Infusion Site Reactions

Classification in the setting of fosaprepitant administration with chemotherapy

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BACKGROUND: Studies report a wide range of incidence and severity of infusion site adverse events (ISAEs) following fosaprepitant administration.

OBJECTIVES: The purposes of this study were (a) to determine the incidence of suspected extravasation in patients with cancer receiving fosaprepitant infusions with chemotherapy and (b) to determine whether the documented signs, symptoms, and management strategies aligned with the diagnostic criteria for extravasation versus non-extravasation ISAEs.

METHODS: Electronic health records were used to identify patients who received fosaprepitant infusion with chemotherapy and had documentation for suspected extravasation. Chart reviews were conducted for a sample of patients to determine whether documentation was consistent with extravasation.

FINDINGS: About 3% (n = 460 of 15,667) of patients who received fosaprepitant had documentation for suspected extravasation. Among a random sample of patients (N = 110) with suspected extravasation, 6% (n = 6) had documentation consistent with extravasation.

KEYWORDS
fosaprepitant; antiemetic agents; vesicant chemotherapy; extravasation

DIGITAL OBJECT IDENTIFIER
10.1188/20.CJON.E79-E84

CHEMOTHERAPY-INDUCED NAUSEA AND VOMITING is a common adverse event that can negatively affect a patient's quality of life and result in poor adherence or discontinuation of treatment (Schwartzberg, 2018). Oncology nurses frequently administer highly emetogenic chemotherapeutic agents to patients. To prevent nausea and vomiting, patients on emetogenic chemotherapy receive a variety of prophylactic antinausea regimens involving a combination of many drugs, such as palonosetron administered via IV push, dexamethasone administered via IV push bolus (IVPB), fosaprepitant administered via IVPB, or aprepitant administered orally (Aapro et al., 2015). Fosaprepitant and aprepitant both prevent nausea and vomiting in the delayed setting up to two weeks postchemotherapy and were shown in a randomized clinical trial to have similar efficacy (Grunberg et al., 2011).

In response to issues with patient adherence and insurance coverage of the oral preparation, aprepitant, the authors' National Cancer Institute (NCI)–designated comprehensive cancer center changed its standard practice to IV administration of fosaprepitant in 2013. After this practice change, nurses identified an increased incidence of infusion site adverse events (ISAEs), as evidenced by increases in erythema and swelling noted upon assessment, patient use of call bells to report pain, use of warm packs to alleviate symptoms, and patient reports of pain, swelling, and redness during post-treatment telephone calls (A. Segna, personal communication, July 24, 2017).

Fosaprepitant infusion has known side effects, including fatigue, diarrhea, neutropenia, asthenia, anemia, peripheral neuropathy, leukopenia, dyspepsia, urinary tract infection, and pain in the extremity (Merck, 2016). In addition, several studies (see Table 1) have reported that, for fosaprepitant infusion delivered via peripheral IV, the incidence of ISAEs is much higher than the 2.2%–3% reported in the package insert and the 2.7% reported in a large trial of 2,247 patients (Grunberg et al., 2011; Merck, 2016). These studies reported an ISAE incidence that ranged from 6% to as high as 67% in patient populations who were treated with a variety of chemotherapeutic agents (Chau et al., 2019; Gonçalves et al., 2017; Hegerova et al., 2014; Leal et al., 2014; Lundberg et al., 2014; Sato et al., 2014). ISAEs occur when drugs leak outside the vein, causing symptoms such as infusion site pain, erythema, swelling, and/or phlebitis to the site. The administration of irritant drugs can