Oncology Nursing in a New Era: Optimizing Treatment With Bevacizumab

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Overexpression of vascular endothelial growth factor (VEGF) by tumor cells promotes angiogenesis, which correlates with progressive tumor growth and poor outcomes in many types of cancer. Bevacizumab inhibits VEGF to promote regression of tumor vessels by limiting blood supply and tumor growth, enhancing delivery of chemotherapy, and inhibiting formation of new vessels. Combined with chemotherapy, bevacizumab prolongs progression-free and overall survival over chemotherapy alone in patients with metastatic carcinoma of the colon and rectum; unresectable, locally advanced, recurrent or metastatic non-squamous, non-small cell lung cancer (NSCLC); and metastatic HER2-negative breast cancers (mBC). Side effects, including hypertension, proteinuria, bleeding, arterial thrombotic events, and impaired wound healing, can be clinically significant, particularly in patients with risk factors. To optimize patient outcomes, nurses should understand bevacizumab's role in cancer therapy, recognize symptoms of toxicity, and manage its side effects. This article describes the rationale for bevacizumab in the treatment of metastatic colorectal cancer, NSCLC, and mBC and discusses patient selection, treatment duration, and side-effect management to support the role of oncology nurses in caring for, educating, and enhancing treatment adherence among patients with cancer receiving bevacizumab. Two case studies are presented as examples of the complex scenarios nurses may encounter regarding these issues.

Although chemotherapy is the mainstay of cancer treatment, the clinical benefits of cytotoxics have reached a plateau in many settings, particularly for advanced-stage or metastatic disease. The clinical limitations of cytotoxics are related to the nonspecific nature of their action, leading to toxicities that may limit the intended dose intensity. With the emergence of new biologic therapeutics, more narrowly acting targeted agents have the potential to counteract some of these issues. Targeted agents act selectively against tumor cells or biologic processes that support tumor growth. In theory, this antitumor selectivity could translate into decreased toxicity compared with conventional cytotoxics. In addition, a distinct toxicity profile supports opportunities for combination regimens without sacrificing safety or quality of life.

Bevacizumab, approved by the U.S. Food and Drug Administration (FDA) in 2004, is a specific inhibitor of angiogenesis that has produced significant gains in survival for patients with advanced or metastatic cancers (Hurwitz et al., 2004, 2005; Johnson et al., 2004; Kabbinavar et al., 2003, 2005; Sandler et al., 2006; Sledge, Miller, Moisa, & Gradishar, 2007) and has become a standard component of cancer therapy. Familiarity with issues concerning the use of bevacizumab, including patient selection, treatment duration, and management of adverse events, is crucial for nurses to effectively care for and educate patients who receive bevacizumab therapy.

Patients and families rely heavily on nurses for health care, medical information, and moral support. An important role of

At a Glance

- Vascular endothelial growth factor (VEGF) overexpression contributes to continued tumor growth and metastases. Bevacizumab blocks VEGF to limit tumor growth and enhance chemotherapy delivery to the site.
- Clinical studies support the continued administration of bevacizumab during change in chemotherapy regimen from intolerance, at disease progression, and beyond disease progression for patients in whom a potential clinical benefit is identified.
- Because patients with certain underlying comorbidities may have a higher risk of side effects, oncology nurses should complete a thorough assessment to identify potential factors to be considered and discussed with patients before proceeding with bevacizumab treatment.

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