Editorial

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Efforts to Find Targets Involving Angiogenesis: Step to Improve the Efficacy of Target Therapy in the Era of Colorectal Cancer Treatment

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Continuous efforts have been made to find an effective treatment to improve oncologic outcomes for patients with colorectal cancer. These efforts have accomplished a noticeable achievement by using biomarker-based approaches. Antiangiogenic drugs that target the vascular endothelial growth factor (VEGF) signaling pathway have successfully expanded clinical treatment options for many cancer types, including colorectal cancer in the advanced metastatic disease setting. Although VEGF inhibitors have led to progress in the treatment of patients with metastatic colorectal cancer, the development of resistance to VEGF inhibitors has emerged as a problem to be solved. Thus, we need to discover ways to enhance the efficacy of VEGF inhibitors and to evaluate other potential targets involved in angiogenesis.

Together with the VEGF, angiopoietin-1 (Ang-1), angiopoietin-2 (Ang-2), and their receptor Tie-2 make up another system that is involved in the regulation of angiogenesis [1, 2]. Ang-2 is a pro-angiogenic, pro-inflammatory cytokine that is involved in vascular growth and maturation. Ang-1/Tie-2 signaling confers structural stability to mature vessels and protects the endothelium from activation by exogenous cytokines, including angiogenetic and inflammatory stimuli [3]. In many malignances, the angiopoietin-Tie pathway is known to be involved in carcinogenesis and metastasis [4].

The authors of "Expressions and Clinical Significances of Angiopoietin-1, Angiopoietin-2, and Tie-2 Receptor in Patients With Colorectal Cancer" used immunohistochemistry (IHC) to study the expressions of Ang-1, Ang-2, and Tie-2 in colorectal cancer tissue [5]. They found that Ang-1, Ang-2, and Tie-2 were overexpressed in colorectal cancer tissues. They also found that overexpression of Ang-2 had a significant relationship with lymph node metastasis and that high overexpression of Ang-2 had a significant relationship with poor clinical outcome. Although assessments of the associations of Ang-1, Ang-2, and Tie-2 expressions based on IHC with clinical features and outcomes need to be a fundamental step in treatment target development, such assessments are potentially limited as target evaluations because they do not provide a quantified objective value and may be influenced by observer variance. Thus, functional assessments of the associations between the expressions of Ang-1, Ang-2, and Tie-2 and the clinical features and outcomes for patients with colorectal cancer need to be evaluated further.

Recently, a study reported a significant association between the concentration of Tie-1, which interacts with Tie-2, and the overall survival benefit of regorafenib [6]. Associations between treatment efficacy and the expressions of angiogenesis-related factors must be continuously analyzed in further studies, the results of which should improve the efficacy of angiogenesis target treatment.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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