Cardiovascular Toxicity Associated With Cancer Treatment

Pamela Hallquist Viale, RN, MS, CS, ANP, AOCNP®, and Deanna Sanchez Yamamoto, RN, MS, CS, ANP, AOCNP®

Cardiotoxicity is a well-described and potentially lethal side effect of certain chemotherapeutic agents. Cardiotoxicity is a broad term used to depict conditions ranging from benign forms of arrhythmias to potentially fatal conditions, such as myocardial ischemia or infarction and heart failure. Anthracyclines (daunorubicin, doxorubicin, and epirubicin), mitomycin, and monoclonal antibodies such as trastuzumab have been associated with cardiotoxicities, but other chemotherapeutic agents, such as fluorouracil, cyclophosphamide, interferons, and interleukin-2 and other targeted agents, also can cause this side effect. Although several theories exist about the process that leads to cardiotoxicity from some chemotherapeutic agents, the exact mechanism of action is unknown. Oncology nurses should know the agents associated with cardiotoxicity, including newer targeted therapy drugs. Knowledge of the potential mechanism of action, as well as the possible reversibility of cardiotoxicity with specific agents, is important.

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.

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 and newer targeted therapy drugs. Knowledge of the potential mechanism of action, as well as the possible reversibility of cardiotoxicity with specific agents, is important.