

The Usefulness of Serology in the Diagnosis of *Helicobacter Pylori* Infection

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Dear Editor, we read carefully the article by Saeed et al. [1] entitled "Prevalence of Helicobacter pylori Infection in Cigarette and Nargileh Smoking Males in Erbil City, Iraq" which was published in volume 18, issue 2, 2022 of Al-Anbar Medical Journal. On using serology (IgG antibody test), Saeed et al. [1] found that Helicobacter pylori (*H. pylori*) prevalence in smokers and non-smokers were 64.9% and 45.5%, respectively ($P = 0.03$). The young age group (25-34 years old) had the highest prevalence (54.1%; $P = 0.05$), and 89.2% of *H. pylori*-infected individuals had gastric complaints ($P = 0.01$). Nargileh smokers made up half of the *H. pylori*-positive participants. We, hereby, explore the limitations of the published article and provide insight into the value of serology to diagnose *H. pylori* infection.

It is important to note that *H. pylori* infection, which affects about 50% of the world's people, is a serious threat to public health. Since this infection is linked with a substantial cases of gastric disorders such as peptic ulcers, inflammation, and malignant tumors, early diagnosis and treatment are essential to hinder the spread of the infection. In addition, different extra gastric manifestations, such as immune thrombocytopenic purpura, iron deficiency anemia, vitamin B12 deficiency, certain neurological disorders, cardiovascular diseases, and diabetes mellitus, have also been associated with *H. pylori* infection [2]. Educating the public about *H. pylori* and the risks it poses is essential for reducing or eliminating the infection. As a result, there is a need to raise awareness about *H. pylori* and its health consequences, as well as to improve standards for the currently used diagnostic and treatment strategies [3]. Numerous non-invasive and invasive laboratory tools can be used to diagnose *H. pylori* infection. There are limitations and advantages to each tool. Multiple

factors, including the clinical picture, the availability and cost of the test, as well as sensitivity and specificity, may influence the choice of a single or combined tool [4]. While polymerase chain reaction (PCR) is more accurate, serological tests provide a number of benefits over PCR, including lower costs, the appearance of practicality in resource-limited nations, and ongoing improvements [5]. The confirmation of a current *H. pylori* infection is made possible by multiplex serology, which is designed to detect antibodies to specific proteins. Blood spots that have been dried out could be used to collect and store blood without losing accuracy [4]. With advanced technology, a new diagnostic tool for *H. pylori* infection based on an artificial intelligence system has been introduced and has shown promising results [6–8].

In Iraq, there is still no agreement on the gold standard laboratory tool to diagnose *H. pylori* infection as well there is a scarcity of data on the validity and reliability of various diagnostic tools. However, the available data pointed out that the overall performance of different tools to diagnose *H. pylori* infection in Iraqi individuals was; PCR (70.4%), 14C-urea breath test (14C-UBT) (68.7%), stool antigen test (SAT) (67%), rapid urease test (RUT) (66.1%), IgG serology (53%), and gastric tissue culture (47.8%) [9]. Interestingly, 14C-UBT exhibited the greatest overall performance with 97% specificity, 97.5% sensitivity, and total accuracy of 97.3%, followed by SAT, RUT, IgG serology, and culture. Based on how well the tools can find *H. pylori*, they could be put in the following order: PCR > 14C-UBT > SAT > RUT > IgG serology > culture. Due to its superior performance in comparison with other tools, 14C-UBT could be recommended as the first option for *H. pylori* diagnosis in Iraq [9]. We, therefore, believe that Saeed et al. [1] reference to IgG serology in the research methodology didn't lead to accurate study findings.

In conclusion, serology (IgG antibody test) appears to be inferior to other tests for accurately diagnosing *H. pylori* infection in Iraq, and future research is required to determine the best diagnostic tool.

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Ethics Approval and Consent to Participate

Not applicable as the manuscript represents my comment on the already published article in the journal.

Consent for Publication

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Availability of Data and Material

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Competing Interests

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