



9. Recommendations

This section is based on a review of the cited integrated reviews and clinical practice guidelines published on peripheral neuropathy (see Section 4 & 5).

Practice

Evidence suggests that toxicity-grading scales alone are inadequate in the early detection of chemotherapy-induced peripheral neuropathy. Consensus is lacking regarding what scale to use and there is inconsistent interpretation of toxicity scale information by clinicians and researchers.

- Employ clinical assessment using objective and subjective neuromuscular data to enhance the early detection of chemotherapy-induced peripheral neuropathy in addition to toxicity rating scales.
- Use a consistent method or scale to assess peripheral neuropathy, allowing for individual follow-up of neurologic changes over time.
- Assessment parameters should include subjective sensations of the presence of burning, pain, numbness, tingling. Objective assessment for motor and sensory signs such as gait, balance, muscle strength, proprioception, vibration, deep tendon reflexes and pinprick. Autonomic signs of neuropathy such as orthostatic blood pressure, pulse variation and Valsalva's maneuver should also be assessed routinely.
- Range of motion and resistance exercises may be helpful with reinnervation and in combating muscle weakness.
- Assess whether assistive devices are needed to improve gait and balance.

Education

- All patients should receive information regarding the specific neurotoxic effects expected from their chemotherapy regimen.
- All patients receiving neurotoxic chemotherapy should be taught motor, sensory, and autonomic neurologic signs and symptoms to report to their healthcare providers.
- Nurses caring for patients with cancer need ongoing training in the conduct and interpretation of clinical measures of neuropathy (i.e., deep tendon reflexes, muscle strength measurement, and grading).

Research

- Consensus still is lacking as to what specific factors are most important in determining the severity of peripheral neuropathy. Further research is needed to examine which signs and symptoms, and the degree of symptomatology, are most indicative of functional impairment resulting from neuropathy.
- Reach a consensus on a definition of neuropathy and use consistent measures that are reliable and valid to permit study result comparisons. A standard definition of the physiological changes that comprise a diagnosis of chemotherapy-induced peripheral neuropathy is lacking but necessary to advance the science in this area. Using the same consistent reliable and valid



measures would eliminate some of the methodological issues inherent in the current CIPN research.

- Development of a comprehensive peripheral neuropathy scale that includes subjective, objective and quality-of-life impact specific to peripheral neuropathy is needed.
- Research is needed regarding the neuropathy experience in diverse and older populations.
- Studies of chemotherapeutic agents may need to be replicated using newer agents and/or dose-dense treatment schedules to appropriately determine the amount and severity of peripheral neuropathy.
- Studies of the effects of known neurotoxic cancer agents when administered to individuals with pre-existing neuropathies (e.g., diabetes, HIV-neuropathy) are needed.
- Studies examining the relationship between the development of peripheral neuropathy and cancer treatment adherence are needed.
- Further trials of neuroprotective agents, calcium and magnesium infusions and neurotrophic factors are needed before these agents can be recommended for routine use in practice.

References:

- Armstrong, T., Almadrones, L & Gilbert, M. (2005). Chemotherapy-Induced Peripheral Neuropathy. *Oncology Nursing Forum*, 32(2), 305-311. "ONS Member Access" link to <http://www.ons.org/publications/journals/ONF>
- Hensley, M., Schuchter, L., Lindley, C., Meropol, N., Cohen, G., Broder, G., Gradishar, W., Green, D., Langdon, R., Mitchell, R.B., Negrin, R., Szatrowski, T., Thigpen, J.T., Von Hoff, D., Wasserman, T.H., Winer, E.P. & Pfister, D.G. (1999). American Society of Clinical Oncology Clinical practice guidelines for the use of chemotherapy and radioprotectants. *Journal of Clinical Oncology*, 17(10), 3333-3355.
- Herbison, G.J. & Jaweed, M.N., Ditunno, J.F. (1983). Acetylcholine sensitivity and fibrillation potentials in electrically stimulated crush-denervated rat skeletal muscle. *Archives of Physical Medicine and Rehabilitation*, 64, 217-220.
- Paulson, L. & Kilmer, D. (2001). Orthotic management in peripheral neuropathy. *Advances in the Diagnosis and Management of Peripheral Nerve Disease*, 12(2) 433-445.
- Postma, T., Heimans, J., Muller, M., Ossenkopple, G., Vermorken, J., & Aronson, N. (1998). Pitfalls in grading severity of chemotherapy induced peripheral neuropathy. *Annals of Oncology*, 9, 739-744.
- Postma, T., & Heimans, J. (2000). Grading of chemotherapy-induced peripheral neuropathy. *Annals of Oncology*, 11, 509-513.
- Quasthoff, S. & Hartung, H.P. (2002). Chemotherapy-induced peripheral neuropathy. *Journal of Neurology*, 249, 9-17.
- Richardson, J.K., Sandman, D. & Vela, S. (2001). A focused exercise regimen improves clinical measures of balance in patients with peripheral neuropathy. *Archives of Physical and Medical Rehabilitation*, 82, 205-209.