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Helicobacter Pylori as a Risk Factor for Post Infectious Irritable Bowel Syndrome

Essamaddin Ahmed Abdelhamid Ibrahim

Department of Medicine, University of Science and Technology, Sudan

ABSTRACT

Backgrounds: Helicobacter Pylori is a common pathogen leading cause of peptic ulcer disease. Several studies linked Helicobacter Pylori infection and the development of irritable bowel syndrome.

Aims: We investigated the effectiveness of standard triple therapy and the association between H.Pylori infection and the development of post infectious irritable bowel syndrome.

Materials and methods: Prospective analytical study was conducted and we appointed 200 H.Pylori positive patients, they consented and subjected to structured questionnaire and received standard triple therapy (14 days course of proton pump inhibitor (PPI), clarithromycin and either amoxicillin or metronidazole). After three months all patients re-evaluated regarding their symptoms and tested for eradication. Additionally we evaluated the association between H.Pylori infection and irritable bowel syndrome.

Results: 200 H.Pylori infected patients were participated in this study (57.5%) were females and (42.5%) were males. The mean haemoglobin level was initially 13.89g/dl and the mean platelet level was found to be 289 pre consumption of treatment with statistically insignificant increase haemoglobin and platelets levels post successful eradication ($P<0.05$). All H.Pylori positive patients followed up after three months and tested for eradication, the majority of the patients – 170 (85%) -successfully eradicate the bacteria. Twenty five patients (12.5%) failed to eradicate the bacteria and five patients failed to follow. Among the cured group 143 patients (71.5%; $p<0.05$) – appeared to have irritable bowel syndrome according to Rome criteria and considered as post infectious irritable bowel syndrome which was statistically significant.

Conclusions: in spite of high prevalence of antibiotics resistance in our country standard triple therapy proved to be effective in H.Pylori eradication. H. pylori infection was significantly associated with irritable bowel syndrome.

***Corresponding author**

Essamaddin Ahmed Abdelhamid Ibrahim, Department of Medicine, University of Science and Technology, Sudan.
Email: abugora2010@hotmail.com

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Introduction

Helicobacter pylori is a gram negative bacilli that transmitted to human via the oral route [1]. Essentially all H.Pylori colonized patients have tissue response but only less than 15% develop symptoms [2]. H.Pylori is the leading cause of peptic ulcer disease and the majority of symptomatic patients presents with dyspepsia and chronic gastritis, some patients could develop serious complications such as upper gastrointestinal bleeding, gastric cancer and gastric mucosa associated lymphoid tissue lymphoma (MALT) [3-10].

Irritable bowel syndrome (IBS) and functional dyspepsia (FD) are two major functional gastrointestinal disorders. IBS is a functional disorder characterized by abdominal pain or discomfort and altered bowel habits and disordered defecation in the absence of detectable structural abnormality. There is no diagnostic test for IBS and the diagnosis is based on clinical presentation using Rome criteria [11].In the western countries about 20% of the population have symptoms consistent with IBS and it tend to affect females two to three times males[13]. On the other hand functional dyspepsia is a condition in which patients develop upper gastrointestinal symptoms in the absence of any organic disease that explain these symptoms [13]. The pathogenesis of IBS is poorly understood, although recent studies showed that patient may develop IBS following gastrointestinal infection which defined as post infectious IBS. H pylori could be considered as a risk factor in the genesis of functional dyspepsia as 40-70% of functional dyspepsia patients found to be H.Pylori positive [14,15].

Materialand Methods

This prospective study has been undertaken in the duration between June 2019 to October 2020 at ALROOMY Medical Center to all patients presented with dyspepsia and other upper gastrointestinal symptoms. Those patients were tested for H. pylori by using either stool examination or urease breath test (UBT). The patients who tested positive were labelled as H.Pylori positive patients , they were consented and subjected to structured questionnaire to identify their age, gender, presenting symptoms,

previous history of H.Pylori infection, recent contact with H.Pylori positive patient and their complete blood count (CBC). Infected patients treated with a 14 days course of proton pump inhibitor (PPI), clarithromycin and either amoxicillin or metronidazole.

All H.Pylori positive patients followed up after three months and tested for eradication. Complete blood count was rechecked and mean haemoglobin was measured and compared with the previous mean haemoglobin three month before eradication of the bacteria. Additionally mean platelet level was measured before and three months after eradication of the bacteria and compared with each other.

Also those patients' symptoms reevaluated to inquire about symptoms suggestive of irritable bowel syndrome (IBS). Patients considered to have IBS by using Rome criteria.

The data was analyzed by using IBM SPSS statistics 23, P value of less than 0.05 was considered to be statistically significant.

Results

A total number of 200 H.Pylori positive patients 37.5% of them in the age group between 30 to 39 years was enrolled in this study, of which 115 patients (57.5%) were females and 85 patients (42.5%) were males

Table 1

Age	Frequency	Percent
18- 29 Years	44	22
30-39 Years	75	37.5
40-49 Years	31	15.5
50-59 Years	27	13.5
60 Years OR More	23	11.5
Gender	Frequency	Percent
Male	85	42.5
Female	115	57.5

Dyspepsia was noted as the leading presenting complain in the majority of the patients 164(82%), followed by nausea 136(68%), and only 40 patients develop vomiting (20%)

Table 2

Symptom	Frequency	Percent
Nausea	136	68%
Vomitting	40	20%
Dyspepsia	164	82%
Heartburn	90	45%

It was noticed that patients mean haemoglobin level was initially 13.89g/dl and this level had very slight improvement 3 months after treatment , which reports its statistical insignificance (P value >0.05)

As well mean platelet level was found to be 289 with minor degree of increase after eradication of the bacteria (P value >0.05)Based on UBT, the majority of the patients – 170 (85%) -successfully eradicate the bacteria. Twenty five patients (12.5%) failed to eradicate the bacteria and five patients missed.

Among the cured group the preponderance of the patients had persistence symptoms in spite of H.Pylori eradication and after applying Rome criteria - 143 patients (71.5%; $p<0.05$) – appeared to have IBS and considered as post infectious IBS which was statistically significant.

No demographic variable played major role to develop post infectious IBS after H.Pylori infection was found.

Discussion

H.Pylori infection is a major health problem throughout the world with prominent both incidence and prevalence in developing countries [15].There is no available data for H.Pylori prevalence among Sudanese patients but pointers suggest that H.Pylori is endemic in some areas in Khartoum .Generally, the prevalence of infection decrease in the older age group but this study denote that difference among various age groups was statistically insignificant, others have announced the same results [16,17]. The role of gender as a risk factor for H.Pylori infection is still debated, but this study showed female gender predominance. Certain factors may play role in female predominance such as plurality of population are female and the fact that the general demeanor in our country that males tend to sought medical advice less than females specially for minor complains Several studies link the association between H.Pylori infection and iron deficiency anaemia even in the absence of peptic ulcer disease and atrophic gastritis and even H.Pylori eradication can improve haemoglobin and ferritin level, contrary this study showed that H.Pylori infected patients have normal hemoglobin level and treatment did not exhibit significant improvement[18,19].

Although several studies showed platelet recovery after H.Pylori eradication in idiopathic thrombocytopenic purpura (ITP) , this study showed that platelet measures is not affected by H.Pylori infection and treatment didn't increase platelet level [20].

Although the high prevalence of antibiotic resistance and our country, standard triple therapy proved to be effective in H.Pylori eradication but less effective than bismuth quadruple therapy Patient noncompliance to the treatment regime-most probably due to intolerable side effect of treatment-was the leading cause of treatment failure among the thirty patients who test In spite the fact that Irritable bowel syndrome is a common condition with worldwide distribution that affect all age groups, the pathophysiology of this functional disorder is poorly understood[21]. Many recent studies link between gastrointestinal infections and development of IBS. Several pathogens had been linked to post infectious IBS and post infectious functional dyspepsia, of those Campylobacter, Salmonella, and Shigella [22]. This study showed strong relation between H.Pylori infection and the development of IBS and functional dyspepsia, although upper gastrointestinal endoscopy was done only to a minority of the patients who had persistent symptoms after eradication.

Competing Interests

There is no potential conflict of interests that is relevant to this study

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