

Preface

Angiogenesis and Anti-Angiogenic Therapy



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Guest Editors

Enthusiasm for the field of tumor angiogenesis and antiangiogenic therapy has waxed and waned over the past decade. Despite the biologic principle that tumor growth requires neovascularization, initial attempts to inhibit tumor growth with antiangiogenic therapy failed. This was likely due to a combination of factors, including a lack of a thorough understanding of the biology of angiogenesis and the use of less effective therapies as single-agent therapy. Convincing evidence that antiangiogenic therapy could benefit our patients was reported first at the American Society for Clinical Oncology meeting in 2003. This trial was the first phase III study to demonstrate the principle that inhibiting the activity of the major angiogenic factor, vascular endothelial growth factor (VEGF), could lead to an improvement in overall survival when administered in combination with chemotherapy in patients with previously untreated metastatic colorectal cancer.

Over the last 5 years, there have been great advances in our understanding of the biology of angiogenesis and how antiangiogenic therapy is best used in the clinic. Initially, one would have believed that the combination of antiangiogenic therapy with chemotherapy would not benefit patients because inhibition of tumor blood flow would decrease the exposure of that tumor to chemotherapy. Clinical studies have shown clearly, however, that antiangiogenic therapy, specifically VEGF-targeted therapy, can enhance the activity of chemotherapy. This has been demonstrated in patients with metastatic colorectal cancer and in

other disease types. In addition, it appears that antiangiogenic therapy also may augment the effects of radiation therapy.

In this issue of the Hematology/Oncology Clinics of North America, experts in the field of vascular and tumor biology discuss the principles of tumor angiogenesis and lymphangiogenesis. Tumor angiogenesis is an integrated process whereby host endothelial cells and pericytes are activated to develop the neovasculature of tumors. This complicated process is dependent upon cytokines, growth factors, the extracellular matrix, integrin binding, and the activation of intracellular pathways that initiate this process. In the first half of this issue, articles address the basic biology of angiogenesis. These articles form the foundation for the articles on clinical studies and the use of antiangiogenic therapy for solid malignancies. In addition, insights are provided into the role of imaging in evaluating the effects of antiangiogenic therapy on the tumor vascular bed.

One must recognize that all antineoplastic therapies may be associated with adverse events, just as is observed with standard antineoplastic regimens. Therefore, it is critically important for the oncologist to be cognizant of the fact that antiangiogenic therapy may be associated with adverse events that are distinct from those that are observed with standard chemotherapy.

It is hoped that this issue of Hematology/Oncology Clinics of North America will provide a timely update on progress in the field. We also recognize that the field is evolving rapidly and as more agents are approved by the U.S. Food and Drug Administration, one should pay strict attention to the indications and appropriate use of these agents in our patients who have malignant disease.

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