



Original Article

Profile of Anti-*Helicobacter pylori* IgG Antibody Test Results in Patients with Chronic Gastritis at the Baregbeg Community Health Center

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ABSTRACT

Gastritis is an inflammation of the gastric mucosa that may be caused by various factors, including irregular dietary habits, nonsteroidal anti-inflammatory drug (NSAID) use, psychological stress, alcohol consumption, and *Helicobacter pylori* infection, which is recognized as a major cause of chronic gastritis. In primary healthcare settings, identification of the underlying etiology of gastritis is often limited by the availability of diagnostic laboratory facilities. Therefore, serological detection of anti-*Helicobacter pylori* immunoglobulin G (IgG) antibodies may serve as an alternative diagnostic approach. This study aimed to determine the serological profile of anti-*Helicobacter pylori* IgG antibodies among patients with chronic gastritis attending the Baregbeg Community Health Center. A descriptive study was conducted involving 24 outpatients diagnosed with chronic gastritis who met the inclusion criteria. Participants were recruited using a total sampling technique. Serum samples were collected and analyzed using an immunochromatographic assay at the Baregbeg Community Health Center Laboratory between April and June 2025. All 24 participants (100%) tested negative for anti-*Helicobacter pylori* IgG antibodies. No serological evidence of *Helicobacter pylori* infection was detected among the study participants. In conclusion, no serological evidence of *Helicobacter pylori* infection was detected among chronic gastritis patients included in this study, with an observed *Helicobacter pylori* seropositivity rate of 0%.

Introduction

Gastritis remains a major public health concern because of its high prevalence and substantial impact on healthcare systems worldwide. According to the World Health Organization (WHO), gastritis and other gastric disorders continue to contribute considerably to global morbidity. In Indonesia, gastritis is among the most frequently reported gastrointestinal diseases, with an estimated prevalence of approximately 40% based on several national studies (Jusuf, Adityaningrum, & Yunus, 2022; Kemenkes, 2024). Similarly, West Java Province has reported a high incidence of gastritis, indicating that this disease continues to represent an important public health burden (Kemenkes, 2024). At the local level, data from the Ciamis Regency Health Office showed that gastritis ranked fifth among the ten most common diseases, with 19,971 reported cases between January and

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September 2024. These findings emphasize the continuing need to improve preventive strategies, early diagnosis, and appropriate management of gastritis (Sung et al., 2021; World Health Organization, 2022).

Gastritis is an inflammatory disorder of the gastric mucosa that may develop as a consequence of multiple factors, including unhealthy dietary habits, prolonged use of nonsteroidal anti-inflammatory drugs (NSAIDs), psychological stress, alcohol consumption, and microbial infection. Among these etiological factors, *Helicobacter pylori* infection is recognized as the primary cause of chronic gastritis and remains one of the most prevalent bacterial infections worldwide (Hooi et al., 2017; Malfertheiner et al., 2022). Colonization of the gastric mucosa by *Helicobacter pylori* induces persistent inflammation that may progress from chronic gastritis to peptic ulcer disease, gastric mucosal atrophy, intestinal metaplasia, and ultimately gastric carcinoma if left untreated. The risk of *Helicobacter pylori* infection is particularly high in populations with poor sanitation, inadequate personal hygiene, and limited access to clean water, conditions that facilitate bacterial transmission through contaminated food and drinking water (Alfaray et al., 2022; Leja, Axon, & Brenner, 2016).

Patients with gastritis commonly present with epigastric pain, nausea, vomiting, abdominal bloating, frequent belching, and decreased appetite. Although these symptoms are often nonspecific, they may significantly impair patients' quality of life and delay appropriate treatment. Because the clinical manifestations of gastritis are similar regardless of its underlying etiology, clinical assessment alone is insufficient to identify the exact cause of the disease. Therefore, laboratory confirmation of *Helicobacter pylori* infection is essential to establish an accurate diagnosis and to determine appropriate eradication therapy, which differs from the management of gastritis caused by non-infectious factors (Burucoa & Axon, 2017; Ford et al., 2020).

Several invasive and non-invasive diagnostic methods are available to detect *Helicobacter pylori* infection, including endoscopic biopsy, rapid urease testing, histopathological examination, urea breath testing, stool antigen testing, and serological examination. Among these methods, serological testing offers several practical advantages because it is non-invasive, relatively inexpensive, easy to perform, and provides rapid qualitative results through immunochromatographic techniques. These characteristics make serological testing particularly suitable for primary healthcare facilities with limited laboratory resources (Burucoa & Axon, 2017; Gisbert & Calvet, 2021; Miftahussurur & Yamaoka, 2016).

Despite the availability of various diagnostic methods, access to laboratory examinations capable of identifying *Helicobacter pylori* infection remains limited in many primary healthcare facilities in Indonesia. Community Health Centers (Puskesmas) serve as the first point of contact for patients with gastritis and play an important role in delivering promotive, preventive, curative, and rehabilitative healthcare services. However, limited laboratory infrastructure frequently restricts the implementation of confirmatory diagnostic testing for *Helicobacter pylori*, leading clinicians to rely primarily on clinical manifestations when managing patients with chronic gastritis (Kemenkes, 2024; World Health Organization, 2020).

Although numerous studies have investigated *Helicobacter pylori* infection in hospital settings, evidence regarding the serological profile of chronic gastritis patients attending primary healthcare facilities remains limited, particularly in community health centers located in regional areas of Indonesia. To the best of our knowledge, no published study has specifically described the results of *Helicobacter pylori* IgG antibody testing among chronic gastritis patients at UPTD Puskesmas Baregbeg, Ciamis Regency. Generating local epidemiological data is important to support evidence-based clinical decision-making, improve early detection strategies, and provide baseline information for future studies evaluating the burden of *Helicobacter pylori* infection in primary healthcare settings.

Therefore, this study aimed to describe the results of *Helicobacter pylori* IgG antibody testing using an immunochromatographic method among patients with chronic gastritis at UPTD Puskesmas Baregbeg, Ciamis Regency.

Methods

This study employed a descriptive research design aimed at describing the results of *Helicobacter pylori* IgG antibody testing among patients with gastritis in the service area of the Baregbeg Community Health Center (UPTD Puskesmas Baregbeg). Samples were collected using a total sampling technique involving 24 respondents who met the inclusion criteria, namely outpatients diagnosed with chronic gastritis and aged over 20 years. Data were obtained from medical records and laboratory examination results.

Approximately 3 mL of venous blood was aseptically collected from each participant and allowed to clot. The blood samples were centrifuged to separate serum. Anti-*Helicobacter pylori* IgG antibodies were detected using a rapid immunochromatographic assay according to the manufacturer's instructions. A specified volume of serum was applied to the sample well of the test cassette, followed by the addition of assay buffer. The results were interpreted after the recommended incubation period. The appearance of both the control line (C) and test line (T) was interpreted as positive, while the appearance of only the control line (C) was interpreted as negative. Tests without a visible control line were considered invalid and repeated. This immunochromatographic method

was selected because it is a non-invasive, rapid, simple, and cost-effective approach for serological detection of *Helicobacter pylori* infection, particularly in primary healthcare settings (Burucoa & Axon, 2017; Gisbert & Calvet, 2021; Miftahussurur & Yamaoka, 2016).

All examinations were conducted at the Laboratory of UPTD Puskesmas Baregbeg from April 21 to June 12, 2025. The data were analyzed descriptively and presented as frequency distributions and percentages. Prior to participation, all respondents were informed about the objectives and procedures of the study and provided written informed consent. The descriptive approach and the use of immunochromatographic testing were considered appropriate for healthcare service-based research because the method is simple, rapid, and efficient (Creswell & Creswell, 2017; Miftahussurur & Yamaoka, 2016).

Results

This study identified 24 samples that met the criteria, and the results are presented in a table.

Table 1. Sample Characteristics by Age

Age Categories (Years)	N	%
Adult (20–45)	11	46
Older adults (>45)	13	54
Total	24	100

As presented in Table 1, participants aged >45 years accounted for the largest proportion of the study population (54%).

Table 2. Sample Characteristics by Gender

Gender Categories	N	%
Male	2	8
Female	22	92
Total	24	100

As presented in Table 2, there were 2 male respondents (8%) and 22 female respondents (92%).

Table 3. Characteristics of Samples Based on Questionnaire Responses

Sample characteristics	N	%
Long duration of illness		
3 years	7	29
5 years	13	54
8 years	3	13
10 years	1	4
Symptoms		
Symptomatic	24	100
Asymptomatic	0	0
Handwashing		
Washes Hands	24	100
Does Not Wash Hands	0	0
Living Environment Cleanliness		
Clean	24	100
Unclean	0	0
Spicy Food Consumption		
Present	15	63
Absent	9	37
Irregular Mealtime Habits		
Yes	9	38
No	15	62
Alcohol Intake		
Present	0	0

Absent	24	100
Smoking Habit		
Smoker	0	0
Non – Smoker	24	100
NSAID Use		
Yes	13	54
No	11	46
Stress		
Present	8	33
Absent	16	67

According to Table 3, 7 (29%) respondents had experienced gastritis for 3 years, 13 (54%) for 5 years, 3 (13%) for 8 years, and 1 (4%) for 10 years. All participants reported symptoms consistent with gastritis (100%). Furthermore, all respondents reported washing their hands before eating (100%) and maintaining a clean living environment (100%). In terms of dietary habits, 15 (63%) respondents frequently consumed spicy foods, whereas 9 (37%) did not consume spicy foods. In addition, 9 (38%) respondents frequently ate late, while 15 (62%) had regular mealtimes. All respondents reported that they did not smoke or consume alcohol (100%). Regarding medication history, 13 (54%) respondents frequently used nonsteroidal anti-inflammatory drugs (NSAIDs), while 11 (46%) did not. Moreover, 8 (33%) respondents frequently experienced stress, whereas 16 (67%) reported no stress.

Table 4. Distribution of *Helicobacter pylori* IgG Antibody Test Results

Test Result	N	%
Positive (+)	0	0
Negative (-)	24	100
Total	24	100

Discussion

The results of this study showed that all respondents (100%) tested negative for *Helicobacter pylori* IgG antibodies. These findings indicate that no serological evidence of *Helicobacter pylori* infection was detected among the study participants using the immunochromatographic assay employed in this study, a non-invasive technique known for its rapid turnaround time, simple procedure, and relatively affordable cost, making it suitable for application in primary healthcare facilities (Malfertheiner et al., 2022; Miftahussurur & Yamaoka, 2016).

The present findings differ from those reported in previous studies that reported a relatively high prevalence of *Helicobacter pylori* infection among patients with gastritis or dyspepsia. Several studies conducted in developing countries have shown that more than 50% of patients with gastric disorders tested positive for *Helicobacter pylori* IgG antibodies (Burucoa & Axon, 2017; Hooi et al., 2017). These discrepancies may be attributed to differences in including environmental conditions, sanitation, water quality, and differences in population characteristics among study regions (Leja, Axon, & Brenner, 2016; Sung et al., 2021).

The low rate of positive results observed in this study may be associated with good environmental sanitation and personal hygiene practices among the respondents. Based on the questionnaire findings, most respondents demonstrated adequate personal hygiene and maintained a clean living environment. These factors may contribute to reducing the risk of *Helicobacter pylori* transmission, which commonly occurs through oral–oral or fecal–oral routes associated with poor sanitation (Kusters, Van Vliet, & Kuipers, 2006; Malfertheiner et al., 2022). Therefore, clean and healthy lifestyle practices, such as regular handwashing, maintaining food hygiene, and using clean water sources, may serve as protective factors against *Helicobacter pylori* infection.

Although all respondents tested negative for *Helicobacter pylori*, chronic gastritis may still occur due to other contributing factors, such as the use of nonsteroidal anti-inflammatory drugs (NSAIDs), psychological stress, irregular eating patterns, and the consumption of irritating foods. These factors can damage the gastric mucosa and trigger chronic inflammatory processes in the absence of bacterial infection (Siregar & Laksmi, 2014; Li et al., 2022). These findings support the multifactorial nature of gastritis and requires a comprehensive diagnostic approach.

Based on the respondents' characteristics, the majority belonged to the adult and older age groups, which are known to have a higher risk of developing chronic gastritis. Increasing age is associated with a decline in the protective function of the gastric mucosa, thereby increasing susceptibility to mucosal damage and inflammation. In addition, lifestyle-related factors during adulthood, such as stress, dietary habits, and physical activity, may also

contribute to the increased risk of gastric disorders (Gong, Xu, & Zhang, 2023; Li et al., 2024). This study further showed that the majority of respondents were female, who may have a greater tendency to experience gastric disorders due to hormonal factors, stress, and dietary habits (Siregar & Laksmi, 2014).

Laboratory testing is influenced by three major phases, namely the pre-analytical, analytical, and post-analytical phases, all of which play important roles in ensuring the accuracy of test results. Errors occurring during the pre-analytical phase, such as improper specimen collection and handling, may lead to hemolysis or sample contamination. In the analytical phase, the use of inappropriate sample volumes or suboptimal specimen conditions may affect antigen–antibody reactions. Meanwhile, errors in the post-analytical phase may occur during the interpretation or reporting of test results (Plebani, 2006; Sciacovelli et al., 2023). Therefore, strict implementation of standard operating procedures is essential to ensure the validity and reliability of laboratory results.

Several limitations of this study should be acknowledged, including a relatively small sample size and the use of a serological method that only detects IgG antibodies, thereby limiting the ability to distinguish between active infection and previous exposure to *Helicobacter pylori*. In addition, no confirmatory examinations were performed using other diagnostic methods, such as the urease test or polymerase chain reaction (PCR). Therefore, future studies are recommended to involve larger sample sizes and employ more comprehensive.

Conclusions

In this study, all 24 respondents tested negative for *Helicobacter pylori* IgG antibodies. No serological evidence of *Helicobacter pylori* infection was detected among the study participants.

Author contributions

All researchers contributed to the development of the concept and design of this study. All authors participated in the preparation of the manuscript. All authors have read and approved the published version of the manuscript.

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Ethical approval statement

This study has received ethical approval from the Health Research Ethics Committee of STIKes Muhammadiyah Ciamis with ethical clearance number: (72/KEPK-STIKESMUCIS/IV/2025). All procedures performed in this study involving human participants were in accordance with ethical standards.

Conflicts of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Supplementary materials

No supplementary materials are associated with this article.

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