New insight to anti-angiogenic resistance

Nader Shakibazad
Shiraz University of Medical Sciences, Iran

Anti-angiogenesis drugs have been used for brain tumor and hepatocellular carcinoma in children. However, recent data shows that metastasis kills the patient not the primary tumor, thus re-evaluating of resistance mechanisms to anti-angiogenesis drugs is highly recommended. Clinical experience has discovered that VEGF (vascular endothelial growth factor) targeted therapy often prolongs overall survival of cancer patients by months. The main mechanisms of resistance to anti-angiogenesis drugs include up-regulation of alternative pathways of tumor angiogenesis, vasculogenic mimicry and vascular co-option. Furthermore, short-term treatment of tumor with VEGF inhibitors caused a persistent switch to vaso-invasion of tumor cells, leading to increased metastasis by mentioned mechanisms. The resulting hypoxic tumor microenvironment is composed of normal fibroblasts, immune and endothelial cells that may play a major role in tumor growth and progression. Therefore, hypoxia affects the cancer cells that are less susceptible to anti-angiogenesis drugs. Furthermore, the observation that even brief treatment with VEGF inhibitors for only a few days suffices to induce persistent, irreversible alterations in tumor cell invasiveness. Thus, combination therapy with VEGF inhibitors and vasculogenic mimicry inhibitors agents, vascular co-option targeting agents plus anti-VEGF or FGF-trap agent with anti VEGF may be a future trend to overcome resistance.

Biography
Nader Shakibazad has completed his MD and Pediatrician degree from Shiraz University of Medical Sciences, Iran. He had Fellowship in Pediatric Hematology and Oncology and has published more than 14 papers in reputed journals.

nshakibazad@gmail.com