

Chemotherapy-Induced Peripheral Neuropathy Assessment Tools: A Systematic Review

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No financial relationships to disclose. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the Oncology Nursing Society.

Haryani and Hsu contributed to the conceptualization and design and provided statistical support. Haryani, Wu, and Hsu completed the data collection. Haryani, Fetzer, and Hsu provided the analysis and contributed to the manuscript preparation.

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Submitted March 2016. Accepted for publication September 27, 2016.

Keywords: psychometric; chemotherapy; peripheral neuropathy; assessment

ONF, 44(3), E111–E123.

doi: 10.1188/17.ONF.E111-E123

Problem Identification: Chemotherapy-induced peripheral neuropathy (CIPN) is a dose-limiting chemotherapy toxicity, which has a long-lasting effect and decreases quality of life. Although several tools have been developed to detect CIPN, the study quality, psychometric properties, and practicality of CIPN assessment tools have not been systematically reviewed.

Literature Search: Electronic searches using keywords were conducted in Medline, PubMed, CINAHL®, and Cochrane Library for articles published from 1980–2015. Eligible studies were included if they involved patients with cancer receiving chemotherapy, provided CIPN assessment tools with psychometric properties, and were published in English.

Data Evaluation: Data were extracted, and study quality was assessed. CIPN tools were evaluated in terms of psychometric properties and practicality.

Synthesis: A total of 19 studies describing 20 tools were reviewed. The quality of studies varied from strong to weak. The validity ranged from low to high, and the reliability with internal consistency ranged from 0.56–0.96. Poor inter-rater agreement was found. Not all of the tools were deemed practical.

Conclusions: Considering the psychometric properties and practicality, two tools (Functional Assessment of Cancer Therapy/Gynecologic Oncology Group–Neurotoxicity [FACT/GOG-Ntx] and Total Neuropathy Score [TNS]) are recommended for assessing CIPN.

Implications for Nursing: Routine assessment of CIPN and choosing appropriate assessment tools are imperative. The FACT/GOG-Ntx and TNS are recommended for clinical use.

Chemotherapy-induced peripheral neuropathy (CIPN) is a type of neuropathic pain that results from chemotherapy toxicity. A systematic review and meta-analysis involving 4,179 patients revealed a CIPN prevalence of 68% in the first month after chemotherapy, 60% within three months, and 30% within six months or longer, with prevalence associated with different chemotherapy drugs (Seretny et al., 2014). Several chemotherapy agents lead to CIPN, including platinum-based agents, taxanes, epothilones, and vinca alkaloids, as well as more recent agents like bortezomib (Velcade®) and lenalidomide (Revlimid®) (Hershman et al., 2014). Sensory and motor nerve damages are common features of CIPN that influence individuals' quality of life (Hausheer, Schilsky, Bain, Berghorn, & Lieberman, 2006). Sensory damages are the predominant symptoms of CIPN, including paresthesia, numbness and tingling, dulled sensations in the peripheral nerves, burning and shooting pain, or electric shock-like pain (Cavaletti & Marmiroli, 2015; Visovsky, Collins, Abbott, Aschenbrenner, & Hart, 2007). Motor damage can be manifested as weakness, gait and balance disturbance, and difficulty with fine motor skills (Visovsky et al., 2007). The incidence of CIPN is influenced by age,