Biphasic and Delayed Hypersensitivity Reactions: Implications for Oncology Nursing

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Oncology nurses are well versed in the administration of chemotherapy and management of associated side effects. The side effects range from mild and easily managed to severe and potentially dose limiting, such as hypersensitivity reactions (HSRs). Although severe HSRs are not common and can be seen with any agent, some treatments or medications are associated with much higher risks, such as monoclonal antibodies. Anaphylaxis usually is uniphasic in nature; however, 20% of reactions are biphasic, with symptoms resurging after initial resolution of the original reaction. Some reactions can be delayed, occurring after repeated infusions or presenting days to weeks after the original drug administration. For specific patients, a protracted period of anaphylaxis may occur beyond 24 hours. This article describes the proposed pathophysiology for biphasic and delayed HSRs, as well as management strategies for anaphylaxis. Case reports will illustrate patient presentations for biphasic and delayed HSRs. Oncology nurses must be aware of the risk for HSRs and understand the difference in presentation for biphasic and delayed anaphylactic reactions.

Hypersensitivity reactions (HSRs) may occur with any medication, but the incidence in the literature varies; generally, HSRs are believed to occur in 5% of patients receiving oncology drugs (Weiss, 2001). However, specific agents carry much higher risks and have been associated with fatal reactions (see Table 1). Monoclonal antibodies, in general, are associated with a higher risk for HSRs and are seen increasingly in nononcology settings as well as in the treatment of patients with cancer. Although many of the reactions occur with the first dose of therapy, patients may react in later infusions; therefore, clinicians and oncology nurses must be alert to the possibility of reaction. Patients who develop significant HSRs may not be able to receive necessary therapy because of the risk of worsening reactions or even death (Castells, 2008; Ciesielski-Carlucci, Leong, & Jacobs, 1997; El-Shanawany, Williams, & Jolles, 2008).

Most HSRs occur immediately or shortly after drug administration and are called uniphasic reactions. Uniphasic reactions usually respond to medical management; however, some patients will develop a resurgence of the initial symptoms (i.e., symptoms appear to have improved but redevelop 30 minutes to several hours later) despite treatment of the original reaction, which then is called a biphasic reaction. Several commonly used chemotherapy agents increase the risk for HSRs with continued and repeated use (termed delayed reactions), thus limiting the agents' effectiveness in specific patients. In particular, platinum agents can cause patients to develop increased incidences of HSRs with multiple courses of therapy (Castells, 2008). Because carboplatin is an effective therapy for ovarian cancers in initial and recurrent disease therapies, patients who develop moderate to severe HSRs may not be able to receive a beneficial therapy. Oxaliplatin, a useful agent in the treatment of patients with colorectal cancer in the adjuvant and metastatic setting, also is known for late-onset HSRs, often

At a Glance

- Biphasic hypersensitivity reactions (HSRs), although uncommon, may occur in patients with cancer and can have significant sequelae.
- Risk factors for biphasic HSRs with specific monoclonal antibodies include comorbid cardiac and pulmonary conditions.
- Delayed cutaneous reactions and serum sickness have been linked to specific patients receiving monoclonal antibodies.

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