Chemotherapy-Induced Peripheral Neuropathy Assessment Tools: A Systematic Review

Haryani Haryani, BSN, MSc, Susan Jane Fetzer, RN, PhD, CNL, Ching-Lin Wu, RN, MSN, and Yu-Yun Hsu, RN, PhD

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.

**Problem Identification:** 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 (Hauser, 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,