Prognostic value of the expression of Vascular Endothelial Growth Factor (VEGF), p53, and microvessel density in esophageal carcinomas

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Background Tumor angiogenesis is necessary for tumor growth and progression. Vascular endothelial growth factor (VEGF) has been known as the substances that increases the permeability and proliferation of vascular endothelial cells and affects malignant tumors by promoting angiogenesis. It also has been suggested that the tumor-suppressor gene, p53 might be associated with the regulation of VEGF. 

Methods To evaluate the clinical prognostic value and the correlation between VEGF, p53 and microvessel density, we examined resected 81 esophageal cancer tissues. Microvessel density were scored in at least 3 areas (>200 fields) of the highest microvessel density in representative sections of each specimen using immunohistochemistry for CD34. VEGF, p53 and microvessel density were analyzed by immunohistochemical staining. 

Results VEGF expression was noted in 41/81(50.6%) patients. p53 expression was noted in 41/81(50.6%). There was no correlation between VEGF and p53 expression. We could not find any association between VEGF positive and negative group in the clinical parameters, such as stage, T, N, lymphatic/venous invasion, or tumor grade. Univariate analysis, prognostic factors for overall survival were stage (p=0.03), depth of invasion (p=0.04), metastasis (p=0.009) and tumor size (p=0.05). However, there was no correlation between VEGF or p53 expression and overall survival. 

Conclusions VEGF and p53 expression in esophageal cancer patients suggested that angiogenesis might play a role of carcinogenesis in esophageal cancer. However, we could not find any correlation between VEGF or P53 and clinical parameters or overall survival. Further studies with large numbers of samples are needed to determine the prognostic value of angiogenesis in esophageal cancer.