Synergistic effect of Helicobacter pylori virulence factors and interleukin-1 polymorphisms for the development of severe histological changes in the gastric mucosa.

Abstract:
Polymorphisms of the IL-1B and IL-1RN genes (which encode interleukin [IL]-1beta and IL-1 receptor antagonist, respectively) have been associated with hypochlorhydria and gastric cancer. We investigated the influence of bacterial virulence factors and host IL-1 polymorphisms on the development of histologic abnormalities in 210 Helicobacter pylori-infected patients with chronic gastritis. cagA(+)/vacAs1(+) H. pylori strains were associated with intestinal metaplasia (IM), atrophic gastritis (AG), and severe inflammation. Carriers of the proinflammatory IL-1B -511T/-31C and IL-1RN*2 alleles had an increased risk for the development of AG, IM, and severe inflammation, with odds ratios (ORs) of 1.7 (95% confidence interval [CI], 0.8-3.4) to 4.4 (95% CI, 1.5-12.9). The highest prevalence of severe gastric abnormalities was found in patients with both host and bacterial high-risk genotypes (cagA(+)/vacAs1(+)/IL-1B -511T/IL-1RN*2), with ORs of 24.8 (95% CI, 5.2-117.3) for severe lymphocytic infiltration, 9.5 (95% CI, 2.8-32.1) for severe granulocytic infiltration, 6.0 (95% CI, 2.4-15.5) for IM, and 2.4 (95% CI, 0.93-6.2) for AG. Combined bacterial/host genotyping thus may provide a clinical tool to identify patients at high risk of developing cancer.