Oxaliplatin: A Novel Platinum Analog With Activity in Colorectal Cancer

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Purpose/Objectives: To review selected recent data pertaining to the use of oxaliplatin in colorectal cancer and its implications for oncology nursing.

Data Sources: Published articles, abstracts, and conference proceedings.

Data Synthesis: Colorectal cancer accounts for about 15% of all new cancers. The search for more effective chemotherapy regimens is ongoing. Oxaliplatin, a member of the diaminocyclohexane family of platinum compounds, demonstrates cytotoxic efficacy and a well-tolerated safety profile.

Conclusions: Oxaliplatin is effective in chemotherapy-naive patients with advanced colorectal cancer, as well as in those refractory to previous treatment with 5-fluorouracil (5-FU); the drug also is effective in combination with 5-FU and leucovorin for the treatment of advanced colorectal cancer.

Implications for Nursing: Nurses must be highly knowledgeable about oxaliplatin regimens and schedules, the associated side effects, and recommended strategies for symptom management. This article can help nurses to understand and communicate the benefits and risks associated with oxaliplatin-based therapies to colleagues and patients.

Key Points . . .

- Oxaliplatin is a novel platinum compound with a wide spectrum of activity in oncology. One of its most notable qualities is its activity in colorectal cancer.
- In randomized clinical trials, oxaliplatin in combination with 5-fluorouracil and leucovorin has demonstrated significant improvements in response rates and progression-free survival but not overall survival.
- In-depth knowledge about oxaliplatin, its proper dosing and management, and the assessment and management of its adverse events will help to minimize the occurrence of problems and maximize treatment outcomes.

According to estimates, more than 147,000 adults in the United States will be diagnosed with colorectal cancer in 2003, accounting for about 15% of all new cancers. This disease kills approximately 57,000 people each year, a rate second only to that of lung cancer, and the prognosis for patients with metastatic disease is especially poor, with only about 8% surviving five years (Jemal et al., 2003). Chemotherapy has demonstrated palliation of symptoms, increased survival, and improved quality of life compared with the best supportive care, but much room exists for improvement (Cunningham et al., 1998; Rougier et al., 1998). Four drugs have been approved by the U.S. Food and Drug Administration as single agents or as part of combination therapies for the treatment of metastatic colorectal cancer: 5-fluorouracil (5-FU), irinotecan (Camptosar®, Pharmacia Corporation, Peapack, NJ), capecitabine (Xeloda®, Roche Laboratories, Nutley, NJ), and oxaliplatin (Eloxatin®, Sanofi-Synthelabo, Inc., New York, NY).

Single-agent 5-FU is far from ideal, with response rates of less than 15% and overall survival rates of six to nine months (Becouarn & Rougier, 1998; Bleiberg, 1996; de Gramont et al., 2000; Schmoll, 1996). In the metastatic setting, the addition of leucovorin to the 5-FU regimen increased response rates to about 23%, but duration of survival, which only occasionally exceeds 12 months, did not increase significantly (Advanced Colorectal Cancer Meta-Analysis Project, 1992; Scheithauer, Rosen, Korneck, Sebesta, & Depisch, 1993). Therefore, agents that can achieve better results must be discovered.

Irinotecan, for example, has significant single-agent activity against colorectal cancer that has progressed during or shortly after treatment with 5-FU–based chemotherapy (Rothenberg et al., 1996). In addition, the combination of irinotecan, 5-FU, and leucovorin (IFL) has demonstrated a significant advantage in terms of response rate and, more importantly, overall survival rate compared with 5-FU plus leucovorin alone. Moreover, the IFL regimen is the standard treatment arm in many clinical trials that examine the efficacy of novel agents in metastatic colorectal cancer. Two independent trials reported responses with IFL that were double those seen with 5-FU and leucovorin. Saltz et al. (2000) reported a response rate of 39% versus 21% and an overall survival rate of 14.8 months versus 12.6 months in chemotherapy-naive patients with metastatic disease who were treated with IFL versus 5-FU and leucovorin, respectively. Douillard et al. (2000) used irinotecan plus continuous-infusion 5-FU and leucovorin instead of the bolus schedule used in the Saltz et

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