New Directions in Oncology Nursing Care: Focus on Gefitinib in Patients With Lung Cancer

Barbara Pizzo, RN, BSN, OCN®

Use of cytotoxic chemotherapy in the treatment of solid tumors has inherent safety and efficacy limitations, owing to the systemic toxicities of these agents and the chronic illnesses of patients receiving therapy. Chemotherapy agents do not discriminate between malignant and healthy tissues or organs; therefore, nonspecific toxicity to healthy tissues limits dosing of these agents (Herbst & Shin, 2002). In contrast, a key goal of a new class of cancer drugs, called molecular-targeted therapies, is to inhibit tumor growth and progression without harming other dividing cells. Clinically, this approach is expected to produce fewer and milder treatment side effects than chemotherapy. Several biologically based therapies that target molecules specific to tumor cells have been isolated and are currently under investigation in clinical trials.

Gefitinib (Iressa®, ZD1839, AstraZeneca Pharmaceuticals LP, Wilmington, DE) is a molecular-targeted therapy that is an inhibitor of the epidermal growth factor receptor-tyrosine kinase (EGFR-TK) enzyme, which frequently is aberrantly activated in tumor cells. This article briefly will review the basic science of EGFR-TK in solid tumors, summarize results of clinical trials with gefitinib, and familiarize oncology nurses with some of the clinical implications of this new targeted therapy.

Roles of Epidermal Growth Factor Receptor-Tyrosine Kinase in Solid Tumors

EGFR is a growth-promoting protein found on the surface of many different types of tumor cells, including cancers of the lung, breast, and colon. Normally, EGFR is functionally active during embryonic development and its activity is limited in normal adult tissue. The EGFR protein spans the cell membrane, having segments outside and inside the tumor cell (see Figure 1) (Hackel, Zwick, Prenzel, & Ulrich, 1999; Prenzel, Fischer, Streit, Hart, &...