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ORIGINAL ARTICLE

Patients with Helicobacter Pylori Infections Who Have Iron Deficiency Anemia (IDA)

M ABDULLAH[1], MOUNIS AHMAD ZAFFAR[2], SYED HASSAN MUSANNA[3], SHERAZ SALEEM[4], JAVARIA AMIL[5]
[1]*Medical Officer, THQ Hospital, Jahanian*
[2]*Medical Officer, Farooq Hospital, Lahore*
[3]*Medical Officer, Ittefaq Hospital Trust, Lahore*
[4]*Assistant Professor, Department of Medicine, Sargodha Medical College/ DHQ Teaching Hospital, Sargodha*
[5]*Senior Registrar General Medicine, Niazi Medical and Dental College, Sargodha*
Corresponding author: Sheraz Saleem, Email: drsherazsaleem@yahoo.com

ABSTRACT

Objective: It is the goal of this research to evaluate the presence of iron deficiency anaemia (IDA) in individuals with Helicobacter pylori infection.

Study Design: Prospective/cross-sectional study

Place and Duration: Department of medicine, Ittefaq Hospital Trust, Lahore, during the period from 16th January 2021 to 15th July 2021.

Methods: There were one hundred and thirty patients of both genders with ages 22-60 years were presented. Informed written consent was taken from all the patients included age, sex, body mass index, education status and residency. All the included patients had helicobacter pylori infection in this study. Blood samples from the individuals were tested for serum iron, transferrin saturation, ferritin, and total iron-binding capacity. A urea breath test, stool antigen testing, a quick urease test, or histopathology may all be used to look for H. pylori infection. SPSS 22.0 version was used to analyze complete data. Mean standard deviation was used for laboratory outcomes.

Results: Mean age of the patients 35.32 ± 6.53 years with mean BMI 26.12±8.64 kg/m^2. Majority of the patients were females 75 (57.7%) and remaining were males 55 (42.3%). 53 (40.8%) patients were from urban areas and 60 (46.2%) patients were literate. Most of the patients 80 (61.5%) had poor socio-economic status. Mean Hemoglobin level was 11.12 ± 1.8 (g/dl) mean serum iron level was 50.3 ± 12.45 (ug/dl) and mean serum ferritin level was 123.4±56.55 (ng per ml).We found iron deficiency anemia in 51 (39.2%) patients.

Conclusion: Iron deficiency anaemia was shown to be more prevalent in individuals with Helicobacter Pylori infection who were mostly females in this research.

Keywords: Iron Deficiency Anemia (IDA), H.pylori infection, Prevalence

INTRODUCTION

While Helicobacter pylori is one of the most prevalent human infections globally, it has been linked to many critical upper gastrointestinal (GI) problems, including chronic gastritis, ulcer disease, and a specific kind of lymphoma in the stomach and intestines. As a result, H. pylori infections are more frequent in poor nations than in industrialised ones because of socioeconomic factors. 70% to 90% of people in impoverished nations have H. pylori in their stomachs, and virtually all of them have it before they become 10 years old. Between 25 and 50 percent of people in wealthy nations are infected. There is strong evidence that most infections are acquired during children in industrialised nations, as well. [2]

There is a wide variation in the prevalence of H. Pylori infection among regions of the world.

Chronic if left untreated, it is most often seen in children in the early stages.

Some strains of H. Pylori may cause sickness in a very small proportion of adults, leading to the belief that some strains of H. Pylori are neither hazardous or perhaps helpful.

[3-6] It increases the risk of stomach cancer and a variety of other disorders of the upper gastrointestinal tract, such as gastritis, gastric or duodenal ulcers.[7]

H. Pylori infection has been linked to an array of risk variables, including advancing age, shorter stature, male gender, obesity, cigarette use, and parents' socioeconomic status and educational attainment, according to a research done by Ford AC et al on the epidemiology of the stomach parasite.

[8] Diagnostic methods for H. Pylori infection are available with various levels of sensitivity and specificity. Urine breath test (UBT), RUT, biopsy with histopathology, and cultures are all examples of these tests. The most precise method of diagnosing infection remains the isolation of the microorganism from stomach biopsies. H. Pylori was found in 61 (65%) and 66 (70%) of the patients in Rasool et al's 2007 research, whereas 14C UBT helped diagnosis infection in 63 (67%) of the patients, according to the study. In contrast to histology, UBT was shown to be 93% accurate, with a high positive predictive value of 97% and a low negative predictive value of 84%. [9]

In those with unexplained IDA, H. pylori infection should be diagnosed and treated [10,11]. Research including mostly children, teenagers, and middle-aged adults led to the general agreement. Until date, no guidelines or agreement existed for the treatment of H. pylori in the elderly. In the older population, there were few studies on the impact of H. pylori infection on anaemia and iron storage. For example, only elderly female aspirin users were found to have reduced ferritin levels when H. pylori infection was present, suggesting that H. pylori infection may affect iron storage in this group [12]. Anti-HP antibodies had no effect on the nutritional indicators haemoglobin, iron, ferritin, and transferrin in a small study of asymptomatic old people. Age and H. pylori infection have yet to be shown to be linked in the elderly. It is clear that in underdeveloped countries, the frequency of H. pylori infection rises with age [13,14]. It is important to investigate whether H. pylori infection is linked to anaemia in the elderly because of the difficulty in making medical decisions in this group owing to the decline in physical and cognitive abilities as well as social support [15].

To determine the prevalence of iron deficiency anaemia (IDA) in infected patients with Helicobacter pylori, this research was undertaken.

MATERIAL AND METHODS

This prospective/cross-sectional study was conducted in the medicine department of Ittefaq Hospital Trust, Lahore, during the period from 16th January 2021 to 15th July 2021. The study consisted of 130 patients. Patients' information such as age, gender, BMI, educational attainment, and place of residence was obtained by written informed permission. Iron supplements for at least 30 days, iron injections for at least 30 days, gastrointestinal haemorrhage, malnutrition, a history of gastrectomy and recent hospitalisation due to acute illnesses were all excluded from the study.

Dyspepsia patients who came to the gastroenterology department were the first to be considered for an upper GI

endoscopy. Patients' medical history and physical results were documented on a standard data sheet. Patients using antibiotics or bismuth compounds were recommended to get an endoscopy at least two weeks after stopping their medication to assess their improvement. After a thorough explanation, all patients who had upper gastrointestinal endoscopy and biopsy gave their informed permission. A trained endoscopist and an Olympus forward-looking video endoscope were used at BSMMU's Gastroenterology Department to treat patients with endoscopy under topical lignocaine anaesthesia. Patients with either normal or endoscopic erosive gastritis took part in the research.. Two biopsies were collected during the endoscopy: one from the stomach antrum and the other from the patient's body. H. pylori identification biopsy specimens may change colour from straw to pink or crimson within 24 hours after CLO.

For each subject, blood samples were taken and evaluated for iron, transferrin saturation, ferritin, and total iron binding capacity. Stool antigen testing, rapid urease tests and histopathology may all be performed to find out whether someone has H. pylori in their digestive tracts. We utilized SPSS 22.0 to analyze the study's data. Standard deviation was used to represent the findings of laboratory testing.

RESULTS

Mean age of the patients 35.32 ± 6.53 years with mean BMI 26.12±8.64 kg/m^2. Majority of the patients were females 75 (57.7%) and remaining were males 55 (42.3%). 53 (40.8%) patients were from urban areas and 60 (46.2%) patients were literate. Most of the patients 80 (61.5%) had poor socio-economic status.(table 1)

Table 1: Characteristics demographics of enrolled cases

Characteristics	Frequency	Percentage
Mean age (years)	35.32 ± 6.53	
Mean BMI (kg/m^2)	26.12±8.64	
Gender		
Female	75	57.7
Male	55	42.3
Residency		
Urban	53	40.8
Rural	77	59.2
Education Status		
Literate	60	46.2
Illiterate	70	53.8
Socio-economic Status		
Poor	80	61.5
Good	50	38.5

Table 2: Laboratory findings of enrolled cases

Characteristics	Standard	Deviation
Laboratory Findings		
Mean Hemoglobin (g/dl)	11.12	1.8
Mean Serum Iron (ug/dl)	50.3	12.45
Mean Serum Ferritin (ng/ml)	123.4	56.55

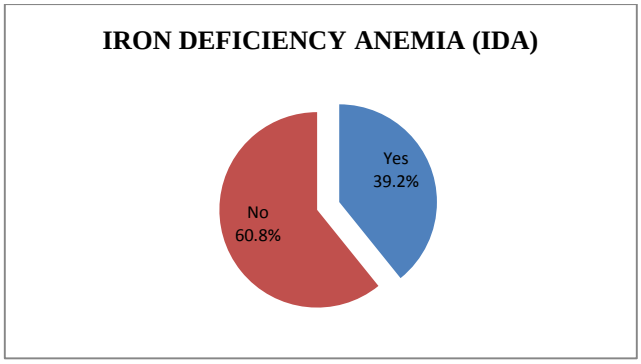

Figure 1: Association of iron deficiency among patients with H.pylori infection

Mean Hemoglobin level was 11.12 ± 1.8 (g/dl) mean serum iron level was 50.3 ± 12.45 (ug/dl) and mean serum ferritin level was 123.4±56.55 (ng per ml).(table 2)

We found iron deficiency anemia in 51 (39.2%) patients and 79 (60.8%) patients did not have IDA.Figure 1

DISCUSSION

H. pylori infection is more common as people become older, with roughly half of the population infected by the age of 35-70, and around 10% of the population affected by the age of 18 to 30 [16]. Infants are the most common carriers of H. pylori infections over the world [17]. As a consequence, older patients with recurrent H. pylori infections may develop anaemia from gastrointestinal mucosal lesions [18].

In current study one hundred and thirty patients of both genders with ages 22-60 years were presented. Mean age of the patients 35.32 ± 6.53 years with mean BMI 26.12±8.64 kg/m^2. Majority of the patients were females 75 (57.7%) and remaining were males 55 (42.3%). 53 (40.8%) patients were from urban areas and 60 (46.2%) patients were literate. Most of the patients 80 (61.5%) had poor socio-economic status. Above mentioned findings of current study were comparable to the studies conducted in past.[19,20] In developing countries, anaemia is a common ailment, with iron deficiency being the most common cause. [22,23] In contemporary culture, there are several causes for the high frequency of this condition, some of which are well-researched while others are new and untested. Most persons infected with H. pylori do not develop ulcers or cancer, despite the fact that these conditions might induce bleeding and iron shortage. Chronic gastritis without gastrointestinal bleeding is the most common ailment they present with. [24] IDA's origins are still a mystery in many situations, despite years of research. Studies on H. pylori's significance in other disorders, such as iron deficiency anaemia, have lately risen in scope.

In our study mean Hemoglobin level was 11.12 ± 1.8 (g/dl) mean serum iron level was 50.3 ± 12.45 (ug/dl) and mean serum ferritin level was 123.4±56.55 (ng per ml). Aside from hematologic malignancies, which accounted for 6% of anaemia cases, chronic inflammation, mixed dietary deficits, chronic illnesses, and hemoglobinpathies were some of the most prevalent causes of normocytic anaemia in the elderly [24]. One of the leading causes of anaemia in the elderly is chronic inflammation. Anemia of this kind is often normocytic and normochromic, with modest to moderate haemoglobin decreases. Immune responses are thought to be the cause of anaemia in chronic inflammation [25]. According to the research, serum ferritin is related to the body's mobilizable iron reserves and can be used as a marker for iron storage. Haemoglobin levels are kept within normal limits until the body's iron reserves are depleted. Thus, haemoglobin levels might be normal while having very low / no iron reserves.

We found iron deficiency anemia in 51 (39.2%) patients and 79 (60.8%) patients did not have IDA.[26] Research like this has been done in Pakistani metropolis of Karachi and is equivalent to that there. [27] 92% of patients with duodenal ulcers in Faisalabad, India, were positive for H. pylori using a rapid urease test. [28] Only 23.6% of patients in a previous study in Korean children tested positive for H. pylori using a rapid urease test. [29 One explanation for the gap is that H. pylori prevalence differs across developed and poor countries, and that prevalence fluctuates with age.

CONCLUSION

Iron deficiency anaemia was shown to be more prevalent in individuals with Helicobacter Pylori infection who were mostly females in this research.

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