Editorial

Emerging Concepts in the Treatment of Advanced Non-Small Cell Lung Cancer

In recent years we have witnessed several significant developments in the treatment of advanced non-small cell lung cancer (NSCLC). As the number of therapeutic options for advanced NSCLC has increased, treatment decisions for medical oncologists and patients have become more complicated, a shift from the nihilism that dominated lung cancer therapeutics in the past. In this issue of the Open Lung Cancer journal, we review four "hot topics" in the management of advanced NSCLC: 1) targeting of angiogenesis, 2) epidermal growth factor inhibitors, 3) maintenance therapy, and 4) the clinical significance of histologic subtype.

Drs. Kotsakis and Owonikoko provide a comprehensive review of agents that target angiogenesis, including bevacizumab, which is an agent used in clinical practice, and novel kinase inhibitors, such as sorafenib and vandetanib, that remain experimental. In another thorough review, Dr. Mountzios and colleagues discuss the important role of epidermal growth factor receptor (EGFR) inhibitors in the treatment of advanced NSCLC. This class of agents includes the tyrosine kinase inhibitor erlotinib and the monoclonal antibody cetuximab. Another area of emerging interest in NSCLC is the significance of histologic subtype. Dr. Kotsakis *et al.* provide insight into the implications of histologic subtype of NSCLC in therapeutic decisions. Pemetrexed has inferior efficacy in squamous cell NSCLC and its use is limited to non-squamous histologies. Moreover, bevacizumab is not used in squamous cell NSCLC because of high risk for bleeding complications. Finally, Dr. Tarhini and I review the topic of maintenance therapy and comment on pros and cons of this approach that may result in incremental survival benefits for patients with advanced NSCLC.

Even with these developments that definitely enrich the armamentarium against NSCLC survival outcomes are far from optimal. Undoubtedly a deeper understanding of molecular biology of lung cancer is critical in optimizing and better customizing therapy. In many cases, lung cancer growth is driven by well described molecular abnormalities. For example, EGFR activating mutations and the EML4-ALK translocation are important in lung cancer biology and their targeting has been accomplished with satisfactory results. As an increasing number of novel targeted therapies are introduced in clinical trial testing, we are entering an era of sophisticated approaches that generate promise for the treatment of lung cancer.

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