

# Evidence-Based Guidelines for the Management of Neutropenia Following Outpatient Hematopoietic Stem Cell Transplantation

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Economic reforms, expanded treatment options, and a focus on improved outcomes have created an impetus to shift care from the hospital to the outpatient setting. Hematopoietic stem cell transplantation (HSCT) in particular has moved to the outpatient setting because of treatment advances such as hematopoietic growth factors, newer drug delivery systems, and expanded homecare services (Dix & Geller, 2000; Meisenberg et al., 1997; Meisenberg, Gollard, Brehm, McMillan, & Miller, 1996; Schmidt-Pokorny, Franco, Frappier, & Vyhliadal, 2003). Evidence suggests that a decrease in complications associated with transplantation, especially those related to neutropenia, can offset the costs of using some of the newer and more expensive treatment options (Feders & Camp, 1999; Hartmann et al., 1997; Lee, Klar, Weeks, & Antin, 2000; Meisenberg et al., 1998). However, outpatient care delivery models place expanded care responsibilities on patients and families, such as administering IV medications, caring for central lines, and monitoring patients for complications. Structured patient education and a professional support system to assist in the timely management of symptoms and complications are critical to the success of an outpatient program (Franco et al., 1996; Horowitz, Loberiza, Bredeson, Rizzo, & Nugent, 2001; Weston & Lauria, 1996). Nurses must be skilled and knowledgeable in the

Hematopoietic stem cell transplantation (HSCT) involves the transfer of stem cells to establish hematopoiesis in patients who have received myeloablative chemotherapy with or without whole body irradiation. Following high-dose therapy and HSCT, all patients experience a period of neutropenia. Outpatient care delivery models place expanded responsibilities on patients and their families for the management of this treatment side effect. Proactive management of neutropenia is critical to decrease the depth and duration of neutropenia following HSCT, limit exposure to opportunistic and nosocomial pathogens, and ensure prompt intervention should febrile neutropenia or infection develop. Patient and family education, psychosocial support, and coordination of care are key nursing responsibilities.

**Key Words:** neutropenia, bone marrow transplant

delivery of clinical care and the challenges of providing caregivers with the education and training needed to comprehensively care for a patient in the home (Ezzone, 2000; Kapustay & Buchsel, 2000; Rankin & Stallings, 2001).

Following high-dose therapy and HSCT, patients experience a period of neutropenia lasting 10–30 days. Neutropenia is a direct consequence of the dose-intensive chemotherapy regimens used in treating patients receiving HSCT (Chan, 2000; Petros & Gilbert, 1998; Rees, Beale, & Judson, 1998). Neutropenia also may be secondary to immunosuppressive medications used to treat graft-versus-host disease and a consequence of cytomegalovirus infection.

Prevention of infection places additional responsibilities on patients for careful hygiene, oral care, and dietary changes and can affect patients' lifestyle and disrupt usual routines (Crighton, 2004; Poe, Larson, McGuire, & Krumm, 1994; Shelton, 2003; Smith & Besser, 2000). Neutropenia affects patients' symptom experience and quality of life (Shelton, 2003). The symptom experience of patients with neutropenia is not well described, but studies suggest that it is associated with fatigue, malaise, and diminished functioning in activities of daily living (Coleman, Coon, Mattox, & O'Sullivan, 2002; Crighton). In an effort to improve the symptom experience for HSCT recipients in a cost-effective manner, evidence-based clinical practice guidelines are essential for the management of neutropenia (Kapustay & Buchsel, 2000; Smith & Hilner, 2001).

Because of the complexity of care required for transplant recipients, a multidisciplinary team approach to education and care offers substantial benefits for patients.

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