Original Research Paper

Volume : 5 | Issue : 8 | August 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

Study of "Clinical Study of Cases of Hepatitis E"

Medical Science

KEYWORDS :

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INTRODUCTION

Hepatitis E virus (HEV) infection is an important public health concern in many developing countries, causing waterborne outbreaks as well as sporadic hepatitis. HEV is mainly transmitted by the fecal-oral route in endemic areas through drinking of contaminated water. However, zoonotic transmission from animal reservoirs to humans has also been suggested. Generally acute HEV is self limiting condition with full recovery, but cases complicated by fulminant hepatic failure have high mortality especially in pregnant females. Acute HEV infection is usually diagnosed by detecting specific anti-HEV antibodies

SCENARIO IN WORLD

The first reference to epidemic jaundice has been ascribed to Hippocrates. The earliest record in Western Europe is in a letter written in 751AD by Pope Zacharias to St Boniface, Archbishop of Mainz. Since then there have been numerous accounts of epidemics, particularly during wars. Hepatitis was a problem in the Franco-Prussian War, the American Civil War and World War I. In World War II huge epidemics occurred, particularly in the Middle East and Italy.[1]

INDIA

Hepatitis E was first recognised during an epidemic of hepatitis in Kashmir valley in 1978[2]. According to the South East Asia Regional office of the World Health Organization (WHO), hepatitis E is widespread in developing countries, accounting for up to 90 per cent of all sporadic cases of acute viral hepatitis[2-6]. Hepatitis E virus affects young to middle aged adults and causes high mortality in pregnant women, 20-30 per cent as compared to 0.2-1 per cent in general population[7]. It has been implicated as an important aetiological agent for sporadic fulminant hepatic failure (FHF) in developing countries[8-12].

There is no specific treatment for viral hepatitis E it requires only supportive treatments, careful watch for complications and its management.

The present study was done to evaluate the current status of HEV infection with particular emphasis in clinical features, laboratory values, and outcome.

AIMS AND OBJECTIVES

- To know the prevalence, incidence and factors associated with hepatitis E virus (HEV) infection.
- To provide information on the natural history of HEV infection.
- To study the clinical, laboratory features and outcome of hepatitis E virus (HEV) infection.

MATERIAL AND METHADOLOGY

The present study of 70 cases of viral Hepatitis E was carried out in the Department of Medicine of Civil Hospital Ahmedabad from January 2013 to November 2014.

Type of Study:

This is a prospective observational study.

Study Population:

Study population consist of patients having acute viral hepatitis E.

Inclusion criteria:

- Age- All patients above 12 year.
- All patients presenting with history, symptoms & signs suggestive of viral hepatitis, having IgM anti HEV positive were included in the study.

Method:

Each patient involved in the study was asked history in detail as per proforma and underwent detailed clinical examination. Patients were assessed for their demographic features (age/gender.) and clinical profile (various signs and symptoms) as mentioned in the proforma.

A detailed history regarding the onset, duration and progress of symptoms was noted. In case of female patients, menstrual & obstetric history was noted. Any significant personal, past or family history was elicited.Complete general examination was carried out, followed by a thorough systemic examination.

Patients monitoring was done in form of:

- Serial monitoring of laboratory features
- Complications in the form of development of altered sleep pattern, altered sensorium, bleeding tendency.

Investigations:
All cases were subjected to investigations, this comprised of complete blood count, urine routine & microscopic examination, RFT, LFT, prothrombine time, HIV, HBsAg, IgM anti HAV, Anti HCV antibody and USG abdomen.

Treatment:
All patients were given supportive treatment, symptomatic treatment for nausea, vomiting and specific treatment for hepatic encephalopathy, coagulopathy and renal failure when required. Due to high rate of complication and mortality in pregnant females they were closely monitored for the development of complications.

OBSERVATIONS AND DISCUSSION
In present study, total 70 patients of acute viral hepatitis were included. The detailed analysis of various observations of the study is as follows.

Age-Gender wise distribution

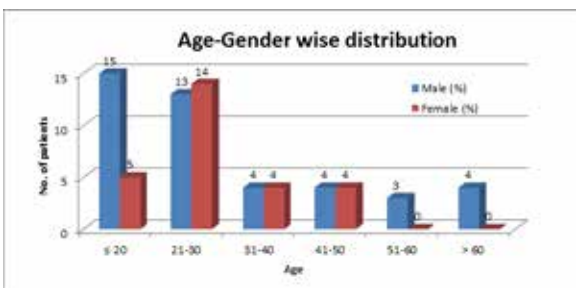


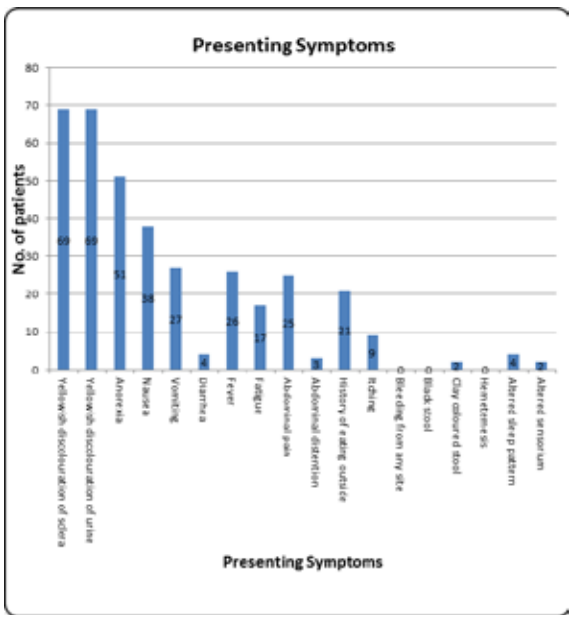
Figure- 6
In present study, age-gender wise distribution of the patient is shown below. Out of 70 patient 43 (61.43 %) were male and 27 (38.57%) were female. Out of 27 female patients 7 were pregnant females and 3 were menopausal. Maximum number of patients belonged to 21-30 age group and least from >60 age group. Average age was 29.9. In Chandra *et al*[35] study mean age was 32.43 years whereas in Sudhamshu *KC et al* study mean age was 26 years with male comprising 69%. So findings are suggestive of that acute viral hepatitis E primarily affects younger age group of patients with male preponderance.[45]

Presenting Symptoms
Almost all 69 (98%) patients presented with yellowish discolouration of urine and sclera, other associated symptoms were anorexia 51 (72.86%), nausea 38 (54.29%), vomiting 27 (38.57%),diarrhea4 (5.71%), fever (37.14%), fatigue (24.29%), abdominal pain (35.71%), abdominal distention 3 (4.29%), itching 9 (12.86%), clay coloured stool 2 (2.86%), altered sleep pattern 4 (4.29%), altered sensorium 2 (2.86%). None of the patients had bleeding from any site, black coloured stool and hemetemesis.

Only 1 patient was not having yellowish discolouration of urine and sclera at the time of admission, she had fever and abdominal pain as presenting symptoms. She had serum bilirubin 0.67 mg/dL and SGPT 320 U/L

Out of 4 patients having altered sleep pattern 2 also had altered sensorium were diagnosed as having hepatic encephalopathy. 3 patients recovered with treatment but 1 patient expired, she was a pregnant patient with acute liver failure.

Figure-7



Complete Blood Count

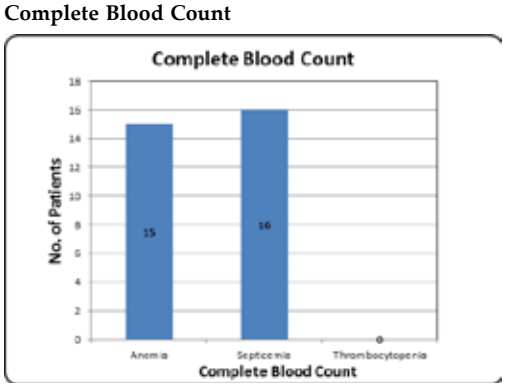
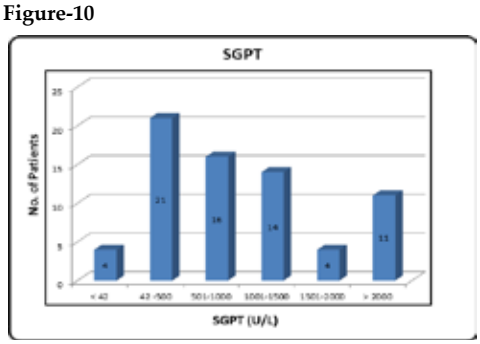


Figure-9
In present study, anemia was found in 15(21.43%) patients, septicemia in 16 (22.86%). None had thrombocytopenia. Only one patient was having severe anemia (Hb 6.8) and was treated with PCV. Leucopenia was found in 1 (1.42%) patient while leucocytosis was there in 15 patients. Only 6 patients having total count >14000 with 3 out of these patients having acute liver failure. These patients were treated with antibiotics. Findings suggest that acute viral hepatitis E is not associated with severe anemia. Hemolysis may develop, especially in those with glucose-6-phosphate dehydrogenase deficiency[22]and Aplastic anemia occurs very rarely.[38]

SGPT
Figure-10



Volume : 5 | Issue : 8 | August 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

In present study, 21 (30%) patients had SGPT value between 42-500 (U/L), SGPT value>2000 (U/L) was found in 11 (15.71%) of patients while 4 (5.71%) patients were having normal SGPT. In present study mean SGPT was 1030 (U/L) as compared to mean SGPT 585 (U/L) in Sudhamshu KC *et al* study.

SGOT

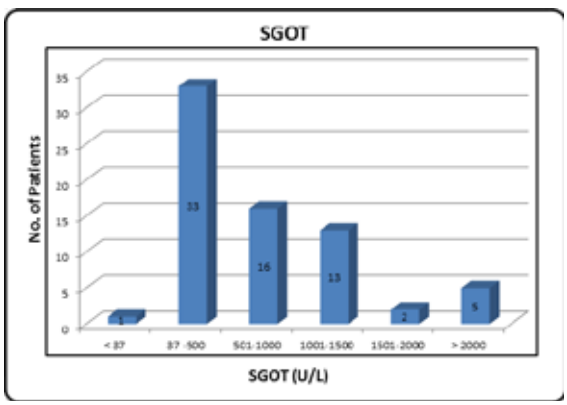


Figure-11

In present study, 33 (47.14%) patients had SGOT value between 42-500 (U/L), SGOT value >2000 (U/L) was found in 5 (7.14%) patients while 1 (1.43%) patient was having normal SGOT. In present study mean SGOT was 1030 (U/L) while in Sudhamshu KC *et al* study mean SGOT level was 458 (U/L).

Serum bilirubin

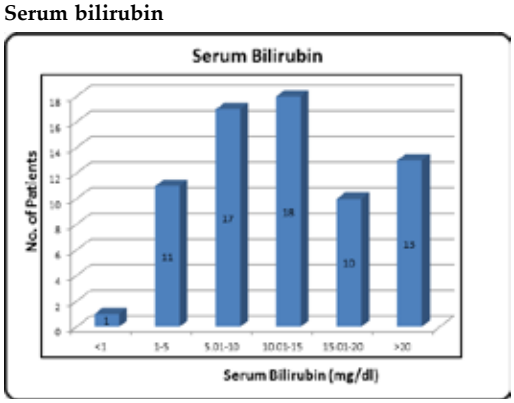


Figure-12

In present study, 18 (25.71%) patients had bilirubin value between 10.01-15 (mg/dL), bilirubin value >20 (mg/dL) was found in 13 (18.75%) patients while 1 (1.43%) patient had normal bilirubin. In present study mean bilirubin was 13 (mg/dL) while in Sudhamshu KC *et al* mean bilirubin level was 15 (mg/dL).

Prothrombine time (INR)

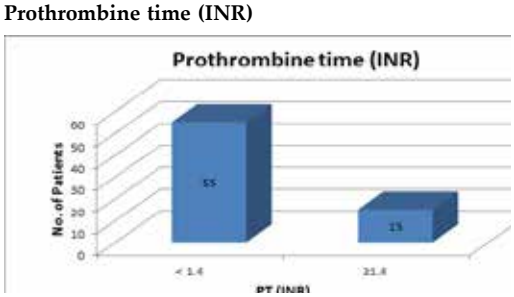
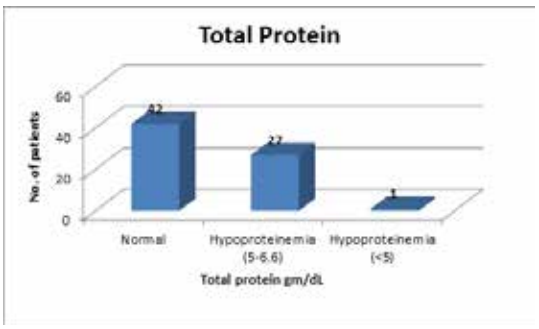


Figure-13

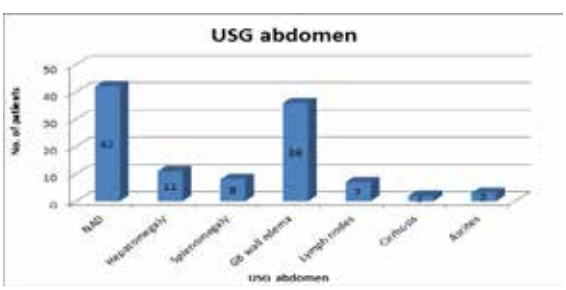
In present study, prothrombine time wasprolonged in 15 (21.43%) patients. Only 7 patients were having PT (INR) > 2. These patients were treated with Inj. vitamine k 10 mg intravenously for 3 days. Only 2 patients having acute liver failure were treated with fresh frozen plasma. Coagulopathy is common complication in acute viral hepatitis E.

Total Protein
Figure-14



In present study, hypoproteinemia (serum protein < 6.6 gm/dL) was found in 28 (40%) of patients. Out of this only 1 patient had serum protein less than 5 gm/dL, he had chronic liver paranchymal disease. Acute viral hepatitis is not associated with significant hypoproteinemia. Significant hypoproteinemia is observed in patients having prolonged course or having underlying chronic liver disease.

USG abdomen
Figure-16



In present study, USG abdomen was normal in 42 (60%) patients, while hepatomegaly in 11 (15.71%) patients, splenomegaly in 8 (11.43%) patients, GB wall edema in 6 (8.57%) patients, abdominal lymph nodes in 7 (10%), cirrhosis in 2 (2.86%) patients and ascites in 3 (4.29%) patients. Out of 3 patients having ascites, 2 were having chronic liver paranchymal disease and 1 was pregnant female all recovered with conservative treatment. It is likely that GB wall edema is common USG finding in acute viral hepatitis E.

Comparison between pregnant and non pregnant patients
In present study out of 27 female patients 7 (25.92%) were pregnant females. Average serum bilirubin level in pregnant patients was 17.19 mg/dL while non pregnant female patients had 9 mg/dL. Average SGPT level in pregnant patients was 504 U/L while in non pregnant was 771 U/L. Average PT (INR) in pregnant patients was 1.78 while in non pregnant was 1.2. Average serum protein in pregnant patients was 6.39 and in non pregnant patients was 6.6. Average duration of hospital stay or pregnant patients was 7.8 while for non pregnant patients was 6.6. Mortality in pregnant females was 14.28% while in non pregnant female patients was 0%. Acute viral hepatitis is associated with more complications and high mortality in pregnant females.

Mixed infections

In present study, dual infection with HAV, HBV and HCV in acute HEV patients was observed in 6 (8.57%), 3 (4.29%) and 0 (0%) cases, respectively. Triple infection with HAV, HEV and HBV was present in 1 (1.43%). Those patients having HBV were not further investigated due to financial limitation. In SMS medical college (Chandra et al) study dual infection with HAV, HBV and HCV in acute HEV patients was observed in 1.2, 6.1 and 1.7 per cent cases, respectively. Malathi *et al*[36]observed dual infection of HEV and HAV in 13.4 per cent patients of acute hepatitis in children, Kumar *et al*[37]observed 4.4 per cent patients of acute hepatitis in adults and Hetal Shah et al[47] observed in 1.38%. Mixed infections were associated with higher mean SGPT value (2166 U/L) but were not associated with change in duration of hospital stay or outcome.

SUMMARY

- The most common affected age group was 21-30 year with overall male:female ratio of 1.59:1.
- Out of 27 female patients 7 were pregnant females, 3 were menopausal.
- Most common presenting symptom was yellowish discolouration of urine and sclera 98.57%, followed by anorexia 72.86%, nausea 54.29%, vomiting 38.57%, fever 37.14%, abdominal pain 35.71%, history of eating outside 30.00%, fatigue 24.29%, abdominal distention 12.86%, itching 12.86%, diarrhea 5.71%, altered sleep pattern 5.71%, clay coloured stool 2.86%, altered sensorium 2.86%, none had black coloured stool, bleeding from any site and hemetemesis.
- On presentation serum bilirubin level was elevated in 98.57% of patients with mean value of 16.67mg/dL, SGPT was elevated in 94.29% with mean value of 1030.69 U/L.
- Prothrombine time was prolonged in 21.43% of patients.
- Hypoproteinemia (serum protein < 6.6 gm/dL) was found in 40% of patients with only 1.47% patient had serum protein less than 5 gm/dL.
- Anemia was present in 21.43% patients, severe anemia was in 1.42% while septicemia in 22.86% patients, none had thrombocytopenia.
- Renal function tests revealed raised serum creatinine and blood urea in 2.86% of patients, hyponitremia in 44.29% of patients, hypernitremia in 4.29% of patients, hypokalamia in 14.29% and hyperkalamia in 2.86% of patients.
- USG abdomen was normal in 60% patients, hepatomegaly was present in 15.71% splenomegaly in 11.43%, GB wall edema in 51.43%, abdominal lymph nodes in 10%, ascites in 4.29%, cirrhosis in 2.86%.
- Hepatic encephalopathy was present in 5.71% of patients.
- Average duration of hospital stay was 6.38 days with 7.14% patients required >10 days of stay.
- Acute hepatic failure was observed in 5.71% of patients with mortality in 1.42% of total patients. Mortality in pregnant females was 14.28%.
- Pregnant females had mean serum bilirubin 17.19 mg/dL, SGPT 504 U/L, PT (INR) 1.78, duration of hospital stay 7.8 days.
- Dual infection with HAV, HBV and HCV in acute HEV patients was observed in 8.57%, 4.29% and 0% cases, respectively. Triple infection with HAV, HEV and HBV was present in 1.43%.

CONCLUSIONS

- Acute viral hepatitis E primarily affects younger age group of patients with male preponderance.
- Commonest presenting symptom of acute viral hepatitis is yellowish discolouration of urine and sclera.
- Serum bilirubin and SGPT are elevated in almost all patients.
- Coagulopathy is common complication in acute viral hepatitis E.
- Acute viral hepatitis E is not associated with severe anemia.
- Acute viral hepatitis is not associated with significant hypoproteinemia.
- Hyponitremia and hypokalamia are frequently observed in acute viral hepatitis E.
- GB wall edema is common USG finding in acute viral hepatitis E.
- Acute viral hepatitis E is acute self limiting condition with complete recovery in almost all cases.
- Acute viral hepatitis is associated with more complication and high mortality in pregnant females.

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Volume : 5 | Issue : 8 | August 2016 • ISSN No 2277 - 8179 | IF : 3.508 | IC Value : 69.48

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ABBREVIATION

HEV	- Hepatitis E virus
RFT	- Renal function test
LFT	- Liver function test
HIV	- Human immune deficiency virus
HBsAg	- Hepatitis B surface antigen
HAV	- Hepatitis A virus
HCV	- Hepatitis C virus
USG	- Ultra sonography
OPD	- Out patient department
R/M	- Routine micro
CBC	- Complete blood count
PT (INR)	-prothrombine time (international normalized ratio)
GB	- Gall bladder
LNS	- Lymph nodes
NAD	- No abnormality detected
WHO	-World Health Organisation