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ORIGINAL RESEARCH

To study the Presentation, etiology and Viral markers in children with Hepatitis ata tertiary Care hospital

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ABSTRACT

Aim: The aim of this study to determine the Presentation, etiology and viral markers in children presenting with hepatitis at a Tertiary care hospital.

Methods: 50 cases of acute hepatitis of age 1-13yrs were included in the study. Acute hepatitis was diagnosed on the basis of history, clinical (Jaundice, pain in upper abdomen, anorexia, nausea, vomiting, fever, pruritis, tender/non tender hepatomegaly with or without ascites and without any stigmata of chronic liver disease) and biochemical evaluation (LFT i.e. serum bilirubin, Alanine aminotransferase(ALT),Aspartate aminotransferase (AST),alkaline phosphatase(ALK), serum albumin, PT/INR). Acute liver failure was diagnosed by PT>15sec/ INR>1.5 with features of encephalopathy or PT > 20 sec/ INR > 2 regardless of presence of clinical hepatic encephalopathy.. Patients were also tested for viral markers i.e. anti HAV IgM, anti HEV IgM, HBsAg, and anti HCV.

Results: In our study total number of cases were 50 of which 70% were male and 30% were female. The most common cause of viral hepatitis was hepatitis A (80%). Hepatitis B was found in 2 (4%) cases and in 16% cases no viral marker was detected. The most common clinical presentations were jaundice (96%), fever (94%), fatigue (90%) and nausea/vomiting (78%). In 80% of cases hepatomegaly was found and splenomegaly was seen in 2% of cases. SGPT level was increased in all cases with 30% in the range 500 – 1000 units/ml, 22% in the range of 1000 – 3000 units/ml and 12% in the range of 3000 – 5000 range. 48% of cases has total bilirubin of more than 10mg/dl and in 40% of cases the value was in the range of 5 – 10 mg/dl. In 35cases PT was < 15sec and in 15 cases it was more than 15 sec. The disease resolved in 40(80%) cases,1(2%)had chronic disease and 9(18%) cases expired.

Conclusions: Majority of cases in children were hepatitis A cases. Most of the cases were Boys. Those cases with INR >3 at admission has higher mortality. Peak values of aminotransferase i.e. ALT and AST though reflect hepatocyte damage do not correlate with mortality.

Keywords: Children, Clinical profile, Hepatotropic, Viral hepatitis

INTRODUCTION

Viral hepatitis defined as infection of the liver caused by hepatotropic and/or non-hepatotropic viruses. The condition can be self-limiting or can progress to fibrosis

(scarring).[1]Acute hepatitis is a self- limiting illness characterized by an abrupt onset of symptoms with the hepatocellular inflammation usually resolving completely within 4-6 weeks. When there is a continuing inflammation beyond six months (three months in children), it is labeled as chronic hepatitis.[2] Viral hepatitis continues to be a major health problem in both developing and developed countries. This disorder is caused by at least 5 pathogenic hepatotropic viruses recognized to date: hepatitis A (HAV), B(HVB), C (HCV), D (HDV), and E (HEV) viruses. Many other nonhepatotropic viruses (and diseases) can cause hepatitis, usually as 1 component of a multisystem disease. These include herpes simplex virus, cytomegalovirus, Epstein-Barr virus, varicella- zoster virus, HIV, rubella, adenovirus, enteroviruses, parvovirus B19, and adenovirus.[3]The clinical spectrum of acute viral hepatitis ranges from entirely subclinical and inapparent infection to rapidly progressing and fulminant hepatic failure. Hepatitis A (HAV) and E (HEV) viruses are feco-orally transmitted and self- limiting, whereas hepatitis B (HBV), C (HCV) and D (HDV) are transmitted parenterally and may progress to chronic hepatitis. India is hyper- endemic for hepatitis A andE.[4]

Acute hepatitis resulting from most etiology has similar clinical features. The characteristic clinical features of acute hepatitis include nausea, vomiting, right hypochondrial pain, and jaundice. The prodromal phase of nonspecific symptoms, including fever, myalgia and anorexia is characteristic of viral hepatitis, but may also be seen in other conditions. The syndrome of acute hepatitis is usually diagnosed in the presence of elevated serum transaminase. The cut-off for diagnosis is usually variable, ranging from an elevation of five to ten times of the upper limit of normal. Alkaline phosphatase (ALP) elevation is seen in all cases of acute hepatitis but is usually less than three times of upper limit of normal. The ALP elevation is proportionately less for the degree of jaundice if present.[5-8]Viral hepatitis is a common disease in India and it occurs in epidemic and endemic forms.[6]

MATERIAL AND METHODS

This prospective observational study was carried out in the Department of Pediatrics and Microbiology,Deben Mahata Government MedicalCollege and Hospital, Purulia, WB, India. 50 cases of acute hepatitis of age 1-13yrs were included in the study. Patients were selected randomly from pediatric indoor during the period of one year from November 2020 till October 2021. Acute hepatitis were diagnosed on the basis of history, clinical (Jaundice, pain in upper abdomen, anorexia, nausea, vomiting, fever, pruritis, tender/non tender hepatomegaly with or without ascites and without any stigmata of chronic liver disease).Biochemical markers (LFT i.eelevated serum bilirubin, elevated alanine aminotransferase(ALT),elevated aspartate aminotransferase (AST),alkaline phosphatase(ALK), normal or low,serum albumin with or without increase in PT/INR were taken. Acute liver failure was diagnosed by PT>15sec or INR>1.5 with features of encephalopathy;or PT > 20 sec/ INR > 2 regardless of presence of clinical hepatic encephalopathy.Patients were also tested for viral markers anti HAV IgM, anti HEV IgM, HBsAg, and anti HCV.Disease which have clinical presentation of acute hepatitis with hepatotrophic virus(HAV,HBV,HCV,HEV) etiology like enteric fever, malaria, dengue, haemolytic anemia, metabolic, autoimmune and drug induced jaundice were excluded from the study. Clinical findings and laboratory results were recorded in a predesigned proforma.

RESULTS

In our study total number of cases were 50 of which 70% were male and 30% were female. The most common cause of viral hepatitis was hepatitis A (80%). Hepatitis B was found in 2 (4%) cases and in 16% cases no viral marker was detected. The most common clinical presentations were jaundice (96%), fever (94%), fatigue (90%) and nausea/vomiting (78%).

In 80% of cases hepatomegaly was found and splenomegaly was seen in 2% of cases. SGPT level was increased in all cases with 30% in the range 500 – 1000 units/ml, 22% in the range of 1000 – 3000 units/ml and 12% in the range of 3000 – 5000 range. 48% of cases has total bilirubin of more than 10mg/dl and in 40% of cases the value was in the range of 5 – 10 mg/dl. In 35cases PT was < 15sec and in 15 cases it was more than 15 sec. The disease resolved in 40(80%) cases, 1(2%) had chronic disease and 9(18%) cases expired. Among those cases which expired almost all of them had INR > 3.

Table 1: Sex wise distribution of study participants

Sex	Male	Female
Cases	35 (70%)	15 (30%)

Table 2:Etiology of acute viral hepatitis

Types	Hep A	Hep B	Hep C	Hep D	Hep E	Hep mixed	Unknown
No. of cases	40(80%)	2 (4%)	0	0	0	0	8 (16%)

Table 3: Clinical features

Clinical features	No. of cases
Jaundice	48(96%)
Fever	44 (94%)
Pruritis	2 (4%)
Fatigue	45 (90%)
Pain abdomen	33 (66%)
Nausea/vomiting	39 (78%)
Hepatomegaly	40(80%)
Splenomegaly	1 (2%)

Table 4: Serum bilirubin at presentation

Total bilirubin	No. of patients
1-5mg/dl	6 (12%)
5-10mg/dl	20 (40%)
>10mg/dl	24 (48%)

Table 5: SGPT at presentation

Units/ml	No of patients
100-200	10 (20%)
200-500	8 (16%)
500-1000	15 (30%)
1000-3000	11 (22%)
3000-5000	6 (12%)
>5000	0

DISCUSSION

The etiology of viral hepatitis and its associated complications varies with the geographical location, depending upon prevalent hepatitis virus types. In our study there is a high prevalence of Hepatitis A. A study by Behera MR et al in eastern part of India also showed highest incidence of HAV infection among children.[9] Not only in children even in adults, Das AK et al reported highest incidence of HAV infection.[10] Despite of availability of vaccine and improved sanitation HAV infection is still a major issue in developing countries.

This is probably due to lack of knowledge regarding availability of vaccine, lack of awareness on mode of disease transmission among lower socio-economic status. Coming to sex distribution, boys predominance is observed in the present study, this is comparable with study done by Parekh Z et al, in which there also reported girls' predominance, whereas other studies reported boys' predominance.[11-13]

This study suggests majority of cases (82%) were aged above 10 years. The adolescent age group has been affected more because of their food habits like eating unhygienic food etc. Study done in southern India also reported 10-20-year age group being most commonly affected.[14] On the contrary, another study done in eastern India reported higher prevalence in age group 5 to 10 years.[9] Another study done by Kamath et al also reported maximum number of cases (61.6%) in 5- 10 year age group.[15] This study attempts highlighting symptoms and examination findings in case of viral hepatitis. The most common clinical presentations were jaundice (96%), fever (94%), fatigue (90%) and nausea/vomiting (78%).

Parekh Z et al reported almost similar presenting complaints most common being jaundice (94%) followed by fever (82%).[11]Behera AK et al reported yellowish discolouration of eye and urine as the most common symptoms in their study.[16] This is consistence with other study who reported jaundice and hepatomegaly as most common sign.[17]

Laboratory markers will give an idea about extent of liver damage. SGPT level was increased in all cases with 30% in the range 500 – 1000 units/ml, 22% in the range of 1000 – 3000 units/ml and 12% in the range of 3000 – 5000 range.

This is probably due to rural people coming here delay in seeking medical advice.[9] 48% of cases has total bilirubin of more than 10mg/dl and in 40% of cases the value was in the range of 5 – 10 mg/dl. In 35cases PT was < 15sec and in 15 cases it was more than 15 sec. The disease resolved in 40(80%) cases, 1(2%) had chronic disease and 9(18%) cases expired. As 18% cases expired in this study, this does not correlates with mortality rate in acute hepatitis. Reason being that indoor patients were included in this study who presents late at tertiary care centers. Most of acute hepatitis cases are treated on outdoor basis who were not included in this study.The other study also showed higher mortality with Hepatitis B virus.[11] A study conducted in adults showed gall bladder thickening in Ultrasound.[18] We couldn't find this in the present study.

CONCLUSIONS

Majority of cases in children were hepatitis A cases. Most of the cases were Boys. Those cases with INR >3 at admission has higher mortality.

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