Persistent Chemotherapy-Induced Peripheral Neuropathy (CIPN) Is Common in Female Cancer Survivors, Altering Gait and Increasing Falls

Summary includes updated data not in the abstract
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ASCO Perspective

"Chemotherapy-induced peripheral neuropathy is a common and often under-recognized symptom among the thousands of cancer survivors in the U.S. and worldwide," said Merry-Jennifer Markham, MD, ASCO Spokesperson and moderator of today’s presscast. “Studies like this shed new light on the fact that CIPN has significant, measurable implications for a patient’s physical function and long-term health. This knowledge will allow us to improve and tailor rehabilitation as needed.”

ALEXANDRIA, Va. – A new study of women cancer survivors indicates that 45% still have CIPN symptoms years after completing cancer treatment. CIPN was associated with worse physical functioning, poorer mobility, and a nearly two-fold higher risk of falls. While more research is needed, these findings may inform rehabilitation and fall prevention interventions tailored to persons with CIPN. The study will be presented at the upcoming 2016 Cancer Survivorship Symposium in San Francisco.

“We can’t dismiss neuropathy as a treatment side effect that goes away, because symptoms persist for years in nearly half of women,” said lead study author Kerri M. Winters-Stone, PhD, a research professor at Oregon Health and Science University in Portland, Oregon. “While there are no
effective treatments for this side effect, rehabilitative exercise programs may preserve physical functioning and mobility in the presence of neuropathy to help prevent falls and resulting injuries.”

Depending of the type of chemotherapy received, an estimated 57-83% of patients will have signs of CIPN at some point during or after their care. It is not possible to predict which patient will develop CIPN or how long the symptoms will last. As there are no reliable tools for early detection of CIPN in routine cancer care, it is often not found until the symptoms are debilitating.

According to the authors, this is one of the first studies that explored the relationship between CIPN and physical functioning, including risk of falls. The researchers assessed data from 462 women enrolled in exercise intervention trials designed to address fractures and falls in women cancer survivors. The majority (71%) of the women had breast cancer, and others had lung, colorectal, ovarian, or blood cancers.

At an average of six years since cancer diagnosis, 45% of the women still reported some symptoms of CIPN, such as loss of feeling in their hands and feet. Having CIPN symptoms was associated with significantly poorer physical functioning and more self-reported difficulty doing activities of daily living, such as cooking and shopping.

In addition, women with CIPN had altered gait (walking) patterns and a nearly twice as high risk of falling, compared to women without CIPN symptoms. Falls can cause injury, fractures, and possibly earlier death.

The researchers found that women with CIPN have specific underlying impairments that put them at risk for falls, which may be different from the impairments that occur with other conditions, or old age. For example, CIPN does not cause muscle weakness but rather has a distinct effect on movement and gait patterns. In this study, women with CIPN had difficulty rising from a chair, possibly because their brain does not get enough information from their feet about how quickly or forcefully to stand up.

Based on these findings, the authors argue that commonly recommended exercise, such as walking, may be safer for women with CIPN when done on a treadmill with handrails instead of outdoors because their altered gait puts them at increased risk of falling. Machine-based resistance training may also not be beneficial because neuropathy does not decrease leg strength. Instead, rehabilitation efforts should focus on improving balance during upright movement, and specific gait training.

If symptoms of CIPN are detected early, cancer treatments could potentially be changed to prevent these debilitating problems from occurring, or early rehabilitation interventions can be started. Dr. Winters-Stone and her research team are developing a portable, smartphone-driven
device that patients can use to detect and quantify symptoms of neuropathy, such as gait and balance impairments.

Men with cancer are as likely to experience CIPN as women. As of now, however, there are less research data on CIPN and physical functioning specifically in men.

This study was supported through grants from the National Cancer Institute, American Cancer Society, and Susan G. Komen for a Cure Foundation.

View the full abstract.

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Click here to view the disclosures for the News Planning Team.

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