Current Perspectives on Gastric Cancer

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KEYWORDS

• Gastric cancer • *Helicobacter pylori* • Atrophic gastritis • Intestinal metaplasia • Dysplasia

KEY POINTS

- Although gastric cancer (GC) incidence has declined in the United States during the last decade, an increase in the incidence of GC has been estimated for 2016.
- GC prognosis is very poor. Only 28.3% of newly discovered GCs are expected to survive longer than 5 years after diagnosis.
- Prognosis of GC is largely depends on the tumor stage at diagnosis and classification as intestinal or diffuse.
- Although nonsteroidal anti-inflammatory drugs, aspirins, and statins are reported to decrease GC risk, these have not been implemented for GC chemoprevention in clinical practice.
- Risk assessment and surveillance guidelines have been implemented in Asian countries with high incidence of GC. In the United States, only the American Society for Gastrointestinal Endoscopy has recently published guidelines for the screening and management gastric lesion.

GLOBAL IMPACT OF GASTRIC CANCER

Despite the overall decrease in the incidence of gastric cancer (GC) since the 1930s, it is still a major cause of morbidity and mortality worldwide.[1] As many as 952,000 new GC cases were estimated in 2012 alone; making it the fifth most common incident cancer in the world and the third leading cause of cancer death in both sexes worldwide.[2] Among patients diagnosed with GC, close to 75% die from this disease.[3] GC also is responsible for 1 of the highest cancer burdens as determined by disability-adjusted life years lost.[4]

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Globally, GC incidence has been shown to be more common in men and to increase with age, with most cases occurring after the age of 60 years.[2] However, GC incidence rates vary dramatically across countries. The geographic distribution of GC has been mainly attributed to differences in dietary patterns, socioeconomic status, and the prevalence of *Helicobacter pylori* infections.[5] The highest GC incidence and mortality rates occur in Eastern Asia, Central and Eastern Europe, and South America.[6] Mortality rates associated with GC, even in developed countries, are still very high; only 28.3% of newly diagnosed cases are expected to survive 5 years or longer after diagnosis.

According to the Surveillance, Epidemiology, and End Results Program, approximately 22,220 new GC cases were diagnosed in the United States (US) in 2014. An increase in the incidence of GC in the US has been estimated for 2016;[7] according to the American Cancer Society, approximately 26,370 individuals will be diagnosed with GC and 10,730 are expected to die due to this disease. Within the US, Hispanics, African Americans, and Native Americans are more frequently diagnosed with GC than non-Hispanic whites (**Fig. 1**).[3,8]

GASTRIC CANCER CAUSES AND RISK FACTORS

Infectious Agents Associated with Gastric Cancer

Helicobacter pylori

In 1994, the International Agency for Research on Cancer classified *H pylori*, the first formally recognized bacterial carcinogen, as a class I human carcinogen for GC. *H pylori* are involved in 90% of all gastric malignancies.[9] *H pylori* incidence varies according to age, ethnicity, and geographic location. In locations such as Mexico, Argentina, and Asian countries the prevalence of *H pylori* ranges from 30% to 70% by the age of 20 years and 70% to 90% by the age of 60 years. In the US and France, the prevalence is approximately 20% and 40% for younger and older ages, respectively.[10]

H pylori contributes to the development of gastric neoplasia by promoting inflammation in the gastric mucosa (gastritis), which leads to sequential histopathologic changes that may result in the development of GC (**Fig. 2**).[9,11] However, not every individual infected with *H pylori* will develop GC. The exact pathophysiological mechanisms, as well as the contribution of environmental risk factors and host genetic susceptibility in the progression of gastric carcinogenesis, have yet to be fully

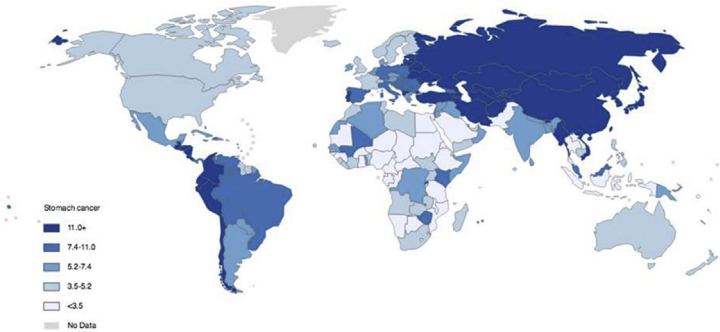

Fig. 1. Age-standardized GC incidence rates, both sexes for 2012. (*From* Ferlay J, Ervik M, Dikshit R, et al. GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11. [Internet]. Lyon (France): International Agency for Research on Cancer; 2013. Available at: http://globocan.iarc.fr. Accessed October 11, 2014; with permission.)