

Association of Helicobacter pylori with colorectal cancer development.

ABSTRACT

Background: Helicobacter pylori (H. pylori) may be associated with colorectal cancer. However, the underlying mechanisms are still unclear. Objectives: Explore the serostatus of H. pylori cytotoxicity-associated gene A product (CagA) in patients with colorectal carcinoma, and assess the association of H. pylori with colorectal cancer via c-Myc and MUC-2 proteins at tumor tissues. Methods: H. pylori CagA IgG antibodies were screened using enzyme-linked immunosorbent assay (ELISA) in 30 patients with colorectal carcinoma and 30 cancer-free control subjects. Paraffin-embedded blocks were examined for the expression of c-Myc and MUC-2 protein by immunohistochemistry. Results: H. pylori CagA seropositivity increased significantly among colorectal cancer patients ($p < 0.05$). The expression of c-Myc and MUC-2 in colorectal carcinoma patients was over-expressed (80%), and downexpressed (63%) in resection margins ($p < 0.05$). c-Myc over-expression and MUC-2 down-expression were associated with CagA-positive rather than CagA-negative H. pylori patients. In 16 CagA seropositive vs. 14 CagA seronegative patients, the expression rate was 97.3% vs. 64.2% and 33.3% vs. 78.5% for cMyc and MUC-2, respectively. CagA IgG level was significantly higher in positive than in negative c-Myc patients ($p = 0.036$), and in negative than in positive MUC-2 patients ($p = 0.044$). c-Myc and MUC-2 were positively and inversely correlated with CagA IgG level ($p < 0.05$). Conclusions: CagA-seropositive H. pylori is most probably associated with colorectal cancer development. Part of the underlying mechanism for such association might be via alterations in expression of MUC-2, which depletes the mucous protective layer in the colo-rectum, and c-Myc, which stimulates the growth of cancerous cells.

Keyword: Helicobacter pylori; Colorectal cancer; Cag A; Muc-2.