Letter to the Editor

Balance training as a promising intervention for reducing the risk of fall in elderly patients with chemotherapy-induced peripheral neuropathy

Sir,

One of the common side effects of chemotherapy is chemotherapy-induced peripheral neuropathy (CIPN), which is experienced by approximately 70% of elderly patients receiving chemotherapy. CIPN results from sensory and motor neuropathy caused by the neurotoxic chemotherapeutic agents. It can lead to numbness, ataxia, diminished deep tendon reflex, reduced sense of touch, balance instability, and decreased sensitivity of proprioception in the affected area as well as decrease of somatosensory feedback and altered walking patterns.[1] For this reason, CIPN can lead to sensory loss and reduced muscle strength and thus it can contribute to an increased risk of falling in elderly patients undergoing chemotherapy.[2] On the other hand, the elderly patients undergoing cancer therapies may have a higher risk for falls due to anemia, generalized weakness, muscle weakness, and poor performance status. However, a common reason of fall in these individuals is peripheral neuropathy, which can lead to balance instability with standing or walking.[1]

Falling is a significant event for all of the older people, either healthy or sick. However, it has a considerable impact on the elderly patients under cancer treatment and thus it should be prevented. While most signs and symptoms of CIPN, such as pain, can be reduced or treated with medication, there is no approved medication for preventing the risk of fall (ROF) in those elderly patients. Therefore, it is imperative that new methods of preventing fall in both elderly patients undergoing cancer treatment and cancer survivors are explored.

Given that most of the interventions for preventing ROF in elderly patients come from community-dwelling older adults with chronic disease such as diabetes,[3] it seems that those interventions may have the potential to prevent fall related to the CIPN in elderly patients.[4] In this regard, among complementary and nonpharmacological interventions, strength and balance training (BT) shows promising results to reduce the ROF due to neuropathy.[3,5] However, the absence of studies evaluating the effect of BT for preventing the ROF in elderly patients with CIPN is profoundly felt.

The common methods of BT that appear to be suitable for elderly patients are proprioceptive training, lower limb strength training, progressive resistance training, muscle power building exercises, weight training, and mixed sports training. There is convincing evidence that these interventions could improve the lower limb strength and walking ability of elderly patients with diabetic neuropathy by improving the balance function and stability[3-5] and therefore it seems that they may reduce ROF in elderly patients with CIPN.

Considering the high incidence of falling in patients with CIPN and high burden of falling in elderly patients with advanced cancer and potential benefits of BT in the neuropathy, an intriguing question emerges that warrants further investigation. Could BT reduce the ROF in elderly patients with CINP? However, because of limited evidence, the efficacy of BT to reduce CIPN is not conclusive and further research is needed. It seems that BT may be beneficial in the prevention of fall related to the CINP in elderly patients undergoing chemotherapy, since this nonpharmacological intervention can be used as an effective, inexpensive, innovative, and safe intervention. Therefore, further well-designed clinical trials are warranted to determine the effectiveness of BT in reducing the ROF in patients with CINP.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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Access this article online

Website: www.cancerjournal.net
DOI: 10.4103/jcrt.JCRT_83_18

Cite this article as: Mortazavi H. Balance training as a promising intervention for reducing the risk of fall in elderly patients with chemotherapy-induced peripheral neuropathy. J Can Res Ther 2019;15:1192-3.

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