Chemotherapy-Induced Peripheral Neuropathy: A Review and Implications for Oncology Nursing Practice

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Advances in supportive care have increased the likelihood that previously less common adverse effects of chemotherapy will be more evident. The incidence of chemotherapy-induced peripheral neuropathy (CIPN) is increasing because more neurotoxic drugs have been developed and because patients are living longer and receiving multiple chemotherapy regimens. This article reviews the anatomy of the peripheral nervous system, the proposed mechanisms of CIPN, and manifestations of CIPN from vinca alkaloids, taxanes, and platinum analogs. Major topics of this article are evidence-based data regarding symptom management, a review of medical management, and a synthesis of nursing care for patients at risk for or experiencing CIPN.

At a Glance

✦ Understanding the peripheral nervous system is important because it is sensitive to the effects of neurotoxic agents.

✦ Vincristine, taxanes, and platinum analogs most commonly cause bilateral sensory neuropathy in a stocking-glove distribution.

✦ Nurses need some understanding regarding medical management, such as altering chemotherapy doses, administering drugs that may decrease neuropathy, and planning and implementing skilled care of patients at risk for or experiencing chemotherapy-induced peripheral neuropathy.

The Peripheral Nervous System

A brief review of PNS structures and functions is useful to understand the pathophysiologic mechanisms of CIPN. The PNS and CNS transmit, integrate, interpret, and respond to information from the external and internal environments. The CNS (brain and spinal cord) is protected by the blood-brain vascular barrier that inhibits diffusion of large molecules, highly charged ions, and many drugs from the bloodstream into CNS tissues (Willis, 2000). A similar vascular barrier does not protect the...