



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF  
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1439036>Available online at: <http://www.iajps.com>

Research Article

**AN OBSERVATIONAL STUDY ABOUT HELICOBACTER  
PYLORI INFECTION PREVALENCE IN PATIENTS OF BETA  
THALASEMIA MAJOR WITH RECURRENT ABDOMINAL  
PAIN**<sup>1</sup>Dr. Abdullah Khan, <sup>2</sup>Dr. Saif ullah, <sup>3</sup>Dr. Aziz ullah<sup>1</sup>Al-Tibri Medical College Isra University Karachi Campus<sup>2</sup>Baqai Medical University Karachi<sup>3</sup>Al-Tibri Medical College Isra University Karachi Campus**Abstract:**

**Objective:** To determine *Helicobacter pylori* (HP) infection and seroprevalence prevalence in patients of beta thalassemia major (TM) and to compare patients with controls  $\beta$  TM and recurrent abdominal pain (RAP).

**Study Design:** An Observational study.

**Place and Duration:** In the Hematology and Gastroenterology Department of Jinnah Hospital, Lahore for one year period from June 2016 to June 2017.

**Methodology:** A total of RAP and 62 TM with healthy controls of number 41 were selected for study. Using an HPIgG ELISA for anti-HP antibodies examination Serum samples were taken. Urea breath test was performed using <sup>14</sup>C positive HPIgG disease. HPGG (+) was noted in 36 (58.1%) of the patients and in 20 of the healthy children (48.8%).

**Findings:** There was no major variation between control groups and TM for HPIgG frequency ( $p = 0.349$ ). urea breath test with Urea TM (49.04%) and 17 healthy children (39%) breath test with urea TM and healthy children HPIgG (+) urea breath test with urine applied to test ( $p = 0.34$ ) test, ALT, epigastric pain, paraumbilical pain, splenectomy and age level were statistically significant ( $p = 0.03$ ,  $p = 0.02$ ,  $p = 0.01$  and  $p = 0$ ).

**Conclusion:** In our developing country *Helicobacter pylori* may be the most common cause of RAP in healthy children and Thalassemia major patients.

**Key words:** Thalassemia major, *H. pylori*, recurrent abdominal pain.

**Corresponding author:****Dr. Abdullah Khan,**Al-Tibri Medical College Isra University,  
Karachi Campus

QR code



Please cite this article in press Abdullah Khan et al., *An Observational Study about Helicobacter Pylori Infection Prevalence in Patients of Beta Thalassemia Major With Recurrent Abdominal Pain.*, Indo Am. J. P. Sci, 2018; 05(09).

**INTRODUCTION:**

Beta thalassemia syndromes is a hereditary trait characterized by disorder in genes the causing abnormal beta-globin chains synthesis. The assembling of beta-globin chains in  $\beta$ -thalassemia major is severely affected by the mutation of both beta-globin genes. This synthesis of the globin chain causes imbalance, severe hypochromic microcytic anemia and insufficient erythropoiesis. In childhood the most common presentation is Recurrent abdominal pain (RAP). The RAP is describe as three minimum abdominal pain attacks that are much severe to upset the child's normal activity for at least three months. The RAP prevalence in children ranges from 11-21%. The role of infection with *Helicobacter pylori* (HP) in RAP etiology during childhood is still controversial. *Helicobacter pylori* is a curved gram-negative bacterium that populate in the mucosa of stomach in humans. In developing countries Prevalence is 71%. Epidemiological studies have shown that HP prevalence rise with age and in developing countries is higher and populations with low socioeconomic status, overcrowding and lack of sanitation or lack of sanitation. YY is one of the few changes in the gastrointestinal system that is common in patients with high incidence of  $\beta$ TM. However, HP infection has not been shown to be the RAP cause in  $\beta$ TM patients. There is a very few studies on this subject. The purpose of the study was to know the seroprevalence and infection frequency of HP in patients with  $\beta$  TM and compare normal controls with patients with  $\beta$  TM and RAP.

**MATERIALS AND METHODS:**

This Observational study was held in the Hematology and Gastroenterology Department of Jinnah Hospital, Lahore for one year period from June 2016 to June 2017. With 40 patients matched for age and sex, we included the ICU group as a control group, even

though there were no chronic illnesses. The study was approved by the hospital ethics committee and institutional review board. All families /participants gave their consent in writing. RAP is defined as the attacks of minimum 3 abdominal pain episodes, non-organic abdominal pain and / or weekly abdominal pain in children with minimum 3-month symptoms used by Naish and Apley. A detailed story of the patients was taken and the location and duration of the pain was questioned. The mothers and / or children were aware from the abdominal pain. Detailed physical examination of the patients were performed. Leukocyte counts, Hemoglobin, renal and liver function tests were recorded for confirm diagnosis. Complete urine tests and investigation of parasites in urine and feces were performed. The patients evaluation was performed by ultrasound abdomen. Patients who were infected with urinary tract infection, parasitosis and abdominal pain in both groups were not selected for the study. For anti-HP antibodies detection Serum samples were examined using HPIgG ELISA. The negative samples for antibody levels  $> 12$  AU / ml and  $<12$  AU / ml were considered positive for HP infection. The urea-alumina test was performed using positive HPIgG 15C disease. After a fasting period of 4 to 6 hours, 37 ml of 14 C-Urea capsule was applied with 51 ml drinking water. Breath samples were collected on the tenth minute with a dry system cartridge (Breathcard). Patients were inflated in the mouth for 1-5 minutes until the color of the indicator membrane turned from orange to yellow. The cartridge analyzer was prepared for evaluation and 250 seconds later the result was recorded. Grade 0 = not infected, Grade 2 = Infected, Grade 1 = Suspected. In case of grade 1, reading was done to repeat on the analyzer.

**Statistical analysis:** For data analysis SPSS 16.00 program was used.

**RESULTS:**

Sixty two TM patients were observed in this study,  $11.8 \pm 5.2$  (4-21), 35 women (56.5%) and 27 men (43.5%). In 62 patients included in the study, the YY rate was less than six months, 87.1% and YY rate was 53.2%. The characteristics of RAP are shown in Table I for patients with TM.

Table-I: The features of pain in TM patients.

	N	%
<b>Pain Span</b>		
>6 month	8	12.9
< 6 month	54	87.1
<b>Pain Localization</b>		
Epigastrium	33	53.1
Periumblical	29	46.8

45 healthy, healthy children with age and gender; The mean age of the control group was  $8.2 \pm 3.2$  (4-15), 21 females (51.2%) and 20 males (48.8%). HPIgG (+) was found in 20 (48.8%) patients with TM (58.1%) and healthy children. There was no difference in the frequency of HPGG between control groups and TM ( $p = 0.349$ ). There was no statistically significant correlation between HPGG and positive AST, ferritin levels, ALT, gender, paraumbilical pain and splenectomy ( $p > 0.05$ ). There was, however, a significant correlation between epigastric pain and positive HPIgG, age and duration of pain ( $p = 0.015$ ,  $p = 0.044$ ,  $p = 0.013$ , respectively). (-) ALT and AST HPIgG (+) levels were higher significantly in patients with MT compared to patients with HPIgG ( $p = 0.003$ ,  $p = 0.00$ ) and significantly different between ferritin levels ( $p = 0.484$ ). We did not compare the HPIgG (+) difference between HPIgG (+) patient and healthy child, but there was no obvious variations in AST, ALT, pain, age and gender. In both groups the pain duration ( $p = 0.016$ ). Accordingly, up to six months of pain in HPIgG (+) TM patients was more common. Breath test with urea (+) HPIgGT was administered as a breath test in healthy children and TM (48.4%) in 30 patients urea and 16 healthy children (39%) positive ( $p = 0.34$ ). Table II).

Table-II: Comparison of HPIgG(+) and Urea-Breath Test Results in TM and Healthy Children.

	TM(n=62)	%	Control(n=41)	%	<i>p</i>
HPIgG(+)	36	58.1	20	48.8	0.35
Urea-Breath Test(+)	30	48.4	16	39	0.34

$p < 0.05$

Urea-breath test was performed in patients with TM, periumbilical pain, ALT, splenectomy, epigastric pain and age level ( $s = 0.03$ ,  $p = 0.02$ ,  $p = 0.00$ ,  $p = 0.01$ ).

Table-III: Comparison of HPIgG(+) and Urea-Breath Test(+) results with some relevant parameters in TM Patients.

	HPIgG(+) <i>P</i>	Urea-Breath Test(+) <i>P</i>
Age	0.012	0.001
Gender	0.814	0.46
Pain Spain	0.015	0.71
Pain Localization		
Epigastrium	0.16	0.02
Periumbilical	0.04	0.035
ALT(U/L)	0.16	0.02
AST(U/L)	0.2	0.03
Splenectomy	0.64	0.00

$P < 0.05$

Patients with TM positive by respiratory test were not compared with positive results compared with healthy children, compared with those with inadequate TM.

### DISCUSSION:

Recurrent abdominal pain is one of the most common causes of referral to a pediatric clinic. The role of HP in the etiology of heart failure should be discussed in children. In the literature, the HP frequency in children with HC was determined as 40-54%. This relationship was between 56.3% and 72.4% in studies conducted in our country. Gunel et al<sup>16</sup> reported an HPIgG (+) ratio of 72.4% in children with RAP and showed no relationship between RAP and HP infection in healthy children. HP-related work has a

limited number of patients with thalassemia. In one study, HPIgG antibodies were analyzed in patients with TM and there was no difference in healthy children. In another study, MMT patients had more HP infection than healthy children with TMD, but this difference was not statistically significant. As a marker of active infection, the urea breath test is shown as an alternative because it is not invasive in endoscopic examinations. In our study, patients with MT had a higher positive urea test (48.4%) than healthy children, but the difference was not

statistically significant. Compared with endoscopic biopsy results, there was a breath test with low urea content in patients with MT and in healthy children. This change in our region and high socio-economic and cultural environment that combines Turkey's development gradually. Although our study is different from the literature, there is a strong correlation between active infection and splenectomy, although there is no correlation between seroprevalence and splenectomy. This result suggests that the altered immune response after splenectomy affects active HP infection. The pain in the HP infection is usually found in the epigastrium. There was no correlation between the location of the pain with HP infection and localization in patients with TM. As a result, HP may be one of the reasons for the RAP in our developing country, HP, TM and healthy children. Active infections, splenectomy and increased infection with AST and HP are more common. We recommend that HP infection be discarded in TM with RAP.

#### REFERENCES:

- Zamani, Mohammad, Amin Vahedi, Ahmad Tamaddoni, Ali Bijani, Mojgan Bagherzade, and Javad Shokri-Shirvani. "Relationship between  $\beta$ -Thalassemia minor and Helicobacter pylori infection." *Caspian journal of internal medicine* 9, no. 1 (2018): 54.
- Cabrera E, Armenta LD, Belliveau SM, Blackwell J, Bowman LN, Draeger R, Garcia A, Goldsmith TJ, Gray JM, Jackson AJ, Kamath AU, inventors. Systems and methods for health data visualization and user support tools for continuous glucose monitoring. United States patent application US 15/674,462. 2018 Feb 15.
- Cabrera E, Armenta LD, Belliveau SM, Blackwell J, Bowman LN, Draeger R, Garcia A, Goldsmith TJ, Gray JM, Jackson AJ, Kamath AU, inventors. Systems and methods for health data visualization and user support tools for continuous glucose monitoring. United States patent application US 15/674,442. 2018 Feb 15.
- Alshareef, Shimos A., Duria A. Rayis, Ishag Adam, and Gasim I. Gasim. "Helicobacter pylori infection, gestational diabetes mellitus and insulin resistance among pregnant Sudanese women." *BMC research notes* 11, no. 1 (2018): 517.
- Davis AL, Belliveau SM, Cabrera Jr E, Constantin AE, Draeger R, Galuardi P, Hampapuram H, Johnson ML, Kamath AU, Koehler KY, Mahalingam A, inventors. SYSTEMS AND METHODS FOR CGM-BASED BOLUS CALCULATOR FOR DISPLAY AND FOR PROVISION TO MEDICAMENT DELIVERY DEVICES. United States patent application US 15/699,989. 2018 Mar 15.
- Boock, R.J. and Swinney, M.R., DexCom Inc, 2018. *Silicone based membranes for use in implantable glucose sensors*. U.S. Patent Application 15/796,163.
- Xiao, Hai-Juan, Qing Ji, Lin Yang, Ren-Ting Li, Cheng Zhang, and Jun-Ming Hou. "In vivo and in vitro effects of microRNA-124 on human gastric cancer by targeting JAG1 through the Notch signaling pathway." *Journal of cellular biochemistry* 119, no. 3 (2018): 2520-2534.
- Patravale, V.B., Kadwadkar, N.A., Patki, S.R. and Disouza, J.I., 2019. Nutraceutical and Functional Foods in Treatment of Anemia. In *Nutraceutical and Functional Foods in Disease Prevention* (pp. 308-339). IGI Global.
- Petisce, James R., Mark A. Tapsak, Peter C. Simpson, Victoria Carr-Brendel, and James H. Brauker. "Oxygen enhancing membrane systems for implantable devices." U.S. Patent 9,993,186, issued June 12, 2018.
- Brim, Hassan, Anahita Shahnazi, Mehdi Nourai, Dilhana Badurdeen, Adeyinka O. Laiyemo, Tahmineh Haidary, Ali Afsari, and Hassan Ashktorab. "Gastrointestinal Lesions in African American Patients With Iron Deficiency Anemia." *Clinical Medicine Insights: Gastroenterology* 11 (2018): 117955221877862
- A'ttiyyah, A. B., Wan Afiqah Syahirah Wan Ghazali, Nor Azah Mohd Ali, Kannan Thirumulu Ponnuraj, Suharni Mohamad, and Ahmad Azlina. "Phytochemical Properties and Traditional Uses of Selected Medicinal Plants in Malaysia: A Review." *Journal of Biomedical and Clinical Sciences (JBSCS)* 2, no. 2 (2018): 14-25.
- Chiang, Chun-Pin, Julia Yu-Fong Chang, Yi-Ping Wang, Yang-Che Wu, Yu-Hsueh Wu, and Andy Sun. "Significantly higher frequencies of anemia, hematinic deficiencies, hyperhomocysteinemia, and serum gastric parietal cell antibody positivity in atrophic glossitis patients." *Journal of the Formosan Medical Association* (2018).
- Zhang, Chenhua, and David S. Hage. "Clinical Chemistry Applications of Capillary Electromigration Methods." In *Capillary Electromigration Separation Methods*, pp. 423-452. 2018.
- Simmons, S., Gangaraju, R., May, J.E., Adamski, J. and Marques, M.B., 2018. 63 Is High Ferritin a Useful Marker for Fat Emboli

Syndrome in Patients with Sickle Cell Disorders?. *American Journal of Clinical Pathology*, 149(suppl\_1), pp.S196-S197.

15. Hernandez-Rosas JH, Larvenz S, Dervaes M, Gauba I, Mensinger MR, Cohen E, Smith BC, Valdes J, Leach JS, inventors; DexCom Inc, assignee. Systems and methods for a continuous monitoring of analyte values. United States patent application US 15/862,102. 2018 May 10.