

GASTROINTESTINAL DISEASES IN SINGAPORE AND ASIA PACIFIC REGION

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In this quarterly issue of the Singapore Family Physician the spotlight is on Gastrointestinal (GI) diseases which is a substantial area of morbidity and mortality, as well being subjected to changing trends in our part of the world.

Cause of morbidity and mortality

Today, GI diseases worldwide continue to be the cause of morbidity and mortality seen in everyday practice. In Singapore, in the 2001 one day morbidity survey it was documented that diarrhoeal diseases and gastritis occupied the fourth and eighth spots in the top ten conditions seen in primary care. (Emmanuel et al, 2004)¹.

Based on the Singapore Cancer Registry figures from 1968 to 2002, Singapore is seeing a dramatic increasing trend in the incidence of colorectal cancer. Between 1998 and 2002, deaths from colorectal cancer constituted 19% of all cancer mortalities in men and 14% in women, accounting for the second highest cause of cancer mortality in both genders (Wong MT, Eu KW, 2007)². The total number of deaths in Singapore in 1997 and 2002 were 15,305 and 15,820 respectively (Yearbook of Statistics, 2008)³, so a rough estimate is that some 2,500 people in Singapore died annually from colorectal cancer in that time period.

Changing trends

There have been also changing trends in the GI diseases in our part of the world. These have been well reported by our gastroenterologists in Singapore and by gastroenterologists in the neighbouring countries. The changing trends are in part a consequence of changes in lifestyle and eating habits and this has been described as the “westernization” of GI disease in Asia. A rising trend of gastro-esophageal reflux disease (GERD) has already been recognised. It is being predicted that Inflammatory bowel disease may be the next merging GI disease in the Asia Pacific region (Sung JJY, 2004; Goh, 2007)^{4,5}.

Gastric cancer

In Singapore, gastric cancer has shown a steady decline over the past 20 years (Goh, 2007)⁵. It was around 50 per 100,000 in 1970 and was 25 per 100,000 in 1997. In the Asia Pacific region however, gastric cancer remains high in some countries and it is important to know this because of the free movement of people within the region. We may well see some of these high risk individuals in our consultation rooms.

In 2002, Korea and Japan recorded the highest gastric cancer incidence in the world for both men and women. In 1997, the age-standardised incidence rate for gastric cancer in Osaka Prefecture, Japan was 60 per 100,000 and in Qidong County, China was 35 per 100,000.

Asia Pacific is a diverse region nevertheless and age standardized rates for gastric cancer in India, Thailand and the Philippines are among the lowest in the world; they range from 10 to 15 per 100,000 per year. In multiracial Singapore, Chinese have the highest incidence rates compared to low incidence rates among Malays and Indians (Goh, 2007)⁵.

Food has been implicated as cause of the high gastric cancer incidence rates among Chinese, Koreans and Japanese. High salt content of oriental foods and the intake of preserved foods such as soya-bean paste soup and Kim-chi among Japanese and Koreans have been implicated as a cause. On the other hand, Indians appear to be protected because of the high intake of curries and chillies, which may contain gastro-protective factors such as curcumin (Goh, 2007)⁵. Ultimately, causation of disease would depend on the interaction between host genetic factors and environmental factors including diet and *H.pylori* infection.

What has been observed also is that in the countries at risk in Asia Pacific region, there has been a steady decline over the past twenty years. This is in keeping with observed trends noted in Western countries, where gastric cancer has been observed to have declined since the 1940s (Howson et al, 1986)⁶. This decline is thought to be due to the decreased intake of salt and food preservatives following the widespread use of refrigeration of food in the West. Refrigeration has also allowed greater intake of fresh fruits and vegetables with a higher level of oxidants.

In the latest Asia Pacific consensus guidelines on gastric cancer prevention published in 2008, *H.pylori* is identified as a necessary but not sufficient causal factor for non-cardia gastric adenocarcinoma (Fock KM et al, 2008)⁷. As is alluded to above, reduction of high salt intake is preventive. Fresh fruits and vegetables are protective but the use of vitamins and other dietary supplements does not prevent gastric cancer. Host-

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bacterial interaction in *H. pylori* infection results in different patterns of gastritis and differences in gastric acid secretion which determine disease outcome.

A positive family history of gastric cancer is an important risk factor. Low serum pepsinogens reflect gastric atrophy and may be useful as a marker to identify populations at risk for gastric cancer.

A strategy of *H. pylori* screening and eradication in high risk populations will probably reduce gastric cancer incidence. *H. pylori* screening and treatment is most effective before atrophic gastritis has developed. It does not exclude the existing practice of gastric cancer surveillance in high-risk populations. In populations at low risk for gastric cancer, *H. pylori* screening is not recommended. First-line treatment of *H. pylori* infection should be in accordance with national treatment guidelines.

Colorectal cancer

Colorectal cancer (CRC) has been long considered a Western disease but no more. The age specific death rates of CRC have increased markedly in Japan and among Singapore Chinese and are among the highest in the world (Goh, 2007)⁵.

This changing epidemiology follows that of the West where CRC has been rising steadily over the past 40 to 50 years. The rise in Asia Pacific just like that in the West, is likely to be due to rising affluence, increase in obesity, and a decrease in physical activity. Also, the adoption of a westernized diet of higher protein and fat content has also be implicated. Without doubt, CRC will be the major GI cancer in the coming years in Singapore and Asia Pacific (Goh, 2007)⁵. The challenge will be whether correction of the risk factors can be done at the population level.

Acid-peptic diseases

There is also a change in the incidence of acid-peptic diseases. Peptic ulcer is on the decrease and gastro-esophageal reflux disease (GERD) is on the increase.

Peptic ulcers are independently related to both *H. pylori* infection as well as non-steroidal anti-inflammatory drugs (NSAIDs). *H. pylori* infected patients have historical gastritis and approximately 80% are asymptomatic, 10-15% develop peptic ulcer, 1-2% develop gastric cancer and a very small proportion develop gastric mucosa-associated lymphoid tissue lymphoma (Suerbaum et al, 2002)⁸. Eradication of *H. pylori* infection facilitates peptic ulcer healing, reduces recurrences of peptic ulcers and reduces the incidence of bleeding peptic ulcers in clinical trials (Fock KM et al, 2008)⁷. Higher consumption of NSAIDs in the elderly however, will result in an increase in GI ulceration and associated complications particularly GI bleeding despite the decrease in *H. pylori* associated ulcers.

GERD has been considered a rare disease in Asia until the 1990s. The situation has changed dramatically. Recent reports from cross-sectional studies conducted across Asia indicate a general upward trend in the prevalence of GERD with a rising proportion of patients presenting with reflux esophagitis and Barrett's esophagus or metaplasia (Ho KY, 2008)⁹.

What are the factors that contribute to the epidemiological transition? In all probability, an aggregate of social, environmental factors related to urbanization, as well as genetic factors are at play. Genetically, Asians, in particular those in South-East and East Asia, have always been shown to be less prone to GERD than Westerners. The extensive alteration of the Asian traditional diet to one that is high in fat and reduced in national fiber with urbanization may be tipping the balance. Smoking and the consumption of alcohol have also been found to increase acid reflux (Ho KY, 2008)⁹.

Other GI diseases

Inflammatory bowel disease (IBD): ulcerative colitis and Crohn's disease have also been thought to be very uncommon diseases in Asians. Studies from Japan and China have, however shown marked increases in prevalence rates as well as absolute numbers of patients with IBD (Goh, 2007)⁵.

CONCLUSIONS

There is a need to recognize the changing trends in GI diseases in Singapore and in the Asian Pacific region, as well as to respond to their prevention and adequate management.

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