Oxaliplatin

Detection and management of hypersensitivity reactions

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BACKGROUND: Oxaliplatin is used extensively for the treatment of gastrointestinal cancer and other malignancies, with increased frequency of use in recent years. Hypersensitivity reactions (HSRs) can pose a major problem in clinical practice because they can limit the use of oxaliplatin in the care of malignancies in which it has proven efficacy. Nurses play an integral role in the administration of oxaliplatin; therefore, they need to be well educated in the prevention, detection, and management of HSRs.

OBJECTIVES: This article reviews the symptoms of HSRs associated with oxaliplatin, the specific management of HSRs associated with oxaliplatin, the role of desensitization, and the potential use of skin testing to better identify patients at risk for HSR.

METHODS: This article reviews the literature related to the diagnosis, prevention, and management of HSRs associated with oxaliplatin and outlines nurses' role.

FINDINGS: Oxaliplatin HSRs can occur at any cycle, but patients are at highest risk after they have received six prior infusions of oxaliplatin.

KEYWORDS
hypersensitivity reaction; oxaliplatin; infusion reaction

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HYPERSENSITIVITY REACTIONS (HSRs) ARE A MAJOR PROBLEM in the administration of cancer treatment, because this toxicity can affect the treatment's future use as a safe option for the patient. HSRs can range in severity from mild to life-threatening, and they are graded and defined by the *Common Terminology Criteria for Adverse Events* ([CTCAE], version 5.0) (see Table 1). Other grading scales have been recommended because of the difficulty in the CTCAE scale not being able to predict future risk with desensitization. Although HSRs are not a new issue, much is unknown regarding the prevention and management of HSRs. There are no established guidelines in the diagnosis and management of HSRs of chemotherapy, targeted therapy, or immunotherapy agents. Nurses continue to query other nurses for management strategies for HSRs, and this is often a topic of discussion in the Oncology Nursing Society Communities.

Oxaliplatin is an alkylating agent that interacts with DNA to form intrastrand/interstrand DNA crosslinks that affect DNA base pairing, replication, and gene transcription, ultimately causing cell death (Kim et al., 2012). This cytotoxic agent is used extensively for the treatment of gastrointestinal and gynecologic cancers, and its use has been increasing during the past decade (Okayama et al., 2015). Despite wide-ranging activity in a variety of cancers, oxaliplatin treatment can be limited by several toxicities, most commonly peripheral sensory neuropathy, cytopenias, gastrointestinal toxicity, fatigue, and the potential for HSRs (Sanofi-Aventis, 2015). In the management of gastrointestinal malignancies, not a lot of equivalent agents with different or decreased toxicity can be used instead of oxaliplatin (Parel et al., 2014). How often oxaliplatin is discontinued because of an HSR is not well known, because not all studies report the discontinuation rate; however, some studies have reported an approximate discontinuation rate of 21% (Yanai et al., 2012). Without many equivalent agents that can replace oxaliplatin in treatments for patients, the occurrence of HSRs can have a huge impact on the care of patients with gastrointestinal cancers.

The overall incidence of oxaliplatin HSR ranges from less than 2% to 25% in various studies and does not appear to be associated with a particular oncologic diagnosis (Brandi et al., 2003; Gowda, Goel, Berdzik, Leichman, & Javle, 2004; Okayama et al., 2015; Shibata et al., 2009). The incidence of reactions to oxaliplatin is increasing at a rate parallel to that of the increased use of oxaliplatin (Brandi et al., 2003; Lee et al., 2007; Maindrault-Goebel et al., 2005). The risk of grade 3–4 reactions is about 1.6%, whereas life-threatening reactions occur in about 1% of cases (Joerger, 2012; Parel et al., 2014).