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# *Venous Thromboembolism in Patients With Cancer Part I*

## Survey of Oncology Nurses' Attitudes and Treatment Practices for Ambulatory Settings

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**V**enous thromboembolism (VTE) is a complication in patients with cancer. VTE has been implicated as a harbinger of the disease in patients not yet diagnosed with cancer and is associated with a poorer prognosis in patients with an existing neoplasm diagnosis (Kakkar, Levine, Pinedo, Wolff, & Wong, 2003; Sutherland, Weitz, & Liebman, 2003). Patients with cancer are at higher risk for VTE for a variety of reasons, and clinicians, including oncology nurses, should be aware of the individual risk factors for this patient population.

Treatment of VTE for patients with cancer may involve a sequential combination of unfractionated or low-molecular-weight heparin (LMWH) followed by oral warfarin therapy or LMWH for continued anticoagulation. The goal of this treatment is to prevent propagation of the clot as well as protect against future embolic events. Although appropriate anticoagulation treatment may be given to patients with cancer, optimum treatment outcome may not occur. Reasons for inadequate anticoagulant response of patients with cancer include the possibility of Trousseau syndrome (first described in 1865), a recurrent thromboembolic state which may occur in a variety of sites, including veins not usually associated with VTE, such as the portal vein or axillary thrombosis (Callander & Rapaport, 1993).

Patients with cancer have a higher incidence of venous thromboembolism (VTE). Little information currently exists on VTE and the understanding and beliefs of oncology nurses. Therefore, the attitudes and treatment practices of ambulatory oncology nurses were surveyed to determine the current knowledge base of VTE in patients with cancer. Survey results are presented along with a thorough literature review of thromboembolism and the unique risk factors for this frequent complication in patients with cancer. The causes of VTE in this patient population often are multifactorial and include hypercoagulability, stasis, and vascular endothelial damage from procedures or the neoplastic process itself. In particular, chemotherapy administration can increase the risk of thrombosis considerably. New therapies, including thalidomide, require oncology nurses caring for these patients to have heightened awareness of the potential for thrombogenic complications. This is the first of two articles that address the problem of thromboembolism in patients with cancer, including the survey results. (See part II on page 465.) Oncology nurses are essential in the care of VTE in patients with cancer and can help with patient identification, treatment, and compliance for improved patient outcomes.

**Key Words:** thromboembolism, heparin, blood coagulation

A survey (the Frontline survey) provided information about the perceptions and treatment practices of medical oncologists regarding VTE in patients with cancer; however, information was limited on the knowledge base of outpatient oncology nurses with regard to VTE in cancer (Kakkar et al., 2003). Therefore, a survey was conducted by targeted e-mail to oncology nurses in outpatient oncology settings found in the Oncology Nursing

Society (ONS) membership database. Of the 3916 surveys sent out via e-mail, 567 (14.5%) were returned, providing information about the nursing knowledge base regarding VTE and patients with cancer as well as treatment strategies. This article reports the survey results and a discussion of the pathophysiology of VTE in patients with cancer.

### Epidemiology

As many as 15% of patients with cancer may present with clinically significant thromboembolic events; some researchers report the incidence as 1%–

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