COMMON PRECIPITATING FACTORS OF HEPATIC ENCEPHALOPATHY IN PATIENTS OF CHRONIC LIVER DISEASE AT CIVIL HOSPITAL KARACHI

ABSTRACT

OBJECTIVE: To determine frequency of common precipitating factors for Hepatic encephalopathy in chronic liver disease.

PLACE AND DURATION OF STUDY: This study was conducted at Civil Hospital Karachi over a period of six months from June 2009 to December 2009.

PATIENTS AND METHODS: This cross sectional study was conducted in Medical wards of Civil Hospital Karachi over a period of six months from June to December 2009. One hundred and ninety (n=190) adults including 98 (51.6%) male and 92 (48.1%) females, diagnosed cases of chronic liver disease were included in this study. Hepatic encephalopathy was diagnosed clinically on the basis of history, physical examination and relevant laboratory and radiological investigations. Data was analyzed on SPSS 16 and results were tabulated.

RESULTS: A total number of one hundred and ninety (190) adult diagnosed cases of chronic liver disease, irrespective of cause were included in this study. Ninety eight (n=98, 51.6%) were male and ninety two (92, 48.1%) were females. The mean age was 52.35 years with STD ± 13.6. The common precipitating factors identified in this study were as follows. (n= 94,) (49.5%) had constipation, (n=74, 38.9%) had infection, (n=74, 38.9%) had electrolyte imbalance, (n=70, 36.8%) were on diuretic therapy, (n=62, 32.6%) had hematemesis and melena, (n=52, 27.4%) had dehydration, (n=22, 11.6%) were on high protein diet and (n=20, 10.5%) used sedatives.

CONCLUSION: This study concludes that most common precipitating factors of hepatic encephalopathy in our set up are Constipation, Infection, Electrolyte imbalance and upper gastrointestinal bleeding. These factors are potentially preventable. A proper education and treatment plan in these patients can reduce the hospitalizations and overall morbidity and mortality.

KEY WORDS: Chronic Liver disease, Hepatic encephalopathy, precipitating factors.

INTRODUCTION:

Chronic liver disease is very common world wide and alcohol is the leading cause of chronic liver disease in western societies 1 while hepatitis B and C viruses are the major cause of chronic liver disease in Pakistan. World Health Organization (WHO) estimates that approximately 170 million people are infected with HCV 2. The prevalence of chronic hepatic C in Asia Pacific region is variable between 4 to 12 %. 1-3

The serious presentations of chronic liver disease are ascites, jaundice, hepatic encephalopathy and gastrointestinal bleeding. 4 The serious presentations of chronic liver disease are as follows: Cognitive impairment and coma with cerebral edema 7. Patients with chronic liver disease experiences frequent episodes of hepatic encephalopathy precipitated by different factors 7. The Common precipitating factors of hepatic encephalopathy are constipation, electrolyte imbalance, infection, and diuretic use. 8

Hepatic encephalopathy is well recognized clinical complication of acute or chronic liver disease 1 carrying high morbidity and mortality. About 30% patients of chronic liver disease die of hepatic encephalopathy 2,5-6. Hepatic Encephalopathy could be acute, sub acute, or chronic or it may be clinical or subclinical 7. Those patients who suffer from chronic liver disease may have a chronic neuropsychiatric state due to portosystemic shunting or have an acute attack with precipitating factors labeled as hepatic encephalopathy 5,6,8.

Hepatic Encephalopathy could have different clinical presenting features such as cognitive impairment and coma with cerebral edema 7. Patients with chronic liver disease experiences frequent episodes of hepatic encephalopathy precipitated by different factors 7. The Common precipitating factors of hepatic encephalopathy are constipation, electrolyte imbalance, infection, and diuretic use. 9

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imbalance, spontaneous bacterial peritonitis, gastrointestinal bleed, sedatives, infection and self medications \(^{[10][11]}\). Other factors that could be responsible for precipitating hepatic encephalopathy are vomiting, diarrhea, over diuresis \(^{[12]}\), high protein diet and excessive peritoneal paracentesis.

In Pakistan few studies have been done looking into various risk factors for hepatic encephalopathy. We at Civil Hospital Karachi have noticed increasing number of people being admitted with Chronic liver disease and its complications in past years. Since this hospital caters to a large number of patients coming from the rural areas of Sindh and Balochistan, with very low socio economic class and from different cultures and ethnic backgrounds, the precipitating factors may differ in nature and frequency. Therefore this study was conducted to identify the different precipitating factors for the proper management as well as for the education of the patients to prevent further episodes.

**PATIENTS AND METHODS**

This study was conducted in Medical wards of Civil Hospital Karachi from June 2009 to December 2009. One hundred and ninety (n=190) adult patients of chronic liver disease diagnosed previously on clinical, biochemical and radiological bases who presented with the hepatic encephalopathy were included. Patients having non-reactive HBs Ag and Anti HCV Antibody were not included.

Biodata and detailed history was taken. A proper clinical examination was carried out and biochemical, and hematological tests were requested which included complete blood picture, urea, creatinine and electrolytes, liver function tests, prothrombin time and international normalized ratio, serum protein, albumin and globulin ratio, hepatitis B and C serology by ELISA technique. Urine analysis was also done. Ultrasound scan of abdomen was done to assess the size and echo texture of the liver, to measure the size of the portal vein, spleen and to see the presence of ascites. Abdominal paracentesis was done where it was needed and all the data was tabulated on printed performa.

Hepatic encephalopathy was diagnosed on clinical examination such as irritability restlessness, altered state of consciousness and asterixis and graded from I to IV as shown in Table 1. Constipation was defined as failure to pass stool in 48 hours, infection as presence of temperature of > 99 F and raised leukocyte count, electrolyte imbalance as high or low level of serum sodium or serum potassium as per the reference level, upper gastrointestinal bleed as history of hematemesis or melena, dehydration as presence of dry tongue and loss of skin turgor, high protein diet as recent unrestricted and high intake of proteins consumed in any form,

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Data was analyzed on SPSS 16 and results were tabulated to evaluate frequency of common precipitating factors.

**RESULTS:**

A total number of One hundred and ninety (n=190) adults diagnosed cases of chronic liver disease who presented with hepatic...
encephalopathy irrespective of cause were included. Ninety eight (n=98, 51.6%) were males and ninety two (n=92, 48.1 %) were females. The mean age was 52.35 with STD ± 13.6. The cause of chronic liver disease is mentioned in Graph 1. HBsAg was reactive in thirty four (17.9%). Anti HIV was reactive in one hundred thirty eight (72.6%) while both HBsAg and Anti HIV were reactive in eighteen (9.5%) patients. Ninety four patients (n=94, 49.5%) had constipation. Seventy four (n= 74, 38.9%) had electrolyte imbalance, seventy four (n=74, 38.9%) had infection, seventy patients (n= 70, 36.8 %) were on diuretic therapy, sixty two (n=62 32.6 %) had gastrointestinal bleed, fifty two (n=52, 27.4%) had dehydration, twenty two (n=22, 11.6%) were on high protein diet and twenty (n=20, 10.5%) used sedatives. (Table 3)

**DISCUSSION**

Hepatic encephalopathy is a serious complication of chronic liver disease. Patients with chronic liver disease experiences frequent episodes of hepatic encephalopathy precipitated by different factors. These factors may vary depending upon the disease status, existing co-morbid, socioeconomic condition and availability of the healthcare facilities to the patients. It is very important to identify these precipitating factors in an individual for a proper management of hepatic encephalopathy and to prevent further episodes, failure of that would increase the morbidity and mortality in these cases.

The importance of gut factors in pathogenesis of hepatic encephalopathy is suggested by the amelioration of hepatic encephalopathy associated with evacuation of bowel and dietary proteins restriction. For decade ammonia has been thought to play an important role in pathogenesis of hepatic encephalopathy. It is well recognized that ammonia modulates neuronal function and is a pro-convulsant. The gastrointestinal tract and skeletal muscles are major source of plasma ammonia. In liver failure level of ammonia in plasma tends to increase and plasma ammonia readily enters the brain. Lactulose is a commonly prescribed agent to relieve constipation in patients with chronic liver disease. It has an added advantage as a non absorbable disaccharide inhibiting intestinal ammonia production by number of mechanisms.

In our study nearly half of the patients (49.5 %) who presented with hepatic encephalopathy had a prior history of constipation. The previous studies have shown the figures from 18.3% - 38%. The higher figures in our study may be explained on the basis of different dietary habits of the study population who belonged to very poor socioeconomic status, lack of education regarding the role of diet in chronic liver disease and possibly inability to take lactulose regularly and in required doses because of financial constrains.

Infection was the second common precipitating factor in our study, present in 38.9% of patients, more common in males than females. Previous local studies have shown infection as a precipitating factor in 24- 44%. In AKUH study Spontaneous bacterial peritonitis was noted in 20.5% and urinary tract infection was noted in 15.3% (Table 3).

Renal impairment is the commonest precipitating factor in western population. However this factor was not independently assessed in our study nor in any other local study. Renal impairment is generally associated with dehydration and electrolyte imbalance which independently are risk factors for hepatic encephalopathy and as such were assessed separately. In our study we found that more than one third of our patients (38.9 %) had electrolyte imbalance as a precipitating cause of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy. These figures are lower than previously reported. (Lady reading, PIMS). Dehydration possibly due to diuretic therapy contributed to development of hepatic encephalopathy. Most of them (70/74) were on diuretic therapy.
cirrhotic patients with episodic hepatic encephalopathy. This finding may be very relevant in our setup where the dietary protein content of our patients belonging to poor socioeconomic status is already very poor. More so these patients are already severely malnourished and protein restriction may further worsen the nutritional status without resulting in any significant improvement of hepatic encephalopathy.

CONCLUSION AND RECOMMENDATIONS:
Hepatic encephalopathy is precipitated by many factors. Constipation, infection electrolyte imbalance and upper gastrointestinal bleeding are the common causes in our setup. These are potentially preventable and reversible. A proper education and management plan of these patients in this regard may prevent many hospitalizations and reduce the overall morbidity and mortality in patients with chronic liver disease.

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