

FEATURE ARTICLE

# The Role of High-Dose Chemotherapy Supported by Hematopoietic Stem Cell Transplantation in Patients With Multiple Myeloma: Implications for Nursing

Anna Liza Rodriguez, RN, BSN, OCN®, Joseph D. Tariman, RN, MN, APRN-BC, OCN®, Toreend Encio, RN, BSN, OCN®, and Stella Marie Estrella, RN, BSN, OCN®

Multiple myeloma (MM), a neoplastic proliferation of plasma cells originating from the B-cell line, is associated with deleterious complications and poor outcomes. The failure of conventional combination chemotherapies to improve the overall survival of patients with MM has led to the use of high-dose chemotherapy supported by stem cell transplantation (SCT). Although several novel therapies have emerged since the late 1990s, their survival benefits are undetermined. High-dose chemotherapy with SCT provides better response rates compared to conventional chemotherapy and yields a trend toward greater survival benefits, especially with the use of a tandem (two successive) transplantation strategy. This article discusses standard SCT in patients with MM and some of the new transplantation strategies, including tandem autologous SCTs and reduced-intensity nonmyeloablative allogeneic SCT, and their implications for nursing.

**T**he role of high-dose chemotherapy supported by stem cell transplantation (SCT) as a safe and effective therapy for patients with multiple myeloma (MM) is well established (Singhal, 2002). Since the 1990s, myeloma treatment advances have been made in the transplantation arena, but major challenges still lie ahead to improve overall survival (Barlogie et al., 2004). Several transplantation-related strategies have emerged, including tandem (i.e., two successive) autologous SCTs (ASCTs), autologous followed by allogeneic SCT, nonmyeloablative allogeneic transplantation, and sequential ASCTs followed by nonmyeloablative allogeneic transplantation, all in an effort to improve overall survival (Hari, Pasquini, & Vesole, 2006). Although several novel agents such as thalidomide, bortezomib, and lenalidomide have been effective in the treatment of MM, their impact on overall survival and quality of life in patients with MM is unclear (Tariman, 2005). This article discusses standard SCT in patients with MM, some of the newer transplantation strategies (e.g., tandem ASCT, reduced-intensity nonmyeloablative allogeneic SCT) and their implications for nursing.

## Multiple Myeloma Overview

MM is the abnormal clonal proliferation of plasma cells originating from the B-cell line. An estimated 19,900 new myeloma

### At a Glance

- ◆ Multiple myeloma is associated with deleterious complications and poor outcomes. Patients diagnosed with myeloma tend to be older, with a median age at diagnosis of 66 years.
- ◆ Better overall survival has been reported in patients who are aged 60 or younger and treated with tandem autologous stem cell transplantation (SCT).
- ◆ Oncology nurses play a key role in ensuring the safety and delivery of high-quality care before, during, and after SCT.

Anna Liza Rodriguez, RN, BSN, OCN®, is a clinical nurse manager at the Hematopoietic Stem Cell Transplantation (HSCT) Inpatient Unit at Northwestern Memorial Hospital in Chicago, IL; Joseph D. Tariman, RN, MN, APRN-BC, OCN®, is a predoctoral fellow in biobehavioral nursing and health systems in the School of Nursing at the University of Washington in Seattle; and Toreend Encio, RN, BSN, OCN®, and Stella Marie Estrella, RN, BSN, OCN®, are staff nurses in the HSCT Inpatient Unit at Northwestern Memorial Hospital. No financial relationships to disclose. (Submitted August 2006. Accepted for publication March 8, 2007.)

Digital Object Identifier: 10.1188/07.CJON.579-589