

# Chemotherapy-Induced Peripheral Neuropathy: Assessment and Treatment Strategies for Advanced Practice Providers

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Chemotherapy-induced peripheral neuropathy (CIPN) is a common and debilitating side effect of numerous anticancer agents. CIPN can persist as chronic pain or sensory symptoms for months to years after discontinuation of the anticancer agent, affecting a patient's quality of life, function, and morbidity. Although treatment recommendations are limited because of insufficient evidence, many pharmacologic and nonpharmacologic therapies are being explored to prevent and treat CIPN.

## AT A GLANCE

- CIPN can affect patients' morbidity, function, and quality of life.
- Treatment for CIPN varies based on patients' presentation of sensory, motor, and autonomic symptoms and goals of care to relieve pain or improve function.
- Advanced practice providers can appropriately diagnose and manage the long-term side effects of chemotherapies, such as CIPN, to improve patients' physical and psychosocial well-being.

## KEYWORDS

chemotherapy-induced peripheral neuropathy; side effect management; pain

## DIGITAL OBJECT IDENTIFIER

10.1188/24.CJON.351-357

Chemotherapy-induced peripheral neuropathy (CIPN) is a common side effect of chemotherapy that can persist for months to years after the discontinuation of therapy, contributing to reduced function and quality of life for patients with cancer (Li et al., 2021; Yoon & Oh, 2018). Seretny et al. (2014) conducted a large systematic review with 4,179 patients and found that the prevalence of CIPN after chemotherapy was 68% at one month, 60% at three months, and 30% at six months. The most common types of anticancer therapies associated with CIPN include platinum-based drugs (e.g., cisplatin, carboplatin, oxaliplatin), vinca alkaloids (e.g., vincristine, vinblastine, vinorelbine, vindesine), taxanes (e.g., paclitaxel, docetaxel), proteasome inhibitors (e.g., bortezomib), and immunomodulators (e.g., thalidomide). Colon and breast are the most common cancers associated with CIPN (Dan et al., 2024; Klafke et al., 2023; Li et al., 2021; Loprinzi, 2021; Yoon & Oh, 2018). Patients' symptoms may vary based on the type of anticancer agent administered (see Table 1).

The presentation of CIPN can range from sensory symptoms, such as numbness, tingling, neuropathic (radiating or shooting) pain, and/or cold sensitivity; to motor symptoms, such as muscle weakness, cramping, difficulties with fine motor movement, and/or foot drop; to autonomic symptoms, such as dizziness, orthostatic hypotension, erectile dysfunction, urinary retention, dysphagia, constipation, or difficulties with hearing (Dan et al., 2024; Kanzawa-Lee, 2020; Knoerl, 2021; Li et al., 2021; Loprinzi, 2021). These symptoms can result in impaired mobility, balance, gait, and function, which further increase a patient's risk of falls (Loprinzi, 2021). Patients with CIPN often report interference in social functioning, sleep, and work, which can negatively affect quality of life and psychological well-being (Dan et al., 2024; Dongxue et al., 2024). Patients with CIPN were also found to spend about \$17,344 more in healthcare costs than a control group (Pike et al., 2012).

As patients with cancer are living longer, greater attention is needed to diagnose and treat the long-term side effects of oncologic treatment, specifically CIPN. Advanced practice providers (APPs) must identify patients