구연발표 I-2

Suppression of Helicobacter Pylori-induced Angiogenesis by Gastric Proton Pump Inhibitor

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Purpose: Though infection of Helicobacter pylori (H. pylori) are tightly associated with activation of host angiogenesis, the underlying mechanism as well as strategy for its prevention have not been identified. Here, we investigated a causal role of H. pylori infection in angiogenesis of gastric mucosa and potent inhibitory effect of gastric proton pump inhibitor (PPI) on the gastropathy.

Experimental Design: Comparative analysis of CD 34 expression in tissues obtained from 20 H. pylori-associated gastritis and 18 H. pylori-negative gastritis was performed. Expression of HIF-1 α and VEGF were tested by RT-PCR and secretion of IL-8 was measured with ELISA. To evaluate the direct effect of H. pylori infection on differentiation of endothelial HUVEC cells, in vitro angiogenesis assay was carried out.

Results: H. pylori-associated gastritis showed significantly higher density of CD34 α blood vessels than that of H. pylori-negative gastritis, of which levels were well correlated with the expressions of HIF-1 α. Conditioned media from H. pylori-infected gastric mucosal cells stimulated a tubular formation of HUVEC cells. H. pylori induced the significant expression of HIF-1 α, VEGF and IL-8 in gastric mucosal cells whose expressions were mediated via MAPK activation. We also found significant inhibitory effect of PPI, agent frequently used for H. pylori eradication, on H. pylori-induced angiogenesis. This drug effectively inhibited the phosphorylation of MAPK ERK1/2, which is a principal signal for H. pylori-induced angiogenesis.

Conclusions: The fact that PPIs could down-regulated H. pylori-induced angiogenesis suggested that anti-angiogenic treatment using PPI could be a preventive approach for H. pylori-associated carcinogenesis.