



REVISTA DE  
GASTROENTEROLOGÍA  
DE MÉXICO

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## EDITORIAL

# The stratification of gastric cancer risk in Latin America<sup>☆</sup>

## La estratificación del riesgo de cáncer gástrico en América Latina

Gastric adenocarcinoma is the leading global cause of infection-related cancer mortality and the second leading cause of cancer death.<sup>1,2</sup> Globally, gastric cancer demonstrates a marked geographic variability, highlighted by the “African enigma” and the “Asian enigma”. After eastern Asia, Latin America leads with a significant burden of disease, a phenomenon observed despite significant under-reporting in many regions.<sup>3,4</sup> The mortality-to-incidence ratio of 0.82, double that of Japan, underscores the need for improved cancer control. There is also an important geographic variability within the hemisphere, with a relative concentration of disease in the mountainous regions of the Pacific littoral.<sup>5</sup> The “altitude enigma” of gastric cancer in Latin America may provide the opportunity for scientific discovery and targeted prevention programs.

The identification and surveillance of patients with high risk gastric lesions is imperative for gastric cancer control in general and within Latin America. For the gastroenterologist, gastric cancer prevention has traditionally been limited by two key factors. First is the lack of a visual biomarker, such as the case with colon cancer (e.g., adenoma) and esophageal adenocarcinoma (e.g., Barrett’s esophagus). The novel imaging technologies on the horizon will finally provide the gastroenterologist with the ability to identify gastric atrophy and intestinal metaplasia on routine upper endoscopy.<sup>6</sup> Secondly, the definition of high risk gastric histopathology remains ill-defined, lacking definitive studies. The delineation of the highest risk subsets of histopathology remains the cornerstone of surveillance and prevention. Addressing these two challenges will facilitate risk stratification of our patients. These new imaging technologies will permit targeted biopsies, thereby improving sensitivity of endoscopy by providing instructive histopathology.

Currently, how can we identify the patients at the highest risk for gastric cancer and/or progression from inflammatory and precancerous lesions? *Helicobacter pylori* infection is the strongest risk factor, but is not helpful as a screening

tool for the gastroenterologist, particularly given the high population prevalence in Latin America. Similarly, the high risk *H. pylori* genotypes *cagA* and *vacAs1m1*, do not have sufficient specificity to serve as biomarkers. “Geography”, or residence in a high incidence region, is helpful to a certain extent, as is a family history of gastric cancer.

Can gastric histopathology help guide management of patients? A cautious “yes”, but further studies are needed, particularly in Latin America. Intestinal metaplasia appears to carry a measurable risk for progression, particularly the subsets of incomplete metaplasia (colonic-type) and extensive metaplasia (antrum plus corpus).<sup>7,8</sup> The gastric carcinoma index developed by Meining is another example of the use of histopathology to quantify risk.<sup>9</sup> Historically, the gastroenterology and endoscopy society guidelines have not been helpful due to the lack of definitive studies. Fortunately, this is changing, as exemplified by the recent European guidelines for the management of gastric precancerous lesions.<sup>10</sup>

In the current issue of the *Revista de Gastroenterología de México*, Arismendi-Morillo et al.<sup>11</sup> examine the prevalence of higher risk lesions in a group of patients undergoing endoscopy in Venezuela, using the gastric cancer risk index described by Meining.<sup>9</sup> The study addresses the gap in evidence at the regional level in Latin America to guide us in the management of patients with potential high risk pathology. The anticipated high prevalence of *H. pylori* is confirmed (69.4%). Only one fifth of subjects were noted to have a Meining high risk score, and only 8% had evidence of intestinal metaplasia.<sup>11</sup> The low prevalence of high risk and precancerous lesions in this endoscopy cohort is not unexpected. The study is conducted in the low risk coastal region of Zulia, with standardized annual mortality rates of approximately 5.0 per 100,000.<sup>5</sup> In addition, the study group is relatively young (mean age 38.6) and with a female predominance (77%). The study is instructive regarding the prevalence of higher risk gastric pathology in the coastal areas of Caribbean South America. The prevalence of high risk pathology among males over age 40 in the high risk mountainous regions of Venezuela (e.g., Tachira,

<sup>☆</sup> See paper by Arismendi-Morillo G, et al. in pages 135–43.

Merida, and Trujillo, with annual mortality rates of 18–23 per 100,000),<sup>5</sup> would be an interesting comparative study.

In conclusion, gastric cancer prevention via endoscopy traditionally has been limited by the lack of a gastric visual biomarker and the clear evidence-based delineation of the higher risk gastric histopathology. However, the future is upon us, with the advent of novel imaging and “optical biopsy” technologies to guide endoscopy. In parallel, further studies of gastric histopathology are needed, ideally with molecular subtyping, to guide patient risk stratification and surveillance, and to improve cancer control in Latin America.

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