

# Multiple Myeloma and Treatment-Related Thromboembolism: Oncology Nurses' Role in Prevention, Assessment, and Diagnosis

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Immunomodulating agents such as thalidomide and its newly emerged derivative, lenalidomide, are becoming increasingly popular in the treatment of multiple myeloma because of their ability to combat drug resistance. Clinical trials suggest that thalidomide and lenalidomide are effective in all stages of multiple myeloma treatment—new diagnoses, stem cell transplantations, maintenance therapy, and relapsed or refractory disease. The drugs are most efficacious when combined with additional chemotherapeutic agents and/or corticosteroids. However, deep vein thrombosis and other thromboembolic events are associated with the treatment regimens. Oncology nurses must understand the pharmacologic properties of the drugs and the potentially life-threatening complications associated with them. To provide the highest standard of care, oncology nurses must play a vital role in the prevention, diagnosis, and management of thromboembolic events through awareness of the clinical problem, assessment tools, and thromboembolic prophylactic regimens.

**M**ultiple myeloma (MM) is a malignancy of plasma cells, whose primary purpose is to produce immunoglobulins required to mount an immune response. MM causes excess production of one specific immunoglobulin, commonly known as the monoclonal protein, and underproduction of other immunoglobulins. The disease frequently is associated with skeletal, hematologic, and renal involvement. In 2007, an estimated 19,900 new cases of MM will be diagnosed and 10,970 will die from the disease (American Cancer Society, 2007). MM accounts for about 14% of all newly diagnosed cases of hematologic malignancies (Devenney & Erikson, 2004). Depending on prognostic factors and the disease stage at diagnosis, survival estimates range from several months to five years; the current median survival is about 42 months (Barber, 2006; Devenney & Erikson). However, the use of novel agents, such as thalidomide (Thalomid<sup>®</sup>, Celgene Corporation) or lenalidomide (Revlimid<sup>®</sup>, Celgene Corporation), in combination with a standard MM treatment regimen is associated with greatly improved response rates (Cavo & Baccarani, 2006; Richardson et al., 2006). As a result, the use of thalidomide in combination with dexamethasone (thal/dex) has become one of the most frequently prescribed regimens in patients newly diagnosed with MM. The treatment supported the investigation of lenalidomide with dexamethasone (Rev/dex) in relapsed or refractory and new onset MM (Fonseca & Stewart, 2007; Rajkumar, 2005). Although data from clinical trials involving thalidomide or lenalidomide continue to indicate encouraging increased response and disease-

## At a Glance

- ◆ Thalidomide and lenalidomide are quickly becoming the most frequently used drugs for the treatment of multiple myeloma; however, regimens containing the agents carry a high risk of thromboembolic events, including deep vein thrombosis and pulmonary embolism.
- ◆ Oncology nurses play a vital role in preventing life-threatening complications of thalidomide and lenalidomide through vigilant assessment and patient education.
- ◆ Thorough assessments, early thrombosis diagnoses, and patient education about possible complications and thrombosis prophylaxis are important components of nursing care.

free survival rates (Rajkumar, Blood, Vesole, Fonseca, & Greipp, 2006; Richardson et al.), the use of these drugs in combination with dexamethasone and/or chemotherapeutic agents appears to

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