

Managing Patients With Advanced and Metastatic Breast Cancer: Taxanes and Epothilones

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Breast cancer is one of the most common cancers in women, and although the prognosis is good for patients with early-stage, localized disease, it is relatively poor for patients with metastatic breast cancer. Treatment options become progressively limited with advancing lines of therapy, primarily because of the development of tumor drug resistance. Nurses have a crucial role in managing patients with breast cancer; therefore, awareness of the clinical efficacy and side-effect profiles of traditional and newer treatment options is of great importance. The taxanes (docetaxel and paclitaxel) are well known for their efficacy in patients with breast cancer. The epothilones, a newer class of microtubule-targeting agents, also are proving beneficial. The most clinically advanced epothilone, ixabepilone, has been approved for the treatment of locally advanced or metastatic disease. Although taxanes and epothilones are similar mechanistically, the epothilones have unique structural, binding, and preclinical properties in terms of microtubule stabilization. Importantly, ixabepilone retains clinical efficacy in patients with metastatic breast cancer who show resistance to taxanes and anthracyclines.

Breast cancer is one of the most common cancers in women, with an estimated 192,370 new cases and 40,170 deaths in the United States in 2008 (Jemal et al., 2009). The prognosis is favorable for women diagnosed during the early stages of the disease, when the cancer remains localized, and women have a 95% survival rate at five years. However, many women ultimately develop recurrent or metastatic tumors (Ries et al., 2007). In such cases, the prognosis is far less favorable, with a projected median survival of two to three years; at that stage, the disease is considered incurable. Thus, an urgent need exists for new therapies that have improved efficacy, offering patients with metastatic breast cancer (MBC) effective treatment during the advanced stages of their disease.

The choice of treatment regimen for patients with breast cancer is complex and is influenced by patient characteristics (e.g., age), tumor-related factors (e.g., size, stage), lymph node status, presence of metastases, hormone receptor and HER2/neu status, and prior treatment history. Following surgery to remove the primary tumor, a range of effective treatment options are available, including radiotherapy, hormone therapy, targeted therapy (e.g., trastuzumab for HER2/neu-positive disease), and chemotherapy. Selection of the appropriate treatment regimen is dependent on disease stage, tumor characteristics, and the patient's age and general health (National Comprehensive Cancer Network [NCCN], 2009). Cytotoxic chemotherapy with taxanes or anthracyclines is a treatment of choice for patients with tumors that are hormone receptor-negative, refractory to hormone therapy, or rapidly progressing regardless of hormone status (NCCN, 2009). Patients with hormone receptor-positive

At a Glance

- ◆ Taxanes and epothilones are highly effective microtubule-targeting agents indicated in anthracycline-resistant metastatic breast cancer.
- ◆ Taxanes and epothilones are in unrelated drug classes and differ with respect to clinical efficacy, adverse events, and administration protocol.
- ◆ Awareness of similarities and differences between taxanes and epothilones will aid in effective nursing care of patients with metastatic breast cancer receiving the agents.

disease who are refractory to hormone receptor drug therapy also may benefit from taxane-based chemotherapy.

Advances in chemotherapy treatment options have improved patient outcomes; as such, the breast cancer treatment landscape is evolving continually. The introduction of the epothilone ixabepilone (Ixempra®, Bristol-Myers Squibb), which was approved by the U.S. Food and Drug Administration (FDA) for

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