

Prevalence of Helicobacter Pylori Infection in Patients with Dyspepsia

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ABSTRACT

Objective: The objectives of this study was to determine the frequency of Helicobacter pylori infection in patients presenting with dyspepsia.

Study Design: Descriptive cross sectional study.

Place and Duration of study: This study was conducted at the King Abdullah Teaching Hospital Mansehra for one year from May 2018 to April 2019.

Materials and methods: Total 165 patients including both male and female ≥ 15 years with symptoms of dyspepsia for ≥ 4 weeks were recruited. All the patients who used proton pump inhibitors in last two weeks or antibiotics in last four weeks were excluded from the study. All patients with decompensated liver cirrhosis, gallstones, hypothyroidism, gastric surgeries and gastrointestinal malignancies were also excluded. After getting informed written consent, detailed history and physical examination, H- pylori stool antigen test was used to determine the frequency of h pylori infection.

Results: One hundred and sixty five patients having dyspepsia were included in this study. 37% were male and 63% were female. Mean age of the population was 41.4 ± 17.9 with a minimum age of 15 years and maximum 85 years. The most common complaints of the patients were epigastric pain and fullness. The prevalence of Helicobacter pylori in the population studied was 56.4%. The prevalence of H- pylori was 63.9% in male and 51.9% in female.

Conclusion: Prevalence of h pylori is very high, hence need proper investigation and treatment.

Key Words: Dyspepsia, Helicobacter pylori, Prevalence, Stool antigen test.

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INTRODUCTION

Dyspepsia is defined as a group of symptoms localized to the upper abdomen such as pain, discomfort, postprandial fullness, bloating, early satiation, epigastric burning, belching, nausea, and vomiting.¹ Dyspepsia due to identifiable causes such as gastritis, peptic ulcer disease, malignancies, small bowel bacterial overgrowth, pancreaticobiliary disease are called organic dyspepsia while the remaining are classified as functional dyspepsia. Endoscopy is the investigation of choice in dyspeptic patients for categorization of dyspepsia as organic or functional.² Among the many causes of dyspepsia H-pylori is the most common and challenging cause of dyspepsia. Marshall and Warren discovered the curved bacterium Helicobacter pylori in the stomach of patients with gastritis and peptic ulcer and were awarded with nobel prize for this great achievement in 2005.³

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Data from many research shows that more than half of the world population is infected with h-pylori.^{4,5}

The worldwide prevalence of H-pylori varies from as low as 18.9% in Switzerland to as high as 87.7% in Nigeria.⁴ The prevalence of helicobacter pylori in pakistan ranges from 25%-74.4% in different studies.^{6,7,8} Studies showed a high prevalence of H. pylori in low socioeconomic status, unclean water source, overcrowding and cigarette smoking. Among the many risk factors, these were the most common and significant risk factors for H. pylori infection.⁹

Modes of transmission of H-pylori are oro-oral, oro-fecal, gastro-oral and iatrogenic (due to endoscopic procedures)^{10,11} Gastritis, duodenitis, adenocarcinoma and MALT lymphoma are well established diseases that are associated with h-pylori but the association of other diseases like idiopathic thrombocytopenic purpura and iron deficiency anemia are yet to be established.¹² There are two sets of investigations that is noninvasive and invasive. Among the noninvasive tests, serology (antibody detection) is most commonly used in our population as it is least expensive, easily available and less time consuming but the main drawback is that it can not be used to know active infection and the post treatment success as antibodies can persist for years. Urea breath test is limited by its availability. Nowadays stool antigen test is easily available and can be used for both detection of active infection and post treatment success.^{13,14}

The rationale behind doing this study was to determine the prevalence of h-pylori infection in dyspeptic

patients in the population of Mansehra. There are many studies on prevalence of H-pylori infection but due to the various methods used for the diagnosis, the actual prevalence of H-pylori varies in different studies. Serology is the most commonly used test for research study which can only detect antibodies that can persist for years even after successful eradication. In this study we used the most sensitive and specific test (stool antigen test) to detect the actual prevalence of active Helicobacter pylori infection in dyspeptic patients in this population.

MATERIALS AND METHODS

This descriptive cross sectional study was conducted at King Abdullah Teaching Hospital, Mansehra from May 2018 to April 2019 after approval from hospital ethical and research committee.

One hundred and sixty five patients including both male and female having age ≥ 15 years with symptoms of dyspepsia for ≥ 4 weeks were recruited (after exclusion of two patients of gastric malignancy on endoscopy). All the patients who used proton pump inhibitors in last two weeks or antibiotics in last four weeks were excluded from the study. All patients with decompensated liver cirrhosis, gallstones, hypothyroidism, gastric surgeries and gastrointestinal malignancies were also excluded. The diagnosis of dyspepsia was based on one or more of the following symptoms for ≥ 4 weeks; upper abdominal pain or discomfort, Bloating, early satiety, postprandial fullness, nausea, anorexia, retrosternal burning, regurgitation and belching.

After getting informed written consent all patients were subjected to detailed history, physical examination, routine investigations and stool for helicobacter pylori antigen detection. Endoscopy was done only in those patients in whom it was indicated. Endoscopic procedure was performed by a gastroenterologist with Olympus Japan system CV-200 processor, CLV-U40D light source and GIF-XQ200 gastroscope. The data collected was recorded on a predesigned proforma and the patients were managed as per outpatient department protocol.

Data Analysis Procedure: Statistical package for social sciences (SPSS) version 19 was used to analyze the data. Mean and standard deviation was calculated for quantitative variables such as age of the patients. Frequencies and percentages were calculated for categorical variables like gender and prevalence of H-pylori.

RESULTS

One hundred and sixty five patients having dyspepsia were selected for this study. There were 61(37%) male and 104(63%) female with a male to female ratio of 1:1.7. The mean age of the whole population was 41.47 ± 17.9 standard deviation with a minimum age of

15 years and maximum 85 years. Among the subjects studied, 49(29.69%) patients were between ages 15-40, 68 between ages 41-65 (41.21%) and 48 (29.09%) were above 65 years.

The most frequent symptoms with which the patients presented were post prandial fullness/pain followed by belching, nausea and early satiety. Fifteen patients underwent esophagogastroduodenoscopy and biopsies were taken for histopathology. Out of these fifteen patients, nine(60%) patients were identified to be having H-pylori on histopathological examination.

H pylori was positive in 93 (56.4%) of the total population studied. H pylori prevalence was stratified among age and gender to look for the effect modifiers.

Table No.1: Age wise distribution of Patients

Age(years)	frequency	percentage
15-40	49	29.69
41-65	68	41.21
≥ 65	48	29.09

Table No.2 : Gender wise distribution of Patients

Gender	frequency	percentage
Male	61	37
female	104	63
total	165	100

Table No.3: Age wise prevalence of H pylori

age	Helicobacter pylori		total
	positive	negative	
15-40	27(16.36%)	22(13.33%)	49(29.69%)
41-65	35(21.21%)	33(20.00%)	68(41.21%)
≥ 65	31(18.78%)	17(10.30%)	48(29.08%)
Total	93(56.4%)	72(43.6%)	165(100%)

Table No.4: Gender wise prevalence of H pylori

Gender	Helicobacter pylori		Total
	positive	negative	
Male	39(63.9%)	22(36.1%)	61(37%)
Female	54(51.9%)	50(48.1%)	104(63%)
Total	93(56.4%)	72(43.6%)	165(100%)

DISCUSSION

H pylori is usually acquired during childhood and remains forever without treatment, leading to various conditions such as gastritis, peptic ulcers, metaplasia, dysplasia, adenocarcinoma, MALT lymphoma etc. The association of idiopathic thrombocytopenic purpura (ITP) and iron deficiency anemia with h pylori are yet to be confirmed. Many controversies exist regarding who and how to investigate, who and how to treat and how to check for cure. Also in our population people has many misbeliefs regarding management of h pylori. In our population h pylori diagnosis is usually based on serologic tests which can remain positive for years even after successful eradication. Urea breath tests is not widely available and also very expensive. Stool antigen test is both sensitive and specific but people are

reluctant to collect stool sample. Finally endoscopy is less commonly available, expensive and the association of misbeliefs of causing cancer. Due to all these limitations, the actual prevalence, methods of investigation, treatment and follow up are affected. In our study female patients are more than male which could be due to chance. The prevalence of h pylori in this study was 56.4%, 63.9% in male and 51.9% in female. This difference could be due to the reason that female are more conscious about their diseases especially h pylori than male. They seek early medical consultation and management. The prevalence of h pylori varies from country to country and even in different areas of same country.¹⁵ These differences depends on many factors like socioeconomic status, level of education, sanitation status and the availability of health facilities. The variation in prevalence of h pylori in different studies is also due to the different tests used for detection of h pylori.^{16,17,18}

H pylori infection and Non Steroidal Antinflammatory Drugs (NSAIDS) are the most common causes of gastric and duodenal diseases. Studies show high prevalence of peptic ulcer disease among NSAIDS Users infected with h pylori (41.7%) as compared to NSAIDS users with no H pylori infection (25.9%).¹⁹

In our study out of fifteen patients who underwent endoscopy nine (60%) were positive on histopathology. The eradication of helicobacter pylori is very difficult due to the side effects of the drugs and the resistance associated with the many drugs used for eradication. The eradication rate of traditional first-line therapy (amoxicillin 1000mg, clarithromycin 500mg and proton pump inhibitor 20mg all twice daily for 10-14 days) have an eradication rate of 64-90%.^{20,21}

The resistance of helicobacter pylori to the commonly used drugs is increasing to an enormous level. The resistance to amoxicillin, tetracycline, clarithromycin, levofloxacin and metronidazole are 09%, 15%, 31%, 56% and 78% respectively.²² Resistance to antibiotics further increases in those in whom eradication therapy fails. Endoscopic biopsies and culture and sensitivity testing may prove successful in such patients.²¹

CONCLUSION

This study shows high prevalence of H pylori in our population. Further large scale studies are required to investigate the burden of disease in the community. This data can be used to devise a strategy for prevention, early diagnosis and eradication of h pylori and thus to reduce the complications of h pylori.

Author's Contribution:

Concept & Design of Study: Tahir Ullah
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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