Original Article

Frequency of Helicobacter Pylori among Hepatic Encephalopathic Patients in Liver Cirrhosis

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ABSTRACT

OBJECTIVE: To determine the frequency of H. pylori in cases of hepatic encephalopathy with liver cirrhosis.

STUDY DESIGN AND PLACE: Cross-sectional study to observe the role of H. pylori in HE patients of liver cirrhosis, conducted in Department of Medicine with collaboration to Intensive Care Unit (ICU) from January 2009 to December 2009 at Liaquat University of Hospital Jamshoro/Hyderabad.

RESULTS: Out of 66 patients of HE, 44(66.7%) were male and 22(33.3%) were female, between 20 and 80 years of age. Based on Child-Pough's criteria, severity of hepatic decompensation Grading was as; in grade 1= 07 (10.6%), in grade 2= 21 (31.8%), in grade 3= 20 (30.3%) and in grade 4= 18 (27.3%). Based on Child-Pough's criteria in class A= 01 (1.5%), in class B= 27 (40.9%) and in class C= 38 (57.6%).

Etiological factors for HE were as; HCV antibodies were positive in 32 (48.48%), HBsAg was positive among 18 (27.27%), HBsAg and HCV antibodies both were positive in 09 (13.64%), Alcoholics were 07 (10.6%) and Frequency of H. pylori was found in 47 (71.2%).

CONCLUSION: In our study we found that before and after 10 days H. pylori eradication therapy, there was no significant improvement in HE grade and other parameters.While the finding of high frequency of H. pylori in HE patients may be either co-incidence or co-relation that needs further vast studies.

KEY WORDS: Liver Cirrhosis, Hepatic Encephalopathy, Helicobacter Pylori Antibodies.

INTRODUCTION

Cirrhosis of liver with its morbid and fatal complications like hepatic encephalopathy and bleeding esophageal varices is an important worldwide burning issue and is the 12th most common leading cause of death in USA[1].

Hepatic encephalopathy (HE) is a complex neuropsychiatric syndrome characterized by disturbances in consciousness and behavior, personality changes, fluctuating neurologic signs, flapping tremor (asterixis) and distinctive electroencephalographic (EEG) changes, due to hepatocellular dysfunction and porto systemic shunting[2,3] . Cirrhosis of liver accounts 50 – 70% cause of HE[4].

There are many factors responsible for the development of HE in liver cirrhosis such as; Ammonia, production of False Neurotransmitters, increase sensitivity of central nervous system neurons to the inhibitory neurotransmitters Gamma Amino Butyric Acid (GABA), increased level of circulating endogenous Benzodiazepines, decreased activity of urea-cycle enzymes due to Zinc deficiency, decreased level of Myoinositol in Brain, deposition of Manganese in Basal Ganglia and swelling of Brain Astrocytes[5,6,7,8,9,10] Among all above factors Ammonia is the main culprit and responsible for the development of HE among cirrhotic patients and Colonic Bacteria are thought to be the main source of Ammonia production. Stomach is one of the alternate site for Ammonia production in Helicobacter Pylori (H. pylori) infected patients[11,12,13].. Though in normal circumstances H. pylori produced Ammonia is not absorbed in circulation except in cases of severe atrophic gastritis, liver and kidney dysfunction. Previous studies have observed that H. pylori eradication may theoretically reduce ammonia concentration in cirrhotic patients[14,15].

Worldwide, data are controversial about the role of H. pylori as an independent risk factor for the development of HE and recently thought that H. pylori eradication therapy has no more role in HE patients[16,17] . Therefore, to find out any significance of H. pylori among HE patients in liver cirrhosis in our setup, the current study is being conducted.

PATIENTS and METHODS

This cross-sectional study was conducted in Depart-

ment of Medicine in collaboration with Intensive Care Unit (ICU) from Jan 2009 to Dec 2009 at Liaquat University of Medical and Health Sciences, Jamshoro/ Hyderabad. Patients above 20 years of age, having liver cirrhosis with HE were included in the study after obtaining informed consent. Patients having liver cirrhosis and HE with history of peptic ulcer disease (PUD), have taken H. pylori eradication therapy within 04 weeks duration or have taken proton pump inhibitors (PPI) within 1-2 weeks duration and those having history of secondary peritonitis have been excluded from the study.

On the day of admission, informed consent was taken and history, clinical assessment for HE, grading and modified Child-Pough's classification was done and were recorded in the pre-designed proforma. All the patients were managed initially in ICU, on the basis of current protocol of HE therapy along with H. pylori eradication treatment for 10 days. All the patients have gone through routine investigations that include Complete Blood Count and ESR, Liver Function Tests, Blood Urea, Serum Creatinine, Serum Electrolytes, Serum Protein, Prothrombin Time, Viral Profile for HBsAg and HCV Antibodies, H. Pylori Antibodies (IgG) on ELIZA, H. pylori stool antigen test, X-Ray chest PA view, Ultra Sound, Upper GI Endoscopy (In selected cases).

Descriptive statistics were calculated and presented as frequencies and proportions. SPSS ver 16 was used to analyse the data.

RESULTS

During the study period total 66 cirrhotic patients developed hepatic encephalopathy among which 44 (66.7%) were males and 22(33.3%) were females. Their ages were between 20 and 80 years. Severity of hepatic decompensation grading and classification according to Child-Pough's criteria are presented by **Table I** and **Table II** respectively, whereas etiological factors of HE are detailed by **Table III**.

Among 66 HE cirrhotic patients 47 (71.2%) found IgG antibodies positive, out of them males were 30 (63.83%) and females were 17 (36.17%).

In our study we found that as the age of the patient and the Grade of HE increases, the frequency of H. pylori antibodies also increases but the significant subsequent clinical (Hepatic Grade and Class) and Biochemical Investigations improvement was not found following continuous 10 days H. pylori Eradication therapy.

TABLE I: GRADING OF HEPATIC ENCEPHALOPATHY IN CIRRHOTIC PATIENTS (n = 66)

Grade	Male	Female	Total %
1	04	03	07 (10.6%)
2	14	07	21 (31.8%)
3	13	07	20 (30.3%)
4	13	05	18 (27.3%)

TABLE II: CHILD- POUGH'S CLASSES (CPC) IN CIRRHOTIC PATIENTS (n = 66)

CPC	Total %
A	01 (1.5%)
B	27 (40.9%)
C	38 (57.6%)

TABLE III: ETIOLOGY OF HEPATIC ENCEPHALOPATHY IN CIRRHOTIC PATIENTS (n = 66)

Causes	Total %
HBsAg	18 (27.27%)
HCV antibodies	32 (48.48%)
HBsAg and HCV antibodies	09 (13.64%)
Alcoholics	07 (10.6%)

DISCUSSION

Cirrhosis of liver produces many complications among these HE is one of the morbid and fatal one if not treated timely. HE is an alteration of mental state in the absence of other causes of encephalopathy due to liver dysfunction and development of porto-systemic shunt. The exact pathogenesis of HE remains unknown but factors leading to increase production of Ammonia (Hyperammonemia) is one of the culprit for the development of HE among cirrhotic patients.

Colonic bacteria are considered the main source of ammonia and its clearance in cirrhotic patients is decreased due to impaired urea-cycle function and development of porto-systemic shunting and HE.

As H.pylori mainly infects the gastric mucosa and due to its strong urease activity, produces enormous amount of ammonia as compared to other urease positive gut flora[18,19].

Frequency and role of H. pylori in the pathogenesis of HE has been a subject of ongoing debate. In our study we also found the high frequency of H. pylori antibodies among HE patients with advance age and grade of HE (71.2%). Similar results (71.4%) were also found in Xu et al[20] among Chinese patients with HE. Shavakhi et al[21] also found (71.42%) in their cross

-sectional study at Isfahan, Iran. From Italy Siringo et al[22], reported (76.5%) frequency of H. pylori in HE patients. Similar reports (76%) were published from Taiwanese population by Tsai et al[23] and Sethar et al[24] from Pakistan. Qureshi et al[25] and Shrimali et al[26] also reported nearly similar results i.e.; 77.6% and 78% respectively.

Low frequencies were found in Dasani et al[27] (67%), Chen et al[28] (60.6%), Devrajani et al[29] (56%) and from 35.1% to 70.6% was reported by Lo GH et al[30], Queirvoz DM et al[31] and Kim DJ et al[32] in HE.

In our study we found that before and after 10 days H. pylori eradication therapy, there was no significant improvement in HE grade and other parameters.

Recently many studies have been conducted with this conclusion that H. pylori does not contribute significantly to the blood ammonia levels and the severity of HE such as; Rekha et al[33], Batmanabane et al[34], Arafa et al[35], Nam et al[36], Al Mofleh et al[37] and Keefe et al[38].

CONCLUSION

In this study we found that before and after 10 days H. pylori eradication therapy, there was no significant improvement in HE grade and other parameters. While the finding of high frequency of H. pylori in HE patients may be either co-incidence or co-relation that needs further vast studies.

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