The Changing Landscape of Inflammatory Bowel Disease: East Meets West

See “Early course of inflammatory bowel disease in a population-based inception cohort study from 8 countries in Asia and Australia,” by Ng S, Zeng Z, Niewiadomski O, et al, on page 000.

The inflammatory bowel diseases (IBD) are contemporary diseases of modern societies. Ulcerative colitis emerged in the Western world in the 19th century with “regional ileitis” entering the medical vernacular in the 1930s.1 Throughout the 20th century, the incidence of Crohn’s disease and ulcerative colitis exponentially increased in the Western world including North America, Europe, Australia, and New Zealand, and predominantly, among white individuals of European descent.2 The 21st century ushered in a new era with the advent of IBD in newly industrialized countries throughout the world. As societies in newly industrialized countries have adopted practices of the Western world, diseases of the Western world, such as IBD, have emerged.3

The rise of IBD in Asia has been documented by the Asia-Pacific Crohn’s and Colitis Epidemiology Study (ACCESS) Group.4 This consortium developed population-based inception cohorts of patients with ulcerative colitis and Crohn’s disease in Asia (China, Hong Kong, Indonesia, Sri Lanka, Macau, Malaysia, Singapore, and Thailand) and a control country of the Western world (Australia) between 2011 and 2013. The first publication from ACCESS in 2013 reported that the incidence of IBD in Asia was 1.4 per 100,000.5 Although this incidence was a fraction of the incidence reported in Australia (24 per 100,000), the publication confirmed the presence of IBD in multiple countries across Asia. A fundamental question stemmed from this study: is a patient diagnosed with IBD in Asia similar to an individual diagnosed in North America or Australia? In other words, is the pathogenesis of IBD in Asia unique such that patients living in Asia will collectively experience a different natural history, response to drugs, and need for surgery?

This question was addressed in this issue of Gastroenterology by Ng et al.5 Using standardized operating procedures and infrastructure, patients with Crohn’s disease and ulcerative colitis who were diagnosed between 2011 and 2013 were followed prospectively to characterize the evolution of phenotype, drug use, and prognosis (eg, surgery) during the first 18 months (median period) of diagnosis. For the most part, prescription of immunomodulators and anti-tumor necrosis factor, and need for surgery were relatively similar for Asia and Australia.

Although Crohn’s disease and ulcerative colitis are heterogeneous diseases with multiple different phenotypes, the findings from this study suggest that the nature of IBD is similar in Asia and the Western world. Prior studies have also supported this notion. Multiple studies have confirmed that first-generation offspring of immigrants from countries with a low prevalence of IBD to high prevalence countries are at equal or increased risk of developing IBD compared with the baseline population.6 This observation suggests that developing IBD is not driven entirely by ethnicity. Further, a recent publication confirmed that the principal susceptibility genes for IBD are similar between patients diagnosed with IBD in the Western World and Asia.7 Also, many environmental risk factors for IBD are similar in the East and the West; in particular, breastfeeding has been shown to be universally protective for the development of IBD in the Western world and Asia.8 However, a few differences have been observed across countries: for example, among Asians, ATG16L1 may not be a susceptibility gene and smoking may not increase the risk of Crohn’s disease.910 Still, the overall patterns suggest that IBD in Asia is similar to the Western world with certain nuanced differences.

Although the prognosis of IBD was similar in Asia and Australia, some differences were noted: patients diagnosed with Crohn’s disease in Asia seemed to progress more rapidly to stricturing or penetrating complications compared with those in Australia; additionally, more advanced disease extent was observed for ulcerative colitis in Asia. Although these differences may be explained by phenotypic heterogeneity among patients diagnosed in Asia, methodologic limitations may also play a role.11 Advanced progression may reflect a selection bias in recruitment of patients with IBD. Owing to the relatively novel emergence of IBD in Asia, patients with undiagnosed IBD may face barriers to accessing care, lack of medical awareness, and delays to diagnoses.12 For instance, patients with a milder course of IBD may not have been diagnosed with IBD, which would bias the presentation towards a more severe phenotype.

In the 21st century, the prevalence of IBD in the Western world is approximately 0.5%, with millions of individuals suffering from IBD in North America and Europe.1213 IBD is associated with compounding prevalence, whereby the number of people with a chronic disease exponentially rises owing to the young age of onset, low mortality, and lack of cure.13 Predictive modeling suggests that the number of people with IBD living in North America may nearly double over the next decade (Coward et al. Abstract. 2015; American College of Gastroenterology conference, Hawaii). The direct costs of managing IBD are in the billions of dollars, which is magnified by the indirect costs such as loss in work productivity.1214 The era of biologics starting in 2000 has improved quality of life and led to a steady decrease in...
hospitalization and surgery for IBD; unfortunately, the cost of biologics is enormous. The prescription of biologics has been widely adopted owing to strong evidence of efficacy and low risk of toxicity, moreover, biologics are being prescribed earlier in disease course and dose escalation is frequent in attempt to achieve mucosal healing. The net effect is that the proportion of patients with IBD who are prescribed a biologic is increasing annually. Increased use of biologics in conjunction with compounding prevalence will have important economic consequences for the Western world.

Although the incidence of IBD in Asia is increasing, currently the prevalence remains low. Despite this, ongoing changes in Asia will likely translate to a steadily increasing prevalence over the next decade. Countries in Asia continue to become more urbanized, industrialized, and Westernized, which sets up the milieu for the development of IBD. As access to specialized care and delivery of care improves, greater awareness and diagnosis of IBD will occur. Further, even at a low prevalence the absolute number of people living with IBD in Asia will be high owing to the population size of many countries in Asia (eg, 1.36 billion in China in 2013). The net effect of increasing incidence and natural population growth means that countries in Asia should expect that the absolute number of patients with IBD living in Asia will be high. In fact, over the next decade countries in Asia may have as many patients with IBD as those living in the United States and Europe.

The findings from Ng et al in this issue of *Gastroenterology* are important because they suggest the prognosis of patients with IBD living in Asia may be similar to those living in the Western world. This means gastroenterologists in Asia can look across to Europe and North America to visualize how their clinics will evolve over the next decade as the number of patients with IBD increase in their practices. The findings from this study confirm, at least in the short term, that patients with IBD in Asia require the same aggressive, complex, and expensive care. As an example, although the use of corticosteroids within 1 year of diagnosis was greater in Australia than Asia, prescription of immunosuppressants and anti-tumor necrosis factor agents were similar. Surgery for Crohn’s disease 1 year after diagnosis was nearly the same in Asia (8%) as in Australia (12%) and consistent with the risk of surgery reported in other population-based studies of the Western world. However, the risk of colectomy 1 year after diagnosis of ulcerative colitis was low in both Asia (1.1%) and Australia (0%). As this cohort is followed forward in time, we will learn whether the prognosis of IBD in Asia remains similar or diverges from the Western world. Until these data are available, countries in Asia should prepare for an escalating burden of IBD with increased use of health care resources for patients with IBD, including outpatient ambulatory clinics, emergency room visits, hospitalizations, and surgeries. In addition, the penetration of biologics will likely escalate and countries in Asia will have to contend with paying for its cost, with some governments assuming this cost and others passing it to patients. The net concerning effect may be disparity in care based on socioeconomic status within and between countries. By understanding the changing landscape of IBD, countries in Asia can take several steps to mitigate the burden of IBD they will face in the future.

The Western world has had decades of experience in managing IBD, both rightly and wrongly, such that numerous evidence-based guidelines exist to support nearly every aspect of managing IBD. If the data from this study hold true, then these approaches can be adopted in Asia. Additionally, modeling can be carried out using data emerging from Asia and integrating data from the West to predict the health care needs of patients with IBD and economic costs to societies in Asia over the next decade. To track outcomes, we suggest that countries in Asia advocate for the adoption of electronic surveillance systems that have been effectively used for health services research in Western countries. Innovative approaches that decrease the need for biologics should be sought, particularly for nations that may not be able to equitably afford the high penetration of biologics. This may include biomarkers that optimize the choice of biologics, establish the minimal dose required for remission, and identify those for drug withdrawal. Last, at the cusp of the acceleration in the incidence of IBD in Asia, focusing research on preventing the development of IBD may blunt the upward slope in the prevalence of IBD in the East.

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Conflicts of interest
The authors disclose no conflicts.

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http://dx.doi.org/10.1053/j.gastro.2015.11.029