

 Paclitaxel is a high-alert IV oncology medication that causes hypersensitivity reactions (HSRs) in 10%–40% of infusions, predominantly during the first or second infusion. Although paclitaxel has been a common medication in cancer treatment regimens for decades, the literature fails to address the safest approach for administration to minimize HSRs. Oncology teams may implement different methods of administration. To address safety concerns and inconsistent findings in the literature, an advanced oncology clinical nurse specialist initiated a team-based quality improvement project. This retrospective study included chart reviews to assess organizational outpatient practices and documentation for paclitaxel administration. Results from this project were the basis for reinstating a standard order set, which includes titration during the first and second paclitaxel infusions to maximize patient safety.

AT A GLANCE

- Best practices in administration of paclitaxel infusions may vary among oncology settings.
- Retrospective chart reviews support organizational quality improvement initiatives and foster a culture of patient safety.
- Standard order sets that include titration of medication are recommended to minimize HSRs in paclitaxel infusions.

KEYWORDS

paclitaxel; infusion; hypersensitivity reaction; patient safety; standing order set

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Hypersensitivity Reactions

Practice recommendations for paclitaxel administration

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The Perlmutter Cancer Center (PCC), which is a National Cancer Institute–designated comprehensive cancer center, has multiple locations throughout New York; nine of these sites include outpatient infusion centers where paclitaxel infusions are administered. In these settings, about 80% of nurses are certified through the Oncology Nursing Certification Corporation. Prior to the start of this study, ordering physicians and oncology nurses differed in their approach to minimizing hypersensitivity reactions (HSRs) and safeguarding patients during paclitaxel infusions. An advanced oncology clinical nurse specialist (S.M.) at the institution initiated an interprofessional, team-based quality improvement project. After conducting a literature review and obtaining institutional review board approval, a retrospective chart review was conducted to assess differences in current oncology practice.

Hypersensitivity Reactions

Paclitaxel, a high-alert chemotherapy medication, has traditionally been administered in the outpatient setting. Paclitaxel was developed in the 1960s, and research trials began in the 1980s (Bernabeu et al., 2017). The taxane family of medications may cause HSRs in 10%–40% of paclitaxel infusions, primarily during the first or second administration (Pagani et al., 2019; Parinyanitikul et al., 2018; Picard, 2017; Wu, 2019). Although paclitaxel has been used

in chemotherapy regimens for decades, HSRs remain a challenge in clinical practice. The literature review regarding best practices for safe paclitaxel administration to minimize the risk of HSRs revealed this significant omission, and this finding was validated by the health sciences librarian at New York University (NYU) Langone Health.

Administration Practices

During the Oncology Nursing Society’s (ONS’s) 43rd Annual Congress™, an abstract was presented describing one institution’s adaptation of a standardized, stepwise titration protocol (Patton & Hedgpeth, 2018). The abstract’s authors identified a significant decrease in the occurrence of HSRs in their patient population during a three-month period. Otani and Castells (2020) and Pagani et al. (2019) determined that individuals who have experienced an HSR may benefit from skin testing prior to initiating a desensitization regimen. Otani and Castells (2020) also discovered that skin testing was more beneficial to those receiving platinum agents than taxanes because of non-immunoglobulin E–mediated reactions. Multiple articles have addressed best practices for the management of HSRs, including the use of alternate therapies with less incidence of HSRs (Banerji et al., 2014; Chou et al., 2020; Pradelli et al., 2020).

Variations in practice exist because of the absence of literature to support an established best practice regarding administration of paclitaxel. This reality was