A Global Perspective on Gastrointestinal Diseases

Radha Menon, MD, Andres Riera, MD, Asiya Ahmad, MD, MPH,*

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Common gastrointestinal diseases often exhibit interesting geographic, cultural, and gender variations. Diseases that were previously less prevalent in certain areas of the world have shown a recent increase in prevalence. Industrialization has traditionally been noted as a major cause for this epidemiologic evolution. However, environmental factors such as diet, hygiene, and exposure to infections may also play a major role. Moreover, the way one disease presents in a certain location may vary significantly from the way it manifests in another culture or location. In this article the authors discuss the global variations of inflammatory bowel disease, Helicobacter pylori, irritable bowel disease, fecal incontinence, hepatitis B, and hepatocellular cancer.

INFLAMMATORY BOWEL DISEASE

Over the past few decades, inflammatory bowel disease (IBD) has become increasingly recognized in diverse populations around the world. The prevalence and incidence rates of IBD have historically been higher in developed countries, with a decreasing prevalence from north to south latitudes. These demographics have started to change recently as a significant portion of underdeveloped countries have begun to modernize. The increase in incidence and prevalence of IBD has paralleled the social and economic development and adoption of the Western lifestyle.1,2

The incidence of ulcerative colitis (UC) has been increasing in developed countries since World War II; however, over the past few decades studies have suggested that it may be starting to plateau or even decrease. The highest prevalence rates of IBD

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* Division of Gastroenterology, Department of Medicine, Drexel University College of Medicine, 245 North 15th Street, MS 487, 6104 New College Building, Philadelphia, PA 19102, USA

Division of Internal Medicine, Department of Medicine, Drexel University College of Medicine, 245 North 15th Street, MS 427, 6218 New College Building, Philadelphia, PA 19102, USA

Division of Internal Medicine, Department of Medicine, Drexel University College of Medicine, 219 North Broad Street, 5th Floor, Philadelphia, PA 19107, USA

E-mail address: asiya.ahmad@drexelmed.edu

compounds that give turmeric its yellow color, and curcumin is the principal curcuminoid in turmeric. Several studies have shown that curcumin has both anti-inflammatory and antioxidant properties. It has also been shown to reduce colonic inflammatory responses.\textsuperscript{18} A few studies to date have also studied curcumin's therapeutic potential in patients with IBD. Investigators in a pilot study published in 2005 administered curcumin to 10 patients with either UC or CD, and reported a marked improvement of symptoms and disease activity in 9 of the 10 patients.\textsuperscript{19} In addition, a slightly larger randomized placebo-controlled trial from Japan reported significantly lower recurrence rates among patients with quiescent UC who were administered curcumin when compared with placebo controls.\textsuperscript{20} These studies suggest that curcumin, the active ingredient in the commonly known spice termed turmeric, may have significant therapeutic benefits in the treatment of IBD. However, large randomized controlled studies should be performed to better determine whether curcumin can actually play a significant role in the management of IBD.

IRRITABLE BOWEL SYNDROME

Irritable bowel syndrome (IBS) is classified as a functional bowel disorder, and is one of the most frequent reasons for consultation with a gastroenterologist. However, it remains an underdiagnosed entity, especially in developing societies. Assessment of the prevalence of IBS based on studies conducted over the past 20 years is difficult given the varying populations and assessment criteria used by researchers.\textsuperscript{21} The Manning criteria were introduced in the 1970s, which identified 4 symptoms thought to differentiate patients with IBS from those with other disorders: visible abdominal distention, pain relieved by bowel movement, more frequent stools with the onset of abdominal pain, and looser stools with the onset of pain. Investigators also found that IBS sufferers were more likely to suffer from rectal passage of mucus and sensation of incomplete evacuation. An international committee met to specify time dimensions to this symptom classification system, and this became known as the Rome criteria.\textsuperscript{22} Over time, this classification has been revised and currently the Rome III questionnaire is used.

The prevalence of IBS ranges from 3% to 20%, and is quoted as being between 10% and 15% in most studies conducted in the Western population. It is commonly recognized to have a high female to male ratio (2:1 in most studies), with a typical onset of symptoms before age 45 years and an increase in prevalence again in the elderly.\textsuperscript{21} Some studies use both the Manning and Rome criteria and report a markedly different prevalence (20.4% with Manning vs 8.5% with Rome criteria). Saito and colleagues\textsuperscript{23} concluded that the prevalence of IBS varied substantially depending on the specific definition of IBS used.

The global picture of IBS is far from complete, with limited data, if any, available from certain regions of the world.\textsuperscript{24} It is clear, however, that significant global differences in demographics and clinical presentation of IBS do exist. Based on the literature, the prevalence of IBS seems to be higher than previously thought in Asian countries. By Rome II criteria, the prevalence of IBS in places like Singapore and Japan are 8.6% and 9.8%, respectively, which is comparable to Europe (9.8%), though not as high as in the United States, Canada, and England (12%).\textsuperscript{25} Interpretation of some of these data is problematic, due to the use of varying diagnostic criteria already mentioned, with many studies reporting varying prevalence rates based on different diagnostic criteria. The largest and most recent study in Japan, which surveyed 10,000 subjects, estimated the prevalence of IBS to be 13% by Rome III criteria.\textsuperscript{26} This figure represents a notable increase compared with the prevalence of IBS based on Rome II
analyzed. Of note, there was a more than a fivefold variation in aflatoxin exposure between the different regions, and this was strongly associated with a fivefold increase in the incidence of HCC. Yeh and colleagues61 examined the interaction between HBV infection and aflatoxin exposure in Guangxi province, China. Their results showed that people with positive hepatitis B surface antigen (HBsAg) and heavy aflatoxin exposure had a tenfold higher incidence of HCC than people from areas with low aflatoxin contamination. Also, HBsAg-negative people who were exposed to heavy aflatoxin load had a rate of HCC comparable to that of the HBsAg-positive people with low aflatoxin load. These findings suggest that an increased effort in both HBV immunization programs and programs to lower aflatoxin exposure will lower the incidence of HCC.

**SUMMARY**

There are distinct global differences in the prevalence of many gastrointestinal disorders. These variations are a result of diet, sanitation, genetics, and environmental exposures. As Third World countries become more industrialized, these disparities will begin to diminish. This article highlights IBD, *H pylori*, IBS, fecal incontinence, hepatitis B, and HCC. However, global variations exist for most medical diseases, which should be recognized by all physicians.

**REFERENCES**