Epidemiology of Helicobacter in Chinese families: a foundation for cost-effective eradication strategies?

Your recent ‘Chinese Consensus Report on Family-based Helicobacter pylori infection Control and management (2021 Edition)’1 and ‘Large-scale, national, family-based epidemiological study on Helicobacter pylori infection in China: the time to change practice for related disease prevention’2 will encourage more doctors in China to consider Helicobacter pylori as a curable aetiology for gastrointestinal symptoms, and as a smart way to prevent gastric cancer in the ageing population. The paper is based on results of a very large new study of H. pylori prevalence in China whereby investigators completed a China-wide breath-test survey of 10735 families. Unfortunately, 70% of families had at least one positive family member although younger, educated and Eastern-China families had less, with 28% of persons being infected but only 20% of children being infected. In contrast, some North-Western provinces had 85% of families infected and 19% had all family members infected. The parents seemed to be the main source, mother and father equally. Food serving habits had only a very minor effect on prevalence.

H. pylori is the primary cause of gastric cancer, which is still the fourth most common cause of cancer-related death.3–5 Every year, about 1 089 103 of new gastric cancer cases are diagnosed worldwide and about 478 508 cases are located in China alone.6 In China, the H. pylori prevalence is lower (∼30%–50%) along the wealthiest coastal cities and higher (∼50%–80%) among the inner cities.1 Gansu, one of the poorest provinces in China, has the highest prevalence of H. pylori and the highest incidence of gastric cancer.2

But globally, the correlation does not always hold. India and Bangladesh are known to have a high prevalence of H. pylori but a low incidence of gastric cancer. Conversely, people in Korea, Japan and China, who carry the H. pylori strains with the most potent CagA toxin, have the most gastric cancer. This suggests that factors such as H. pylori strain variance, human host genetic profiles and diet also contribute to gastric cancer.

While the exact mechanism whereby H. pylori causes gastric cancer is unknown, it is certain that gastric cancer follows the long-standing chronic gastritis induced by H. pylori. This process leads to the Correa cascade of atrophic gastritis, intestinal metaplasia and dysplasia. Nested case–control studies have shown that H. pylori infection is the main risk factor for gastric cancer, both intestinal and diffuse subtype, and that H. pylori is responsible for approximately 90% of the world’s burden of non-cardia gastric cancer.

Evidence exists that eradication of H. pylori is a cost-effective strategy to reduce gastric cancer.6–7 In the Matsu Islands of Taiwan, mass screening and eradication of H. pylori has decreased gastric cancer by approximately 25%, peptic ulcers by two-thirds, and gastric atrophy by 77% compared with historical data.8 However, as antibiotic resistance is rising globally, China is facing a challenge in tackling antibiotic resistant H. pylori strains. At this time, only a handful of hospitals/laboratories in China have the capability of culturing H. pylori. The poor success rate in H. pylori culturing makes it difficult to implement a ‘precision medicine’ strategy to choose the most efficient antibiotics to treat individuals with antibiotic resistant H. pylori. Since there is no fool-proof guideline to direct antibiotic use after failing the first-line standard triple therapy, clinicians are inclined to treat patients blindly by prescribing random antibiotics, that is, ‘making a guess’.

China is a country burdened with a high prevalence of gastric cancer and H. pylori eradication has been shown to be worthwhile in many studies. The task of finding and eradicating H. pylori, within families, should not be delayed.

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