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DETERMINATION OF VARIOUS PRECIPITATING FACTORS OF HEPATIC ENCEPHALOPATHY IN PATIENTS OF CHRONIC LIVER DISEASE AT MILITARY HOSPITAL RAWALPINDI

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ABSTRACT

Objective: To analyse the various precipitating factors of hepatic encephalopathy.

Design: A single centre, retrospective study.

Place and duration of study: Military Hospital Rawalpindi from July 2009 to April 2010

Methods: One hundred and fifty admitted patients with hepatic encephalopathy were probed into for different precipitating factors, based on history, clinical examination and laboratory methods.

Results: Sixty two percent were female and 38% were male patients. The mean age of the patients was 57 years, with a range of 30-85 years. Evidence of Hepatitis C virus was detected in 141(94%) patients while in 9(6%) patients HBV was detected. Constipation was present in 42.7%, gastrointestinal bleeding in 37.3%, infections in 12%, use of sedatives 2.7%, surgery 2.7%, while hypokalemia and excess protein diet were seen in 1.3% of the total patients.

Conclusion: Constipation is the most common precipitating factor followed by upper gastrointestinal bleeding and infections.

Key words: Hepatic encephalopathy, liver cirrhosis, precipitating factors

INTRODUCTION

Cirrhosis is the end result of injury to the liver due to various insults leading to fibrosis and nodular regeneration. It is one of the most common cause of morbidity and mortality both globally and in our country[1-3]. In developing country like Pakistan where cost of the health care has always been an issue, chronic diseases like cirrhosis and its various complications are a big burden on health economy. Inadequate education, poverty, poor hygienic environment inadequate nutrition and lack of counselling are important factors due to which number of cirrhotic patients are increasing and also causing increased mortality in these patients due to various complications.[4-9]

Hepatic encephalopathy (HE) is a common reversible neuropsychiatric syndrome associated with chronic and acute liver dysfunction and has significant morbidity and mortality[5,8]. Although a clear pathogenesis is not known, elevated ammonia level in serum and central nervous system are the mainstay for pathogenesis causing its symptoms and signs[2,5,7,10]. Presence of false neurotransmitters like branched chain aminoacids, accumulation of neuroinhibitory substances and manganese, different monoamines and endogenous opiates are also some of the contributing factors in the pathogenesis of hepatic encephalopathy[3,6]. Hepatic encephalopathy is chararacterized by personality changes like confusion, forgetfulness, speech and handwriting impairment, agitation, stupor, intellectual impairment and depressed level of consciousness and is one of the bad prognostic indicator in patients with cirrhosis as is evidenced in Child Pugh scoring system[4,5,11-15]. The diagnosis of hepatic encephalopathy is clinical because the condition develops slowly with sleep disturbance, altered sensorium, tremors, asterixis, hyper-reflexia and decerebrate posturing and coma leading to death in severe cases, however elevated ammonia level is a classical laboratoty finding in these patients.[6,10,17-19]

In patients with chronic hepatic failure, either subclinical or overt encephalopathy can be seen in upto 50-70% of the cases[7,11,16]. In most of the patients presenting in hepatic encephalopathy, one or the other precipitating factor has been found to be the culprit and

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responsible for the morbidity and mortality[10,17-21]. Common precipitating factors include gastrointestinal bleeding, infections, azotemia, constipation, electrolyte imbalance, and high protein diet[3,5,8]. Certain drugs like sedatives, tranquilizers, analgesics and diuretics, fulminant hepatic injury and large volume paracentesis have also been found to precipitate hepatic encephalopathy in otherwise stable cirrhotic patients[8,12,19,21]. Therefore it is of immense importance that while treating these patients, the first line therapy should always be directed to eliminate and treat the precipitating factors[9,18,20].

The purpose of this study was to ascertain the frequency of different factors which precipitate the hepatic encephalopathy, commonly in patients of liver cirrhosis who presented to the emergency department or medical wards at Military Hospital Rawalpindi.

PATIENTS AND METHODS

From December 2009 to April 2010, a total of 322 patients admitted to medical wards at the Military Hospital Rawalpindi, with a diagnosis of chronic liver disease were screened for the presence of hepatic encephalopathy. Out of these 150 were diagnosed as cases of hepatic encephalopathy and included in this descriptive study.

Inclusion Criteria

- Patients of adult age ≥ 18 years of both genders with diagnosed cases of hepatic encephalopathy.
- Patients with known diagnosis of chronic liver disease
- Patients with altered sensorium and altered consciousness

Exclusion Criteria

- Patients with mental confusion due to non hepatic causes
- Patients with permanent focal neurological signs with positive CT scan brain findings
- Acute fulminant hepatic failure

All the patients who reported with altered level of consciousness were admitted in medical wards and a detailed history was taken. It was followed by thorough physical examination to confirm the diagnosis of hepatic encephalopathy. Diagnosis was further supported by all necessary investigations like blood complete picture, liver function tests, prothrombin time, serum albumin, urine routine examination, ECG, chest X-rays, renal function tests, blood sugar (fasting and 2 hours after break-fast) and ultrasound abdomen. CT scan brain was done in selective cases to rule out any other cause of altered sensorium like stroke, intra-cranial bleed etc.

The various precipitating factors which were looked for included infections(including spontaneous bacterial peritonitis as diagnosed on clinical examination and ascitic fluid routine examination in all patients with ascites, urinary tract infections, pneumonia, acute gastroenteritis, constipation, gastrointestinal bleeding (haematemesis and melena), excess of protein intake (daily diet containing more than 1 g/kg body weight of protein as assessed by the consumption of eggs, beef, mutton, chicken, milk and different pulses) and use of drugs like sedatives, diuretics, azotemia, surgery hypokalemia, and large volume parecentesis (>4 litre at one time).

All the patients were followed for their duration of stay in the hospital. Their clinical condition was daily determined to look for the improvement and reversal of the symptoms of hepatic encephalopathy after the start of treatment.

RESULTS

Out of 150 patients 93 (62%) were female and 57(38%) were male patients. The mean age of the patients was 57 years. Minimum age was 30 years and maximum age was 85 years in the patients under study.

Hepatitis C virus was detected in 141(94%) patients while in 9(6%) patients HBV was detected.

The frequency of different risk factors which precipitated the hepatic encephalopathy is shown in the table-1 and figure.

There were 12 patients in which more than two precipitating factors were present, and it was these patients who presented in grade four hepatic encephalopathy and showed complications later on.

Mortality rate was 15.3% (23 out of 150 died) and was seen more in patients who presented with upper GI bleeding, sepsis and hypotension due to acute gastroenteritis. Also mortality was more in patients above 50 years of age and more in female (60.9%) as compared to male (39.1%) patients.

Table 1 .Frequency of risk factors for hepatic encephalopathy.

Risk factors	Frequency	Percentage
Constipation(>2 days after last stool passed)	64	42.7
Gastrointestinal bleeding	56	37.3
Infections(SBP,UTI,Pneumonia,Ac GE)	18	12
Sedatives	04	2.7
Surgery	04	2.7
Hypokalemia(<3.5 momol/L)	02	1.3
Excess protein	02	1.3

Table-2: Comparison of different precipitating factors of hepatic encephalopathy in varius studies (figures are percentages)

Precipitating factor of HE	Shaikh[2]	Ahmed[3]	Conn[4]	Faloon[6]	Alam[7]	Mehboob[8]	Tariq[9]	Present study
Constipation	52	52	3	6	32	19	30	42.7
Diarrhea	12	22	-	-	40	5	3	-
GI bleeding	56	56	18	33	22	30	29	37.3
Infections(SBP Pneumonia,UTI)	15	28	4	-	24	47	30	12
Hypokalemia	70	68	9	18	18	-	4.5	1.3
Hyponatremia	28	28	-	-	36	-	1.5	-
Excess protein diet	-	52	-	-	4	1	0.5	1.3
Sedative intake	-	-	-	-	-	2	1	2.7
Miscellaneous	-	-	-	-	-	4	0.5	-
Surgery	-	-	-	-	-	-	-	2.7

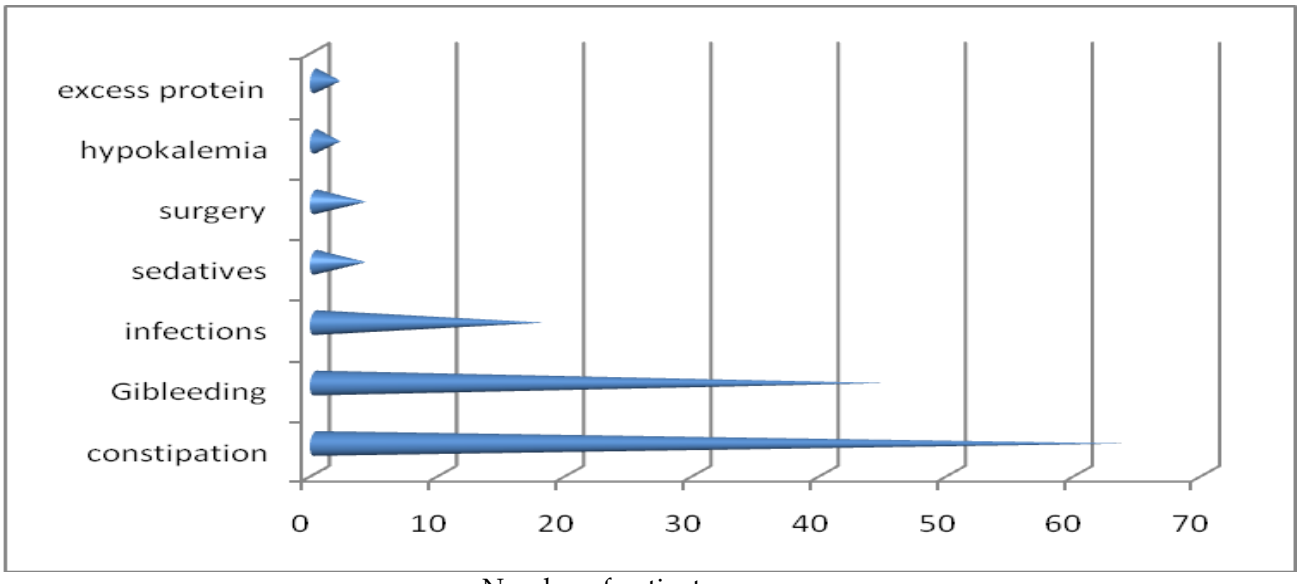

Figure: Frequency of risk factors for hepatic encephalopathy

DISCUSSION

Hepatic encephalopathy is a very lethal complication seen in patients of advanced liver disease and is characterized by potentially reversible impairment of brain function leading to different clinical manifestations like apathy,

disturbed sleep pattern, irritability, personal neglect, etc. Due to these manifestations and complications it is one of the important causes of mortality and morbidity not only in our country but also around the globe[3,7,12].

In our study the most common precipitating factor of hepatic encephalopathy was constipation followed by GI bleeding, infections, use of sedatives, surgery, hypokalemia and excess protein diet. Various studies, both in our country and around the globe have also evaluated different precipitating factors of hepatic encephalopathy in different population groups which have showed different factors in different frequencies[3,5,7,9,10]. Our results are closely related to the results of a study done by Tariq et al., which has also showed that constipation was the most common precipitating factor followed by diarrhea, GI bleed, infections, hypokalemia, hyponatremia, excess protein diet, sedative use in chronological order.[9]

As per the result and comparison of our study with other studies done on same subjects (as shown in Table 2) it is quite obvious that constipation, GI bleeding, infections hypokalemia and use of sedatives are the most common risk factors which can precipitate hepatic encephalopathy .

CONCLUSION

Majority of the patients presented with hepatic encephalopathy due to common and very easily reversible precipitating factors, out of which constipation was the commonest followed by infections and gastrointestinal bleeding. Therefore it is the need of the day that all the patients with chronic liver disease and their relatives should be briefed in details about the prevention of these precipitating factors and care of the patients at home.

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