FEATURE ARTICLE

Sorafenib: A Promising New Targeted Therapy for Renal Cell Carcinoma

Laura S. Wood, RN, MSN, OCN®, and Beth Manchen, RN, MS, OCN®

Diagnosis of renal cell carcinoma (RCC) frequently occurs at advanced stages, severely limiting the success of treatment, and median survival is barely more than a year. Previously, treatment of renal cancer was limited to nephrectomy or immunotherapy (interleukin or interferon-α), which was effective in a small subset of patients but often was accompanied by severe side effects. New orally administered targeted therapies have become available, offering broader benefits to patients with advanced RCC. Sorafenib is an oral, multikinase inhibitor recently approved by the U.S. Food and Drug Administration as treatment for advanced RCC based on its extension of median progression-free survival from 12–24 weeks. Oncology nurses must ensure patient adherence and manage side effects of emerging treatments. This article reviews the management of skin rash, hand-foot skin reaction, hypertension, diarrhea, and fatigue in patients receiving sorafenib. In addition, a case study of a patient receiving sorafenib is presented.

Renal cell carcinoma (RCC) accounts for 3% of all malignant tumors and is the sixth leading cause of cancer deaths in the United States. In 2007, an estimated 51,190 new cases of RCC will be diagnosed and 31,590 deaths will be attributed to renal cancer (Jemal et al., 2007). The incidence of renal cancer at all stages has increased steadily since 1973; unfortunately, increased detection of earlier-stage disease has not coincided with a decrease in the number of patients diagnosed with advanced renal cancer (Hock, Lynch, & Balaji, 2002). For patients with localized disease, nephrectomy offered five-year survival rates from 90%–95% (Bui et al., 2001), but median survival among patients with metastatic disease was only 13 months (Cohen & McGovern, 2005).

Most renal cancers are sporadic: Risk factors include smoking (associated with 24%–30% of all cases of RCC), obesity, sedentary lifestyle, environmental and occupational exposure (e.g., asbestos, cadmium, polycyclic hydrocarbons, solvents), and long-term use of diuretics or phenacetin-containing analgesics (Linehan et al., 2004). Patients with end-stage renal disease undergoing dialysis, particularly those with cystic disease, also are at higher risk for RCC (Denton et al., 2002). A small number of cases are hereditary, associated either with the von Hippel-Lindau (VHL) gene in clear cell renal cancer or the c-*met* gene on chromosome 7 in type 1 papillary renal cancer (Linehan et al.). Individuals with VHL syndrome are at risk to develop tumors in multiple organs, including several hundred clear cell tumors per kidney.

Pathogenesis of Renal Cancer

Loss of VHL gene function leads to increased expression of genes associated with tumor growth and angiogenesis, especially

At a Glance

- Sorafenib is the first tyrosine kinase inhibitor approved for the treatment of advanced renal cell carcinoma.
- Nursing assessment and interventions are critical for effective management of unique side effects, including hand-foot skin reaction.
- Effective side-effect management allows patients to maintain therapeutic benefit and maximizes quality of life.

Laura S. Wood, RN, MSN, OCN®, is a renal cancer research coordinator at the Cleveland Clinic Foundation in Ohio; and Beth Manchen, RN, MS, OCN®, is a clinical research nurse at the University of Chicago Hospitals in Illinois. Wood is a member of the speakers bureaus for Bayer/Onyx Pharmaceuticals and Pfizer Pharmaceuticals. Manchen is a member of the speakers bureau for Bayer/Onyx Pharmaceuticals and a nursing advisory board member for Bayer/Onyx Pharmaceuticals, Bristol-Myers Squibb Company, and the Kidney Cancer Association. Bayer Healthcare Pharmaceuticals and Onyx Pharmaceuticals Inc. are makers of Nexavar®, which is mentioned in this article. Editorial assistance was provided by Lili Fox Velez, PhD, an assistant professor in the Department of English at Towson University in Maryland. Mention of specific products and opinions related to those products do not indicate or imply endorsement by the *Clinical Journal of Oncology Nursing* or the Oncology Nursing Society. (Submitted December 2006. Accepted for publication April 13, 2007.)

Digital Object Identifier: 10.1188/07.CJON.649-656