Letter to the Editor

Helicobacter pylori and Colorectal Cancer Risk—Letter

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Epplen and colleagues (1) reported that the overall Helicobacter pylori (H. pylori) seropositivity was not associated with colorectal cancer risk, and seropositivity to specific H. pylori proteins, particularly the toxin VacA antibodies, may be associated with a higher risk of colorectal cancer and right-sided colon cancers.

Remarkably, the serologic test does not discriminate between current and past infections and, apart from past infections that may even be more relevant for oncogenesis, such a distinction is essential because only current H. pylori infection (Hp-I) induces humoral and cellular immune responses that produce or perpetuate chronic inflammatory processes in gastrointestinal tract with potential oncogenic sequelae; many neoplasms including colorectal neoplasms arise at the sites of chronic inflammation and infection (2, 3).

On the basis of histology for documentation of current Hp-I, our series in 50 patients with colorectal cancer, 25 patients with colorectal adenomas, and 10 controls showed significantly higher Hp-I presence in colorectal adenomas (68%) and colorectal cancer (84%) groups than controls (30%; ref. 4). Remarkably, H. pylori presence was documented by immunohistochemical stain in colorectal adenomas and colorectal cancer tissues (4, 5). Presence of Hp-I with accompanying immunohistochemical expression of CD44 [indicator of cancer stem cells ( CSC) and/or bone marrow–derived stem cells (BMDSC)] in biopsy specimens was found in a high proportion of patients with colorectal adenomas accompanied with moderate/severe dysplasia (88%) and patients with colorectal cancer with moderate/severe degree of malignancy (91%). Comparable pictures were also obtained for proliferation marker Ki-67, antiapoptotic Bcl-2, and CD45 (assessing mainly T and B lymphocytes locally) immunohistochemical expressions (4, 5); these mediators might also serve as a risk H. pylori biomarkers involved in the sequence: normal colon epithelium–colorectal adenomas–colorectal cancer development/progression.

Considering the mechanisms underlying the Hp-I involvement in the aforementioned sequence, apart from the left colon–limited oncogenic actions of Hp-induced gastrin, also mentioned by Epplen and colleagues (1), our studies indicate that Hp-I may be involved in colon carcinogenesis by: (i) inducing a possible chronic inflammatory mucosal damage, comparable with upper gastrointestinal tract (UGT); (ii) stimulating CSCs or recruiting BMDSCs, similar to UGT Hp-I-associated chronic inflammation, metaplasia, dysplasia, and BMDSCs recruitment that may facilitate tumor formation/progression in animal models and humans; (iii) and affecting oncogenes and immune surveillance processes (4, 5).

Finally, the following concept about the VacA antibody association with right-sided colon cancers observed by Epplen and colleagues (1) might be considered: (i) as right-sided colon cancers have higher distant metastases than left-sided colon cancers, circulation of activated monocytes (possibly infected with H. pylori due to defective autophagy) might lead to potential H. pylori–related metastatic disease (6); and (ii) VacA promotes H. pylori intracellular survival and modulates host immune responses.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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References

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