Cardiovascular Toxicity Associated With Cancer Treatment

Pamela Hallquist Viale, RN, MS, CS, ANP, AOCNP®, and Deanna Sanchez Yamamoto, RN, MS, CS, ANP, AOCNP®, are nurses familiar with many of them (Yeh et al., 2004). Additional risk factors can place patients at an increased risk for toxicity, including the cumulative effects of multiple chemotherapeutic agents that increase toxicity risk as well as existing medical conditions that can predispose a patient to cardiovascular damage. Cancer occurs more frequently in older adults and, because cardiac disease is more prevalent in this population, cardiotoxicity associated with cancer therapies is an increased concern (Chanan-Khan, Srinivasan, & Czuczman, 2004). In addition, many patients now have a prolonged survival or life expectancy after cancer therapy and clinicians should view cardiovascular toxicity as a long-term side effect (Meinardi et al., 2000). Serious long-term cardiotoxic effects, such as congestive heart failure (CHF), have been noted with several specific types of cancer after therapy, including breast and testicular. According to Pinder, Duan, Goodwin, Hortobagyi, and Giordano (2007), women aged 66–70 years who received anthracyclines in the adjuvant setting, presented with significantly higher incidences of CHF over 10 years of follow-up. Therefore, decisions regarding initial adjuvant therapies should take into account potential long-term cardiotoxic effects of the treatment (Partridge, Burstein, & Winer, 2001).

Patients present in many different ways with cardiovascular effects associated with the various agents used in cancer treatment. Some of the effects include myocardial infarction, myocarditis or pericarditis, cardiomyopathy, arrhythmias or changes in cardiac conduction, hypertension, and changes in electrocardiographic readings (Chanan-Khan et al., 2004).

Changes can be acute or chronic and may appear years after therapy is completed (Chanan-Khan et al.).

Oncology nurses should increase their awareness of the cardiac toxicities that are associated with standard chemotherapeutic agents can product cardiotoxic effects as well.

Laboratory tests, such as electrolytes, blood counts, liver, thyroid, and B-type natriuretic peptide assay, are used to determine heart failure in patients on specific chemotherapy treatments.

Oncology nurses should be aware of the various risks for heart failure in patients with cancer and assess and monitor for early signs and symptoms of toxicity.

At a Glance

- Although cardiotoxicity is a well-known side effect of specific traditional chemotherapy agents, some newer targeted therapy agents can produce cardiotoxic effects as well.
- Laboratory tests, such as electrolytes, blood counts, liver, thyroid, and B-type natriuretic peptide assay, are used to determine heart failure in patients on specific chemotherapy treatments.
- Oncology nurses should be aware of the various risks for heart failure in patients with cancer and assess and monitor for early signs and symptoms of toxicity.

Pamela Hallquist Viale, RN, MS, CS, ANP, AOCNP®, is an oncology nurse practitioner, consultant, and assistant clinical professor in the Department of Physiological Nursing at the University of California, San Francisco; and Deanna Sanchez Yamamoto, RN, MS, CS, ANP, AOCNP®, is a nurse practitioner in the Department of Rheumatology and Oncology at Santa Clara Health and Hospital Systems in San Jose, CA. Viale is a speaker and member of the advisory board for IMER, Bristol-Myers Squibb, Amgen Inc., and Novartis AG, and a speaker for Meniscus and Merck & Co., Inc. (Submitted October 2007. Accepted for publication January 2, 2008.)