrug regimens.
- ▶ Physical and chemical incompatibility information often is difficult to evaluate and incorporate into clinical practice.
- ▶ Review of drug compatibilities and stabilities with commonly used 5-HT₃ receptor antagonists will prevent administration complications.
- ▶ Nurses' knowledge of compatibilities can minimize the need for multiple venous access sites.

Goal for CE Enrollees:

To further enhance nurses' knowledge regarding compatibility and stability of 5-HT₃ receptor antagonists.

Objectives for CE Enrollees:

- On completion of this CE, the participant will be able to
1. Discuss the stability and compatibility of 5-HT₃ receptor antagonist antiemetics in polyvinyl chloride containers.
 2. Discuss the stability and compatibility of 5-HT₃ receptor antagonist antiemetics at Y-sites.
 3. Discuss the nursing implications in the administration of multidrug regimens including the 5-HT₃ receptor antagonists.

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