

## Correspondence

### Prevalence of *Helicobacter pylori* and parasites in symptomatic children examined for *Helicobacter pylori* antibodies, antigens, and parasites in Yemen

To the Editor

I read with interest the study by Bin Mohanna et al<sup>1</sup> on the prevalence of *Helicobacter pylori* (*H. pylori*) and parasites in symptomatic children examined for *H. pylori* antibodies, antigens, and parasites in Yemen. Bin Mohanna et al<sup>1</sup> addressed that the prevalence of *H. pylori* among the studied symptomatic cohort was 65%. I presume that such prevalence ought to be cautiously taken. This is based on the presence of an important limitation related to the methodology employed in the study. Bin Mohanna et al<sup>1</sup> stated that patients were considered to be infected with *H. pylori* if they were positive in both blood and stool, or one of the 2, either blood or stool test if there is a relevant complaint related to the abdomen. They did not support those diagnostic criteria by references or guidelines. It is noteworthy that the current reference standard for investigating *H. pylori* associated disease in children remains upper intestinal endoscopy and biopsies for histology and culture or rapid urease test. Non-invasive tests should be used to confirm *H. pylori* eradication following treatment. Currently there is insufficient evidence to recommend them over invasive tests in symptomatic children, because they cannot be used reliably in children to diagnose, or distinguish *H. pylori*-associated diseases from conditions that are not *H. pylori* related.<sup>2</sup> Despite that limitation, I presume that the reported high prevalence of *H. pylori* infection (65%) among symptomatic children in Bin Mohanna et al's study<sup>1</sup> together with its substantial prevalence among asymptomatic healthy Yemeni children (9%)<sup>3</sup> necessitates considering the implementation of the following 2 measures: 1) as low personal hygiene and contact with animals were found to be important predictors for intestinal infections in Yemen, preventive public health measures involving good sanitary practices, good animal husbandry practices, and heightened provision of educational health programs and health services in all Yemeni governorates, particularly rural areas deem essential to implement,<sup>4</sup> and 2) screening for *H. pylori* infection should be considered, particularly among school-aged children who have gastrointestinal complaints, especially those who complain of recurrent abdominal pain. It involves using a C-urea breath test

(C-UBT), and in patients with positive C-UBT, the diagnosis ought to be confirmed by demonstrating *H. pylori* in biopsy specimens obtained by gastrointestinal endoscopy. Due to limited financial resources and technical difficulties in Yemen, the aforementioned screening protocol is difficult to implement. Recently, positive saliva *H. pylori* antigen has been noticed to be an important indicator in C-UBT-asymptomatic patients. Since the saliva might be a reservoir from where *H. pylori* bacterium is transmitted to the stomach, positive saliva *H. pylori* antigen might be strongly associated with stomach infection.<sup>5</sup> Hence, saliva *H. pylori* antigen detection might be adopted as a simple, practical, and better alternative tool for screening program, particularly in developing countries like Yemen.

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#### Reply from the Author

We are grateful to Prof. Al-Mendalawi for his interest in our study and we read with interest his comments on our article,<sup>1</sup> and we appreciate the opportunity to respond. We would like to clarify the following: 1) The objective of our study was to estimate the prevalence of *H. pylori* and parasites in symptomatic children examined for *H. pylori* antibodies, antigens, and parasites in Specialized Sam Pediatric Center in Sana'a city Yemen.<sup>1</sup> There were 675 children with age ranging from 3-15 years. They had different types of gastric complaints (recurrent, chronic abdominal pain, gastritis, dyspepsia, nausea, vomiting, and chronic diarrhea), and suspected of having *H. pylori*. In this situation, the best procedure for diagnosing *H. pylori* infection, or other parasite disease was the non-invasive methods, which included serology and stool antigen testing. Andrews et al<sup>6</sup> reported that the serology testing is the best method in difficult situations where bacterial density may be low due to gastric atrophy or due to previous treatment with antibiotics, and stool tests have the advantage of being direct non-invasive tests because they detect either the bacteria, or part of it (DNA, antigen) or other parasite in a specimen, which is easily obtained. The stool antigen test (SAT) is an enzyme immunoassay designed to detect *H. pylori* in fecal specimens by measuring *H. pylori* antigen released from organisms lining the stomach wall. As antigen is only detected if *H. pylori*

is present, the SAT can be used as an accurate tool to diagnose active *H. pylori* infection, and to establish eradication of the organism following treatment;<sup>6-8</sup> and 2) Patients were considered to be infected with *H. pylori* if they were positive in both blood and stool, or one of the 2, either blood or stool test if there is a relevant complaint related to the abdomen. Many researchers from Iraq, such as, Alsaimary et al, Twaij, Al-Yas, and from other countries<sup>9-13</sup> depend on one or 2 tests only for the diagnosis of *H. pylori*, and any test that would give positive results for *H. pylori* was regarded positive for final diagnosis. However, every diagnostic method has a percentage of false positive or negative result; therefore, if at least 2 methods for *H. pylori* gives positive result at the same time for the same patient, this indicates that the patient has really been infected with *H.pylori*.<sup>9-13</sup>

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## References

- Bin Mohanna MA, Al-Zubairi LM, Sallam AK. Prevalence of *Helicobacter pylori* and parasites in symptomatic children examined for *Helicobacter pylori* antibodies, antigens, and parasites in Yemen. *Saudi Med J* 2014; 35: 1408-1411.
- Crowley E, Bourke B, Hussey S. How to use *Helicobacter pylori* testing in paediatric practice. *Arch Dis Child Educ Pract Ed* 2013; 98: 18-25.
- Al-Shamahy HA. Seroprevalence of *Helicobacter pylori* among children in Sana'a, Yemen. *Ann Saudi Med* 2005; 25: 299-303.
- Alyousefi NA, Mahdy MA, Mahmud R, Lim YA. Factors associated with high prevalence of intestinal protozoan infections among patients in Sana'a City, Yemen. *PLoS One* 2011; 6: e22044.
- Yee KC, Wei MH, Yee HC, Everett KD, Yee HP, Hazeki-Talor N. A screening trial of *Helicobacter pylori* -specific antigen tests in saliva to identify an oral infection. *Digestion* 2013; 87: 163-169.
- Andrews J, Marsden B, Brown D, Wong VS, Wood E, Kelsey M. Comparison of three stool antigen tests for *Helicobacter pylori* detection. *J Clin Pathol* 2003; 56: 769-771.
- Chey WD, Wong BC. American College of Gastroenterology guideline on Management of *Helicobacter pylori* Infection. *Am J Gastroenterol* 2007; 102: 1808-1825.
- Malferteiner P, Megraud F, O'Morain C, Bazzoli F, El-Omar E, Graham D, et al. Current concepts in the management of *Helicobacter pylori* infection: the Maastricht III Consensus Report. *Gut* 2007; 56: 772-781.
- Alsaimary I, Al-Sadoon M, Jassim A, Hamadi S. Clinical findings and prevalence of *helicobacter pylori* in patients with gastritis B in Al-basrah Governorate. *Oman Med J* 2009; 24: 208-211.
- Gisbert JP, de la Morena F, Abaira V. Accuracy of Monoclonal Stool Antigen Test for the Diagnosis of *H. pylori* Infection: A Systematic Review and Meta-Analysis. *Am J Gastroenterol* 2006; 101: 1921-1930.
- Ni YH, Lin JT, Huang SF, Yang JC, Chang MH. Accurate diagnosis *Helicobacter pylori* infection by stool antigen test and 6 other currently available tests in children. *J Pediatr* 2000; 136: 823-827.
- Twaij A. Invasive and non invasive methods for detection of *H. pylori* with some molecular aspects of its pathogenesis. PhD Thesis. College of Medicine: Al-Nahrain University; 2006.
- Al-Yas M. Comparative study between *H. pylori* isolated from human and some domestic animals. PhD Thesis. College of Science: Al-Nahrain University; 2006.

## Related Articles

Pandya HB, Patel JS, Agravat HH, Patel SB, Thakkar MC. Identification of *Helicobacter pylori* by different conventional staining techniques and its comparison with polymerase chain reaction. *Saudi Med J* 2013; 34: 942-948.

Al-Khattaf AS. *Helicobacter pylori* virulence markers in gastroduodenal disorders. Detection of cytotoxin-associated gene A and vacuolating cytotoxin-associated gene A genes in Saudi patients. *Saudi Med J* 2012; 33: 716-721.

Salih KE, Elfaky WE, Salih AA, El-Samani EZ, Hussien KE. Role of selected simple non-invasive laboratory investigations in assessing functional abdominal pain in children aged 5-15 years in Khartoum, Sudan. *Saudi Med J* 2011; 32: 939-942.