Chemotherapy-Induced Peripheral Neuropathy

Association with increased risk of falls and injuries

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BACKGROUND: Chemotherapy-induced peripheral neuropathy (CIPN) is a debilitating and degenerative side effect of many commonly used chemotherapy agents. Symptoms manifest as sensory and motor neuropathies. CIPN may necessitate chemotherapy dose reduction or discontinuation.

OBJECTIVES: This review intends to summarize literature linking CIPN to an increased risk of falls and injuries and provides recommendations to help maintain patient safety and maximize physical function.

METHODS: A literature search was conducted using MEDLINE®, PubMed®, and ScienceDirect.

FINDINGS: Assessment of CIPN and CIPN-related falls and injuries is vital in preventing related complications, and proper education of oncology nursing staff on CIPN assessment and management is necessary.

KEYWORDS
chemotherapy-induced peripheral neuropathy; functional impairment; falls

DIGITAL OBJECT IDENTIFIER
10.1188/19.CJON.405-410

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CHEMOTHERAPY-INDUCED PERIPHERAL NEUROPATHY (CIPN) is a common and potentially disabling side effect of several antineoplastic agents that treat cancer, such as platinum agents, taxanes, vinca alkaloids, thalidomide, and bortezomib (Cioroiu & Weimer, 2017). Its pathophysiology is not well understood. Development of CIPN may necessitate chemotherapy dose reduction or cessation, leading to poorer cancer-related outcomes. A meta-analysis of 31 studies related to the prevalence of CIPN after treatment with various precipitating chemotherapy agents reported that CIPN prevalence was 68% within the first month of the end of chemotherapy, 60% within three months, and 30% at six months or later (Seretny et al., 2014). Another study showed that 47% of female cancer survivors continued to report symptoms of CIPN six years after chemotherapy cessation (Winters-Stone et al., 2017).

Clinical manifestations of CIPN can include numbness, tingling, or burning; exaggerated sensations (neuropathic pain); decrease of muscle tone and coordination; and loss of balance. In general, CIPN begins distally in the fingers and toes and moves through the extremities (Tofthagen, Visovsky, & Hopgood, 2013). CIPN seems to affect men and women equally (Winters-Stone et al., 2017). Complications stemming from CIPN symptoms include reduced quality of life, falls, and other injuries. This review aims to summarize literature linking CIPN to an increased risk of falls and injuries and provides several evidence-based suggestions for providers to help maintain patient safety and maximize physical function.

Methods

A literature review was conducted using MEDLINE®, PubMed®, and ScienceDirect to determine the risk of falling and other injuries as a consequence of CIPN, as well as associated assessments, treatments, and interventions. Search terms included the following: *chemotherapy-induced peripheral neuropathy*, *CIPN*, *assessment*, *falls*, *injuries*, and *functional impairment*. A total of 15 articles published from 2013 to 2019 were selected from the 408