

Research Article

Analysis of helicobacter pylori eradication on platelet counts of adult patients with idiopathic thrombocytopenic purpura

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[Received: 27/11/2019; Accepted: 29/12/2019; Published: 02/01/2020]

ABSTRACT

Introduction: Helicobacter pylori (*H. pylori*) is a gram-negative microaerophilic bacterium that colonizes the stomachs of over half the human population. **Objectives of the study:** The main objective of the study was to analyse the helicobacter pylori eradication on platelet counts of adult patients with idiopathic thrombocytopenic purpura. **Material and methods:** This descriptive study was conducted in University College of Medicine & Dentistry, University of Lahore during March 2019 to November 2019. The study included all adult patients of both sexes, who were diagnosed with ITP. If platelet count and patient status allowed, we diagnosed *H. pylori* infection was by histological examination of different biopsies obtained from different areas of stomach and duodenum (including the gastric antrum) via esophagogastroduodenoscopy (EGD). IF EGD is not applicable, we diagnosed *H. pylori* infection by the positivity of serum antibodies or urease breath test. We first did serological testing. **Results:** The median age was 55 years (range: 35-76 years), 18 were men (7 women), and the median platelet count was $78 \times 10^3/\mu\text{L}$ (range: $6-96 \times 10^3/\mu\text{L}$). The median follow-up duration of this study was 57.57 months. Twenty-three patients had histologically confirmed *H. pylori* infection from UBT or CLO test. All patients experienced complete bacterial eradication. Of these patients, 2 had received immunosuppressive and anti-RhD immunoglobulin treatment before *H. pylori* eradication therapy. **Conclusion:** It is concluded that *H. pylori* eradication in ITP patients Leads to significant Improvement of peripheral blood platelet count in most patients.

Keywords: helicobacter pylori, platelet counts, idiopathic thrombocytopenic purpura

INTRODUCTION

Helicobacter pylori (*H. pylori*) is a gram-negative microaerophilic bacterium that colonizes the stomachs of over half the human population. *H. pylori* is the predominant agent of active chronic gastritis and gastric and duodenal ulcers. *H. pylori* is a cofactor in the development of both gastric adenocarcinoma and mucosa-associated lymphoid tissue lymphoma¹. Recently, *H. pylori* has been implicated in

various autoimmune disorders, including pernicious anemia and idiopathic thrombocytopenic purpura (ITP). The prevalence of *H. pylori* infection in adult ITP patients is 22% in the North American Caucasian population, 29% in the white French population; furthermore, it is nearly 50% in Italy, greater than 70% in Japan, 90.6% in Colombia. In South

Korean adults, the prevalence was 64.7% in 1998 and 59.9% in 2005².

Idiopathic (immune) thrombocytopenic purpura (ITP) is an acquired disorder characterized by autoantibodies against platelet membrane antigens. There are considerable differences in the clinical manifestations among ITP patients³. The onset may be acute and sudden or may be insidious, and may result in significant mortality and morbidity. Patients may be asymptomatic, and symptoms in symptomatic patients range from easy bruising to severe bleeding. Incidence rate of ITP is about 50–100 new cases per million per year, half of them are children⁴. At least 70% of cases diagnosed in childhood will recover completely within six months, even without treatment. A third of the remaining chronic cases will completely recover during follow-up, another third will end up with only mild thrombocytopenia (platelet count above $50 \times 10^9/L$)⁵.

Thrombocytopenia Purpura is usually chronic in adults, and the probability of complete remission is 20–40. Male to female ratio in the adult group clearly differs in most age groups (children approximately have equal incidence in both sexes⁶. The average age at diagnosis in adults is 56–60 years. *Helicobacter pylori* (*H. pylori*) is a gram-negative microaerophilic bacterium that colonizes in the stomach. *H. pylori* is implicated in the development of active chronic gastritis, gastric ulcers, and duodenal ulcers⁷.

Objectives of the study

The main objective of the study was to analyse the helicobacter pylori eradication on platelet counts of adult patients with idiopathic thrombocytopenic purpura.

Material and methods

This descriptive study was conducted in University College of Medicine & Dentistry, University of Lahore during March 2019 to November 2019.

Data collection

The study included all adult patients of both sexes, who were diagnosed with ITP. If platelet

count and patient status allowed, we diagnosed *H. pylori* infection was by histological examination of different biopsies obtained from different areas of stomach and duodenum (including the gastric antrum) via esophagogastroduodenoscopy (EGD). If EGD is not applicable, we diagnosed *H. pylori* infection by the positivity of serum antibodies or urease breath test. We first did serological testing. If the serology was positive, we considered the patient infected. If serology was negative, we did urease breath test. Infected patients were then given triple therapy for *H. pylori* (omeprazole 40 mg once daily, amoxicillin 1000 mg twice daily, clarithromycin 500 mg twice daily) for 14 days. They were not given any additional ITP treatment to raise platelet count.

Statistical analysis

We performed statistical analyses with SPSS (Version 22.0; SPSS Inc.: Chicago, IL, USA). We used P-value to evaluate statistical significance of differences between groups. The level of significance is $P < 0.05$.

RESULTS

The median age was 55 years (range: 35-76 years), 18 were men (7 women), and the median platelet count was $78 \times 10^3/\mu L$ (range: $6-96 \times 10^3/\mu L$). The median follow-up duration of this study was 57.57 months. Twenty-three patients had histologically confirmed *H. pylori* infection from UBT or CLO test. All patients experienced complete bacterial eradication. Of these patients, 2 had received immunosuppressive and anti-RhD immunoglobulin treatment before *H. pylori* eradication therapy. Underlying conditions included peptic ulcer in 18 patients (72%), and 16 patients (64%) were carriers of hepatitis B or C, all with low viral titers, and who were not receiving treatment of hepatitis. Of the 2 patients with malignant lymphoma, 1 had achieved CR before the start of *H. pylori* eradication. The other patient was simultaneously diagnosed with ITP and lymphoma and experienced no platelet recovery after *H. pylori* eradication.

Table 01: Outcomes after *H. pylori* eradication.

Variables	
Platelet count after <i>H. pylori</i> eradication, μL , Median (range)	100,000 (46,000-172,000)
Duration from eradication to initial response, months Median (range)	3.10 (0.2-42.80)
Total response duration, months Median (range)	10.77 (0-116.9)
Response (%)	
CR	11 (44.0)
PR	6 (24.0)
NR	8 (32.0)
Reinfection of <i>H. pylori</i> (%)	
Yes	1 (4.0)
No	24 (96.0)
Relapse of ITP (%)	
Yes	6 (24)
No	19 (76)
Duration from response to relapse, months Median (range)	27.43 (2.0-116.90)

DISCUSSION

Gasbarrini et al. first reported that patients in whom *H. pylori* infection was eradicated showed significant increases in platelet count with the disappearance of anti-platelet antibodies. Emilia et al. reported that *H. pylori* eradicated ITP patients exhibited a significant increase in platelet count. Several studies on the *H. pylori* eradication therapy in Japan and Korea have documented similarly favorable results. Inaba, Sato, Kohda, Suzuki, and Song et al. demonstrated a favorable platelet response in patients in whom *H. pylori* was successfully eradicated⁸.

The results of our study were comparable to those of previous studies and suggested the long-term efficacy of *H. pylori* eradication therapy in patients with *H. pylori* infection and ITP. The prevalence of *H. pylori* infection in the ITP patients in this study was 92%⁹. A CR was obtained in 44%, with a PR obtained in 24%, for

an ORR of 68%. These favorable results may be associated with more of our patients having baseline platelet counts of more than $30 \times 10^3/\mu\text{L}$ and fewer patients having undergone prior treatment for ITP. We observed a median 27.43-months duration of response after *H. pylori* eradication (range: 2.0-116.9 months). In comparison with other studies, there were no remarkable differences in the median duration of responders ranging from 4 to 43.5 months¹⁰.

We notice a slight decrease in the mean platelet count of Hp^+ group at the end of the sixth month compared to that of the third month, so do the difference in means between Hp^+ and Hp^- groups. But the mean platelet count of Hp^+ group at the end of the sixth month is still greater than that at the beginning of the study and at the end of the first month, so do the difference in means between Hp^+ and Hp^- groups¹¹.

Mean platelet count in Hp⁺ group at the end of the sixth month is still greater than the mean platelet count of Hp⁻ group at all stages. The difference between mean baseline platelet count and mean platelet count at the end of the sixth month was significantly higher in Hp⁺ group¹².

CONCLUSION

It is concluded that *H. pylori* eradication in ITP patients Leads to significant Improvement of peripheral blood platelet count in most patients.

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