Association of Anaemia with Helicobacter Pylori in Adult Patients in a Tertiary Care Hospital

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Abstract

Helicobacter pylori has been established as a major cause of various gastro-intestinal diseases like chronic gastritis and peptic ulcers as well as various extra gastrointestinal diseases such as anaemia. The present cross - sectional study was done in the department of Medicine at G.S.V.M Medical College, Kanpur. A total of 194 adult patients attending outpatient department for various gastrointestinal symptoms were screened for Helicobacter pylori using Stool antigen card test. Out of these 194 patients, 98 were found positive for Helicobacter pylori by the test, giving a prevalence of 50.51%. A detailed proforma was filled regarding the age and sex of the patient, education and occupation of the head of the family, sanitary practices and dietary habits. The patients were also examined for pallor and their complete blood count was done. Out of total subjects 77 were found to be suffering from anaemia from which 48 were H. pylori positive (62.3%). A possible association can be established among patients suffering from H. Pylori infection and simultaneously diagnosed as anaemic.

Introduction

Helicobacter pylori, is a gram negative, curved, microphilic and motile organism. It is a common bacterium affecting about half the world's population [1]. There is substantial evidence that it causes chronic gastritis, peptic ulcers, and duodenal ulcers and is also involved in the development of gastric carcinoma [2-4]. Once acquired, Helicobacter pylori infection generally persists throughout life, unless treated by specific antimicrobial therapy.

Various socio-economic conditions comprising of high-density crowding, poor sanitary practices, family income, educational level, and occupation have been held responsible in spreading of the pathogen[5-7]

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The present hospital-based cross-sectional study was done on patients attending OPD for various gastro-intestinal disorders. Various parameters including age, sex, socioeconomic status, diet and pallor were taken into consideration.

Anaemia is the most common disorder of blood. It is characterized by decrease in number of red blood cells or less-than-normal quantity of hemoglobin in blood. Several studies have indicated an association between H.pylori gastritis and iron deficiency anaemia. Gastritis caused due to H.pylori results in decreased gastric acid secretion and increase in intra-gastric pH that may impair iron absorption. It has been seen that acid secretion returns to normal range after eradication of H. pylori[8,9].

Previous studies have shown that H. Pylori colonization of gastric micosa may impair iron uptake and increase iron loss, potentially leading to iron deficiency anaemia.

Materials and Method

The study was conducted in the department of

Medicine at GSVM Medical college, Kanpur. A total of 194 patients with both sexes attending OPD for various symptoms of gastrointestinal disorders were screened for Helicobacter pylori. Written informed consent was taken from all the patients after explaining to them the nature and purpose of study. Ethical clearance was taken prior to the study from the ethical committee. Patients who had taken proton pump inhibitors or antibiotic for a month prior to study were excluded. Patient's stools samples were collected in airtight containers and stool assay was performed using Immunocard STAT HpSA test. (Standard diagnostics Inc). Blood samples of all the patients were taken for complete blood count .Their haemoglobin in gram per cent was estimated and the was labelled as anaemic or non anaemic (as per WHO grading of anaemia.)

Statistical Analysis

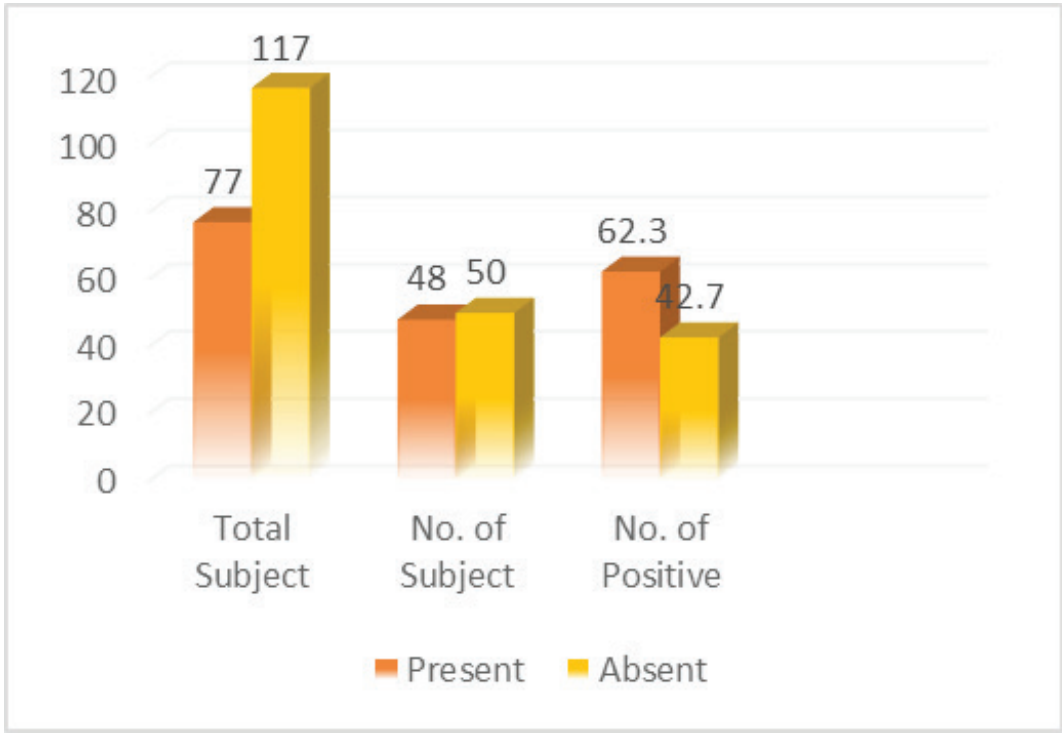
Data was analysed by Chi square test to compare the association between anaemia and H. pylori rates. A value of $p<0.05$ was considered statistically significant. The calculations were done using the software package SPSS 16.0.

Results

Out of total 194 patients examined, 77 were having anaemia while the remaining 117 were non anaemic. Among the 77 anaemic patients 48 were positive for H. pylori (62.3%), which was statistically significant ($p<0.05$).

***TABLE 1*- Number of H. pylori positive patients according to pallor**

Pallor	Total subjects	No. of positive patients	Percentage %	
Present	77	48	62.3 %	
Absent	117	50	42.7 %	



Discussion

In this study,62.3% patients with anaemia were found to be positive for h.pylori. In a study by Kibru et al, estimated prevalence of IDA in H. pylori infected patients was 31%[10].Several cross-sectional surveys have been performed to determine whether there was an association between H pylori infection and iron deficiency anemia. In a study conducted by Darvishi etal, ferritin levels were significantly lower in patients with H pylori than in noninfected patients.[11] In this study we found a positive association between anemia and H pylori infection. Annibale etal reported that H pylori associated chronic gastritis is the cause of refractory iron deficiency anemia in the absence of bleeding lesions in 18% of their patients.[12] Gastric acidity and ascorbic acid are essential for iron absortion. Gastric acidity helps to matain soluble form of Ferric Iron and thus increases its absortion. Several studies have demonstrated that H. pylori gastritis also causes hypochlorhydria[13,14]. A prospective therapeutic study conducted by Mokhtar Mahfouz Shatla[15] concluded that eradication of H pylori infection along with simultaneous iron supplementations was associated with her faster and greater recovery from iron deficiency anemia as compared with eradication without iron supplement. However, H pylori eradication without iron supplementations was also associated with significantly increased iron absorption and recovery from anemia. Some studies suggest that bacteria including H.pylori, contains a system of iron- repressible outer membrane proteins that may be involved in iron uptake as well as system for intracellular storage of iron that consists of ferritin like molecules Pfr and NapA [16]. In a study by Berg et al [17], H pylori infection was found to be associated with a decrease in serum ferritin levels. A randomised, placebo controlled trial by Choe et al[18] showed that eradication of H.pylori was associated with a substantial increase in hemoglobin levels. In another study by Huang et al[19], it was shown that eradication therapy for H. pylori combined with iron administration is more affected than only iron therapy given for anaemia.

Although these studies support role of H. pylori in iron deficiency anemia, they do not prove that the organism is a cause of the anemia. Further trials are needed with a sufficient number of subjects and long term follow up to establish any association between H.pylori and iron deficiency **anemia.** However it can be explained that a patient with refractory anaemia should be considered for assessment and treatment of H pylori.

Conclusion

The present study concludes that there is a probable association between H. pylori and anaemia. Some studies have also reported that the rate of recovery is faster and greater if iron supplementation is given along with H. pylori eradication therapy. Hence, the clinicians might consider this while treating H.pylori in an anaemic patient.

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