Eosinophils are markers of reduced gastric cancer risk

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Abstract

Eosinophils and mast cells (MC) participate in the immune response against *Helicobacter pylori*, but their involvement in the gastric precancerous process is unclear. This study aimed to estimate eosinophil and MC density in antral mucosa in subjects from two populations with contrasting gastric cancer risks. Gastric biopsies were collected from 117 adult males (72 from a high-risk area and 45 from a low-risk area). A histopathology score was used to quantify severity of the lesions. Quantification of eosinophils in hematoxylin-eosin stained sections and MC in immunostained sections for CD117/c-Kit was performed. *Helicobacter pylori* genotypes were assessed. Logistic regression models and semi-parametric cubic smoothing splines were used. Eosinophil density was significantly higher in subjects from the low-risk area compared with subjects from the high-risk area. In both populations, eosinophil density increased with the histopathology score up to multifocal atrophic gastritis. Intestinal metaplasia and dysplasia specimens showed further increase in eosinophil density in the high-risk area, but an abrupt decrease in the low-risk area. In both populations, MC density increased in parallel to the histopathology score. Our results suggest that in the low-risk area, elevated eosinophil density represents a Th2-biased response that may downregulate the effects of proinflammatory cytokines preventing cancer development. In contrast, in the high-risk area, eosinophils might promote a Th1-type response leading to progression of precancerous lesions.

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