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Is Ondansetron More Effective Than Granisetron for Chemotherapy-Induced Nausea and Vomiting? A Review of Comparative Trials

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Nausea and vomiting are two of the most distressing side effects of chemotherapy. Guidelines recommend the use of 5-HT_3 receptor antagonists as a pharmacologic intervention for acute and delayed nausea and vomiting for moderately and highly emetogenic chemotherapy. Although newer antiemetics and 5-HT_3 receptor antagonists are available, ondansetron and granisetron still are used widely. A review of the literature was conducted to identify trials that compared the antiemetic efficacy of ondansetron and granisetron. Studies were identified by searching the PubMed®, EMBASE™, Ovid MEDLINE®, CINAHL®, and Evidence-Based Medicine Reviews databases. The six studies reviewed in this article were either a meta-analysis; a randomized, controlled trial; or another type of research study published from 2000 to date. The results reported in the studies reveal that ondansetron and granisetron have equal antiemetic efficacy in reducing or eliminating chemotherapy-induced nausea and vomiting (CINV), with the evidence classified as good based on U.S. Preventive Services Task Force criteria for judging the strength of the overall evidence. Although side effects of ondansetron and granisetron have been reported, they normally are mild and of brief duration, not severe or lasting enough to warrant discontinuation.

In 2007, more than 1.4 million new cancer cases are expected to be diagnosed in the United States (American Cancer Society, 2007). Chemotherapy is a primary treatment for cancer and often causes nausea and vomiting. Accurate estimates of the occurrence of CINV are difficult to determine because the incidence is dependent on multiple factors (Bender et al., 2002; Rhodes & McDaniel, 2004). In multicenter studies, more than 35% of patients experienced acute nausea, with delayed nausea and vomiting occurring in 43%–60% (Grunberg et al., 2004; Lindley et al., 2005). For highly emetogenic chemotherapies, one series of controlled clinical trials found that 98% of patients developed acute CINV and that 61% developed delayed CINV ("ASHP Therapeutic Guidelines," 1999). See Figure 1 for a list of commonly used emetogenic chemotherapies.

Nausea and vomiting are two of the most distressing side effects reported by patients receiving chemotherapy. Because CINV is a significant clinical problem that negatively affects the quality of life and treatment experiences of patients (Grunberg et al., 2004; Olver, 2005), healthcare practitioners should adhere to evidence-based practice guidelines to ensure sound, consistent treatment approaches. Several practice guidelines address CINV ("ASHP Therapeutic Guidelines," 1999; Cancer Care Ontario, 2003; Gralla et al., 1999; National Comprehensive Cancer Network [NCCN], 2007; NCCN & American Cancer Society, 2005). The guidelines are updated regularly to incorporate the latest research findings from the professional literature (see the reference list for Web sites where the guidelines can be found). Recently, Tipton et al. (2006, 2007) summarized

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