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 10 735 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.[3] In China, the *H. pylori* prevalence is lower (~30%–50%) along the wealthier 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 foolproof 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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