Review of Panitumumab: A Targeted Therapy

Debra L. Winkeljohn, RN, MSN, AOCN®, CNS

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Newer agents that focus on certain cell receptors within tumor cells are known as targeted therapies for their ability to bind to specific receptors on cancer cells and inhibit cellular pathways, which may lead to apoptosis, or cell death. The agents include bevacizumab, cetuximab, and the newest agent, panitumumab (Vectibix™, Amgen, Inc.).

Panitumumab is a targeted therapy approved by the U.S. Food and Drug Administration (FDA) in 2006 for use in patients with metastatic colorectal cancer (mCRC). Being a targeted therapy, it has specific side effects that can compound chemotherapy side effects. Panitumumab is a humanized monoclonal antibody; therefore, its hypersensitivity reaction rate is lower compared to a chimeric monoclonal antibody such as cetuximab. Nurses should be aware of panitumumab's administration and side effects, including skin toxicities and diarrhea (Gaguski, 2007).

Patients often receive panitumumab after receiving bevacizumab or cetuximab. Panitumumab can be given with FOLFOX (oxaliplatin, leucovorin, and fluorouracil) or FOLFIRI (irinotecan, leucovorin, and fluorouracil) regimens, or as a single agent. Panitumumab, as well as its mechanism of action, administration information, side effects, and nursing management will be discussed. Other therapies for mCRC will be reviewed briefly.

Colon cancer is the third most common cancer in men and women in the United States (American Cancer Society, 2007). Current FOLFOX treatments have resulted in median survival rates longer than 18 months (Van Cutsem et al., 2007). Despite those advances, 20% of patients will develop metastatic disease (Saadeh & Lee, 2007). Metastatic disease often develops locally in the liver or lungs. Treatment can include surgery, radiation, chemotherapy, or a combination (see Figure 1).

Chemotherapy options for mCRC include FOLFOX, FOLFIRI, and oral capecitabine. Response rates from the regimens range from 31%–50% (Saadeh & Lee, 2007). An overview of targeted agents for mCRC treatment can be found in Table 1.

Treatment Options

Bevacizumab was approved by the FDA in 2004 to be used every two weeks with a fluorouracil regimen such as FOLFOX (Viale, 2006). Bevacizumab is a monoclonal antibody that affects the vascular endothelial growth factor, disrupting blood vessel growth (Genentech, Inc., 2006). Side effects of bevacizumab include delayed wound healing, hypertension, proteinuria, and, in some cases, posterior leucoencephalopathy.

Cetuximab, approved by the FDA in 2004, is indicated weekly as a single agent or in combination with irinotecan as second-line treatment for mCRC (Viale, 2006). Cetuximab works directly against the epidermal growth factor receptors, altering cellular proliferation, which results in apoptosis and inhibition of cell growth (ImClone Systems Inc., 2004). Unfortunately, these epidermal growth factor receptors are found in many other tissues in the body, including the head, neck, skin, colon, and rectum. Side effects of cetuximab, such as rash and diarrhea, are particular to these parts of the body.

An infusion reaction can occur because cetuximab is a chimeric (human/mouse) monoclonal antibody. The infusion reaction can be exhibited by dyspnea, back pain, fever, and chills. Approximately 3% of patients receiving cetuximab develop the infusion reaction (ImClone Systems Inc., 2004). Patients should be premedicated with an antihistamine prior to infusion and closely monitored for a reaction; however, infusion reactions also can occur in subsequent treatment cycles. As a result, patients should be monitored for one hour after an infusion (ImClone Systems Inc.). Other cetuximab side effects include dermatologic toxicities, interstitial lung disease, nail disorders, and diarrhea (ImClone Systems Inc.).

Panitumumab is used in patients who are not responding to regimens containing fluorouracil, oxaliplatin, and irinotecan (Giusti, Shastri, Cohen, Keegan, &

Debra L. Winkeljohn, RN, MSN, AOCN®, CNS, is the clinical director at Hematology Oncology Associates in Albuquerque, NM. 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.

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