GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Relationship between clinicopathological features and HIF-2α in gastric adenocarcinoma

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Genet. Mol. Res. 14 (1): 1404-1413 (2015)
Received January 3, 2014
Accepted May 11, 2014
Published February 13, 2015
DOI http://dx.doi.org/10.4238/2015.February.13.19

ABSTRACT. Hypoxia influences tumor growth by inducing angiogenesis and genetic alterations. Hypoxia-inducible factor-2α (HIF-2α) plays an essential role in oxygen homeostasis. Expression of HIF-2α-inducible genes is associated with tumor progression. In this study, we investigated this correlation immunohistochemically and using quantitative reverse transcription-polymerase chain reaction to examine various clinical and pathological features in 55 specimens of gastric cancer and 40 specimens of normal gastric tissue. The HIF-2α mRNA expression level and protein expression were significantly higher in gastric cancer tissue samples than in adjacent tissue samples. The positive rates of HIF-2α, matrix metalloprotease-9 (MMP-9), and vascular endothelial growth factor (VEGF) protein were 63.6% (35/55), 80.0% (44/55), and 65.5% (36/55) in gastric cancer tissue specimens, respectively. These values were significantly higher than those in normal gastric tissue samples (P = 0.001, P = 0.000, and P = 0.007, respectively). HIF-2α and MMP-9 were significantly correlated with primary tumor size (P = 0.0065 and P = 0.036, respectively) and invasion depth

(P = 0.012 and P = 0.008, respectively). HIF-2α and VEGF were significantly correlated with lymph node involvement (P = 0.030 and P = 0.016, respectively). Expression of HIF-2α was positively correlated with the expression of VEGF and MMP-9 (P = 0.036 and P = 0.000, respectively). These results suggest that HIF-2α is involved in gastric carcinogenesis and disease progression and is a potential therapeutic target for gastric carcinoma.

Key words: Clinicopathological characteristics; Gastric cancer; Hypoxia-inducible factor-2α; Prognosis

