

# Chemotherapy-Induced Peripheral Neuropathy: Assessment of Oncology Nurses' Knowledge and Practice

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Oncology nurses involved in the administration of chemotherapy are in an ideal position to assess chemotherapy-induced peripheral neuropathy (CIPN). CIPN is defined as damage to peripheral, motor, sensory, and autonomic neurons as a result of exposure to toxic chemotherapy agents that inactivate the mechanisms necessary to maintain the metabolic needs of the axon (Postma & Heimans, 2000). Clinical manifestations of CIPN may include burning, tingling, numbness, and electrical shock sensations; impaired muscle tone, coordination, and position sense; altered sense of touch, pain, and temperature; constipation; postural hypotension; and diminished deep tendon reflexes, among others. Neuropathic pain may be a consequence of CIPN but is seldom assessed as a unique component of the chemotherapy experience. Detecting early symptoms of CIPN may prevent patient injury, minimize progression of symptoms and complication rates through earlier interventions, and alleviate patient anxiety related to symptoms and sensations associated with CIPN. Patients may not spontaneously report CIPN symptoms and related pain without being prompted; therefore, oncology clinicians should incorporate assessment of neuropathy and neuropathic pain into routine practice (Smith, Beck, & Cohen, 2008). The impact of CIPN on a patient's activities of daily living and quality of life also should be considered in the evaluation. For ease of discussion, neuropathic pain and CIPN are used interchangeably in this article.

Research specific to nurses' knowledge and assessment of CIPN and neuropathic pain is limited. Neuropathy and neuropathic pain often are included under the more generalized topic of pain. Nurses' practice behaviors and knowledge pertaining to neuropathic pain should be isolated and studied because the etiology of neuropathic (nerve) pain differs from that of nociceptive (tissue) pain; therefore, nursing assessment and management of CIPN also require a different approach.

Physicians, pharmacists, and other healthcare team members rely on nurses' ability to accurately assess pain to improve pain management (Xue, Schulman-Green, Czaplinski, Harris, & McCorkle, 2007). Identify-

**Purpose/Objectives:** To explore oncology nurses' practice behaviors and knowledge of chemotherapy-induced peripheral neuropathy (CIPN) in the assessment of patients with cancer.

**Design:** Cross-sectional, exploratory.

**Setting:** Two hospital-based outpatient chemotherapy clinics in Baltimore, MD.

**Sample:** Self-selected convenience sample of 39 oncology nurses.

**Methods:** Completion of the principal investigator-developed questionnaire consisting of 16 knowledge and 16 practice-behavior items, 8 instruction and perception items, and a 9-item demographic survey.

**Main Research Variables:** CIPN assessment practice behaviors and knowledge; tool reliability.

**Findings:** The mean CIPN knowledge score of 12.6 (SD = 1.7) demonstrated knowledge deficits (maximum score of 16). All respondents indicated CIPN assessment is essential in their oncology role, but 75% rated their CIPN assessment skills as fair to poor. Assessment practices did not routinely include neurologic physical assessment. In addition, 82% believed CIPN is a significant problem for patients. Cronbach alpha for the tool was 0.84.

**Conclusions:** Results indicated participants had knowledge deficits pertaining to CIPN and lacked training, proficiency, and confidence in neurologic physical assessment. Education and training programs are needed to improve knowledge and neurologic assessment skills.

**Implications for Nursing:** To date, CIPN nursing assessment guidelines do not exist. Practice guidelines for CIPN nursing assessment and management should be efficient and appropriate to the role of the chemotherapy infusion oncology nurse working in a busy setting where chair turnover time, accuracy, safety, and quality service are competing priorities.

ing whether knowledge and practice deficits exist in this assessment process can assist in the development of educational interventions to address those learning needs and help establish practice guidelines that ultimately impact clinical oncology nursing practice. Improving nurses' knowledge and assessment skills related to neuropathic pain can significantly contribute to the well-being of their patients (Herr, 2004).