Drug Reactions and Desensitization to Chemotherapeutic Agents: An Overview and Case Study

Maura Price, MSN, RN, AOCNS®

Certain chemotherapy agents have an increased potential to cause allergic reactions. These reactions can vary in severity from mild to severe, and a change in treatment may be suggested for the patient to avoid the causative agent going forward. This can lead to suboptimal treatment and a change from first-line therapy to a second-line therapy. In certain scenarios, drug desensitization may be considered to allow for continued administration of a standard-of-care chemotherapy agent to cure or palliate a patient's cancer.

AT A GLANCE

- Allergic reactions to oncology medications are common and seen daily on inpatient and outpatient units.
- Reactions can be distressing to patients, and, depending on the severity of the reaction, desensitization may be indicated.
- Oncology nurses can educate and reassure patients about the safety of desensitization procedures.

KEYWORDS
drug desensitization; reactions; oncology; chemotherapy

DIGITAL OBJECT IDENTIFIER
10.1188/24.CJON.360-365

The American Cancer Society estimated that there would be more than two million new cancer cases in the United States in 2024, an all-time high (Collins, 2024). Many patients diagnosed with cancer will seek treatment for their disease with systemic therapy. Recent advances in oncology include a plethora of new drugs, some of which use the patient's immune system to fight the cancer, whereas others have a specific target to stop the cancer cells from growing (e.g., a variant, an antigen, an enzyme, or a pathway that has gone awry within cancer cells) (Brooks, 2023; Olsen et al., 2023). The Cancer Research Catalyst Staff (2024) noted that 2023 brought approvals for 45 oncology drugs, 17 of which were new to the market. Despite newer therapies that have led to more personalized cancer care, standard chemotherapy agents continue to be used as first and subsequent lines of therapy for treating cancer with the intent of stopping or controlling the disease (National Comprehensive Cancer Network [NCCN], 2024b).

Reaction Risk Identification

Common chemotherapy drugs given in acute and ambulatory oncology units that have high reaction rates include the following: platinum-based drugs (carboplatin, oxaliplatin, cisplatin), taxanes (paclitaxel, docetaxel), etoposide, bleomycin, pegaspargase, and doxorubicin hydrochloride liposome (Olsen et al., 2023). Knowing a drug's reaction risk and when reactions are commonly encountered with that agent (e.g., with first or second dose versus after multiple exposures and cycles) is a first step in being proactive and ready to manage a reaction.

Oncology nurses can be prepared with several best practice suggestions prior to starting any chemotherapy regimen, including reviewing and reconciling patient allergies; reviewing each medication in the regimen, including the reaction potential of all drugs; administering premedications as ordered and maintaining efficacy time periods (e.g., at least 30–60 minutes); and having a plan in place to intervene immediately with the onset of reaction symptoms. Nurse-driven protocols that include appropriate interventions and specific medications to combat the reaction are helpful and allow for immediate treatment of the patient without having to wait for a physician's orders (NCCN, 2024b; Olsen et al., 2023). Reactions can start as mild but quickly progress