Promise of Anti-Angiogenesis: Nipping Cancer in the Bud

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The concept of anti-angiogenic therapy seems simple at first. Cancer can be thought of as a weed that is destroying a flower garden. Depriving a weed of water, soil, and sunlight will cause it to wither away. Depriving a tumor of blood, nutrients, and oxygen will make it wither, too.

Or will it?

Malignant tumors are unfortunately more self-sufficient than the average dandelion. After a tumor grows larger than about 1 cubic millimeter, simple diffusion isn't enough to bring it the food it needs to grow. So it creates its own supply channels with paracrine signaling, which triggers new blood vessel formation.

Angiogenesis is a complex, multi-step process. The hematology/oncology community has elucidated some of the cellular pathways, and multiple drugs have been designed to target them. The presence of these therapeutic agents in the formulary makes today's ASH™/ASCO Joint Symposium timely.

Dr. Kanti Rai, President of ASH, and Dr. Gabriel Hortobagyi, President of ASCO, will chair today's ASH/ASCO Joint Symposium, held from 9:30 to 11:00 a.m. in Halls B3 and B4. This is an area of common interest to both organizations so it's a natural choice for the annual joint symposium. It will provide an opportunity for attendees to both understand the mechanisms that underlie angiogenesis and also appreciate advances in therapeutic interventions

Dr. Lee Ellis, from the University of Texas M.D. Anderson Cancer Center, will discuss anti-VEGF therapy. VEGF, or vascular endothelial growth factor, is the critical factor in angiogenesis. Its production is induced in cells that are not receiving enough oxygen – including the cells of a rapidly growing tumor. When VEGF is expressed, it binds to receptors on endothelial cells and triggers angiogenesis. VEGF overexpression has been associated with poor prognosis in several cancers, and, once it appears, it sets the stage for tumor growth and metastasis. Dr. Ellis will review the biology of VEGF and the characteristics that make it a good target for therapy.

Dr. Shahin Rafii, from Weill Medical College of Cornell University, will discuss the role of anti-angiogenesis in hematologic malignancies. Many ASH members are familiar with the use of thalidomide in multiple myeloma. Several other anti-angiogenic agents are being considered in myeloma, and thalidomide is being considered in diverse malignancies like Hodgkin disease. Dr. Rafii's presentation will review the variety of agents available to the practicing hematologist.

Finally, Dr. Brian Rini from the Cleveland Clinic will review how anti-angiogenesis is being used in solid tumors such as renal-cell carcinoma. Bevacizumab, an agent that inhibits vascular endothelial growth factor, has received FDA approval for use in certain lung and colon cancers. Anti-angiogenic agents are also being used in breast cancer, renal cancer, and a host of other malignancies. Dr. Rini will update us on agents being used in ongoing clinical trials and which agents may soon be FDA-approved.

Please join ASH and ASCO for this very special symposium on the biology and clinical applications of anti-angiogenesis – one of the most promising therapies we have to nip cancer in the bud.