Renal Cell Carcinoma: The Translation of Molecular Biology Into New Treatments, New Patient Outcomes, and Nursing Implications

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Purpose/Objectives: To provide an overview of the current knowledge and treatment options for renal cell carcinoma (RCC).

Data Sources: Published articles, published abstracts, online databases, and package inserts.

Data Synthesis: Researchers have an increased understanding of the genetic and prognostic risk factors associated with RCC. Most patients with this rare type of cancer have or will develop metastasis. Nephrectomy treats localized disease and cytokine therapy was the previous standard for metastatic disease, but newly approved targeted agents, such as sorafenib, temsirolimus, and sunitinib, as well as investigational agents such as bevacizumab, are improving patient outcomes.

Conclusions: Understanding the biologic basis of RCC has led to therapies that are transforming the goals for treatment outcomes in patients with metastatic disease and increasing time to progression with manageable side effects.

Implications for Nursing: Counseling patients and managing treatment-related side effects of therapy are critical interventions for healthcare professionals caring for patients with RCC. Evolving treatments for metastatic disease are providing better options for patients and changing disease management.

Key Points . . .

- Renal cell carcinoma (RCC) is one of the most treatment-resistant solid tumors. Clinical trial participation is essential for clarifying the appropriate patient groups for specific treatments and to assess the long-term efficacy of new treatments.
- RCC incidence is increasing. Many small tumors are found during imaging scans for other conditions, creating a need for nursing support, education, management of expectations, and assessment of quality of life.
- Better understanding of hereditary forms of RCC has led to new treatment options.

Kidney and renal pelvic cancers have increased in incidence in the United States since the 1970s (Chow, Gridley, Fraumeni, & Jarvholm, 2000; Hock, Lynch, & Balaji, 2002). A projected 54,390 new cases are expected in 2008, roughly 85% of which will be renal cell carcinoma (RCC), and 13,010 deaths are expected (Jemal et al., 2008). RCC cases account for only 3% of patients diagnosed with cancer in the United States, but RCC is resistant to conventional chemotherapy (Motzer, 2003; Motzer, Michaelson, et al., 2006) and therefore is associated with poor prognosis. Patients diagnosed with early-stage disease have a five-year survival rate of 90%. However, about 30% of patients present with metastatic disease (Donskov & von der Maase, 2006) and 20%–30% of patients are likely to develop metastases after surgery (National Cancer Institute [NCI], 2006). The most common sites for metastases are lung, bone, brain, liver, and adrenal glands (NCI); breast metastases are uncommon (McLauglin, Thiel, Smith, Wehle, & Menke, 2006). Patients presenting with distant metastases have about a 10% five-year survival rate. Durable responses, with survival greater than 39 months (Rosenberg, Yang, White, & Steinberg, 1998), have been achieved with high-dose interleukin-2 (IL-2) therapy, but only in a small percentage of patients (Fisher, Rosenberg, & Fyfe, 2000; Motzer, Michaelson, et al.).

Better understanding of tumor biology has led to new techniques for staging patients, new treatment approaches, and more sophisticated ways to assess patient quality of life, each of which will have an effect on nursing practice, particularly on patient counseling and management of treatment-related side effects. This review will examine the epidemiology, pathogenesis, diagnosis, and staging of RCC, with a brief discussion of developments in treatment and a range of nursing interventions that are appropriate for supporting patients with RCC and their families and caregivers.

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