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Corresponding Author
Mehul Chaudhary,
Department of Pediatric, Krishnanagar Institute of Medical Science, West Bengal, India
mehulchaudhari16@gmail.com

Author Designation
[1,2]Assistant Professor
[3]DNB Pediatrics
[4]Senior Resident

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Clinico Hematological Study of Cases Admitted with Jaundice Beyond Neonatal Period

[1]Himanshu Gopat, [2]Anil J. Katara, [3]Rushali Kela and [4]Mehul Chaudhary

[1,3]Department of Pediatric, GMERS Medical College Himmatnagar, Gujarat, India
[2]Department of Pediatric, GMERS Medical College, Sola. Ahmedabad, Gujarat, India
[4]Department of Pediatric, Krishnanagar Institute of Medical Science, West Bengal, India

ABSTRACT
Infective hepatitis is a systemic disease mainly caused by viruses, So also known as viral hepatitis. It is defined as systemic virus infection marked by hepatic cell necrosis and hepatic inflammation which leads to a characteristic constellation of clinical, biochemical and histological changes. To study viral hepatitis with reference to clinico-hematological correlation. Prospective study carried out at our tertiary care hospital over a period of 1 year. 50 patients fulfilling the inclusion criteria were studied in a detailed manner., history was noted, examination was done., they were investigated as per the proforma. Study suggest that majority of the patients were from lower socioeconomic class and age of group of patients was usually 4-6 years. This Majority of patients presented with short history of fever, anorexia, vomiting, yellowish discoloration of urine and sclera. Main clinical signs were presence of icterus and hepatomegaly. So this implicates that most of the cases of infective hepatitis were due to hepatitis A and/or E that transmitted faecoorally. Hepatitis A virus infection was most seen in children in present study. Altered liver function test noted in all case of viral hepatitis. All cases show raise in liver enzyme and serum bilirubin level. Prothrombin time was deranged in 14% of case.

INTRODUCTION

Infective hepatitis is a systemic disease mainly caused by viruses, So also known as viral hepatitis[1]. It is defined as systemic virus infection marked by hepatic cell necrosis and hepatic inflammation which leads to a characteristic constellation of clinical, biochemical and histological changes[2]. It is a major health problem throughout the world affecting several hundred of millions of person every year despite the availability of vaccines and prophylactic measures and improve sanitation. Its incidence is constant and it is responsible for considerable morbidity and mortality both from acute infection and from its chronic sequella[2]. Five major virus are etiologic agents responsible for most clinical cases of viral hepatitis, hepatitis A, hepatitis B, Hepatitis C, Hepatitis D, hepatitis E and newer virus hepatitis F and hepatitis G. Other causes of hepatitis are other viruses like herpes simplex, Cytomegalo virus, Epstein Barr virus, varicella, human deficient virus, rubella, adenovirus, enterobius, Arbo virus, toxins, bacteria and parasites[3-5]. But when called infective hepatitis it means viral hepatitis unless mention. Usually <half of carries of HBsAg positive have changes of chronic liver disease. The most important consequences of persistent HBC infection is the development of primary hepato cellular carcinoma[4]. About 80% of hepato cellular carcinoma are seen in HBsAg carrier. Hepatitis B causing acute hepatitis chronic carrier state, chronic hepatitis, cirrhosis of liver and hepatocellular carcinoma[3]. It is transmitted to person to person and the reservoir being carrier. The chain of transmission can be broken by using available safe and effective sanitation and preventive measure[5].

Aims and Objective: To study viral hepatitis with reference to:

- Clinical features.
- Laboratory investigation.
- Clinico-hematological correlation.

MATERIALS AND METHODS

Prospective study carried out at our tertiary care hospital over a period of 1 year. The diagnosis was based on altered liver function test according to normal values. History was taken according to proforma in all patients. All patients were investigated with full liver function test on admission. Viral markers were sent in all patients. Patients were treated with supportive treatment and standard guidelines according to various etiology.

Inclusion Criteria:

- Age between 1 month-12 years.
- All suspected case of viral hepatitis.

Exclusion Criteria:

- Case with drug induced and obstructive jaundice were excluded.
- Diagnosis other than viral hepatitis excluded from the study.
- Age <1 month excluded from the study.

RESULTS AND DISCUSSIONS

Total 50 patients were included in study. Almost all patients were coming from class 3,4 and 5 socioeconomical status according to modified Prasad scale[5].

Table 1: Distribution of Patients According to Sex with Comparison to Other Study

Sr. No	Sex	No. of patients	Present study (%)	Lala[6] (%)	Desai[7] series(%)
1.	Male	26	52	77	67.15
2.	Female	24	48	23	32.85

Present study suggest that out of 50 patients male are affected 26(52%) and female are 24(48%). As seen from above table there is no preference for the sex significant in case of viral hepatitis.

Table 2: Distribution of Patients According to Age Group

Age in years	Number	Desai series[7](%)	Present study(%)
1 month-12 month	1	4.28	2
1-3 years	8	38.5	16
4-6 years	28	31.4	56
7-9 years	6	12.8%	12%
10-12 years	7	12.8%	14%

As seen from the (table 2), the maximum cases of viral hepatitis were observed in the age group of 4-6 years (56%). The mean age was 5.64 years.

Table 3: Symptoms

Sr. No	Symptoms	Number	%
1.	Fever	42	84
2.	Vomiting	16	32
3.	Anorexia	36	72
4.	Yellow sclera	50	100
5.	Yellow urine	40	80
6.	Pruritus	4	8
7.	Abdominal distention	12	24
8.	Abdominal pain	43	86

Present study suggests that >80% of patients presented with yellowish discoloration of urine and sclera. Majority of patients about 90% complained about yellowish coloration of urine and sclera, only minority of patients came with complains like nausea, vomiting, anorexia. In all these patients jaundice noticed by doctor and informed the parents regarding the disease. Other main complain like nausea and vomiting which was present in 32% cases. Fever with intermittent in nature and without rigor was third main presenting symptoms occurring in about 84% of patients. Anorexia was seen in 72% of patients.

Table 4: Comparison of Symptoms with Other Study

Symptoms	Ramalingam[8] (%)	Sudhakar rao[9] (%)	Desai[7] (%)	Lala[6] (%)	Present Study (%)
Fever	73.2	88	74.28	91	84
Yellow Urine	100	86	87.14	95.5	80
Vomiting	71.2	50	32	59	32
Anorexia	83.2	100	48.57	59	72
Abdominal Pain	70	30	22	13.5	86

In present series, number of cases with fever are 84% while Ramalingam study[8] showed it in 73.2% cases, Sudhakar rao study[9] showed it in 88% cases, Lala's study showed it in 91% cases and Desai's study showed it in 74.28% of cases. In present series history of yellow color urine is available in 80% of cases which agrees with Ramalingam 's series and Desai's series reported in 86% and 87.1% respectively[7,8]. In Lala's study[6] it was 95.5%. Appearance of yellow urine prior to appearance of visible jaundice is the first suggestion of the illness during preicteric stage. The incidence of anorexia as reported by various workers (in descending order) were as follows: Sudhakar Rao (100%), Ramalingam (83.2%), lala (59%) and Desai (48.57%)[6-9]. The incidence in present series were 72%. It compared well with Ramalingam series[8]. In gastrointestinal symptoms, anorexia was most common and first striking symptoms. The incidence of vomiting in present study were 32% while in Ramalingam 's series incidence were 71.2%, in lala's series 59%[6,8], in Sudhakar 's series 52%[9] and in Desai's series incidence were 32%. Cases of abdominal pain are observed in 43 (86%) patients in present study. Ramalingam reported in 70%[8], Sudhakar rao in 30%[9], lala in 13.5%[6] and Desai in 22%[7].

Table 5: Signs

Sr. No	Signs	Number	Percentage
1.	Icterus	50	100%
2.	Hepatomegaly	34	68%
3.	Splenomegaly	16	32%
4.	Ascites	6	12%
5.	Oedema	9	18%
6.	Encephalopathy	4	8%
7.	Bleeding tendency	4	8%

(n=50)

The clinical findings in the present study are as follows. All 50 (100%) patient showed icterus and hepatomegaly was seen in 34 (68%) of cases. Splenomegaly in 32% of patients and bleeding tendency in 8% of patients. Signs of liver cell failure were seen in 32% of patients including odema of feet (18%), ascites(12%) and hepatic encephalopathy(8%).

Table 6: Comparison of Signs with Other Study

Signs	Ramalingam[8] (%)	Sudhakar rao[9] (%)	Desai[7] (%)	Lala[6] (%)	Present Study (%)
Icterus	100	100	100	95.5	100
Hepatomegaly	100	98	100	95.5	68
Splenomegaly	6	-	1.42	23	32
Ascites	-	-	-	-	12
Oedema	16.8	-	1.42	-	18
Encephalopathy	-	1.7	7.14	-	8

In present series, in all cases (100%) icterus was present. The incidence of which were similar to that noted by Ramalingam[8] (100%), by Sudhakar rao[9] reported it in 100% and by Desai 100% cases[7]. In lala's series it was 95.5%[6]. In present series hepatomegaly is noted in 68% of cases, while in Ramalingam. Sudhakar rao, lala and Desai it was reported in 100%, 98%, 95.5%, 100% of cases respectively[6-9].

Spleen was enlarged in 32% of cases in present study where in Ramalingam it was noted in 6%[8], in lala's 23%[6] and in Desai[7] it was 1.42% of cases. Odema is noted in 18% of patients in present series. In Ramalingam 's series[8] it was noted in 16.8% cases and in Desai's series it was in 1.42% of cases. Encephalopathy is reported in 8% cases of present series while in Sudhakar's study it was 1.7% and desai's study it was 7.14.

Table 7: Complications

Sr. No	Complication	Number	Percentage
1.	Bleeding tendency	4	8%
2.	Hepatic Encaphalopathy	4	8%
3.	Pleural Effusion	1	2%
4.	Ascites	7	14%

(n=50).

Complications of viral hepatitis are as follows. Majority of patients have ascites which was about 12%. Other complication like bleeding tendency was seen in 8%, hepatic encephalopathy in 8%. All patients have complications had SGPT level above 1000. In these patients liver was just palpable or not palpable and level of SGPT was very high suggestive of marked liver cell failure.

Table 8: Viral Markers

Viral Hepatitis	No. Of cases of Present Study	Present Study Percentage(%)	B.R. Thapa and Kartarsingh(%)
Hepatits A	31	62	78
Hepatits B	1	2	8
Hepatits E	3	6	10
Other	15	30	-

(Table 9) shows that out of 50 patients of viral hepatits, 31(62%) cases were due to hepatits A, 1(2%) out of 50 cases was due to hepatitis b, 3 (6%) out of 50 cases were due to hepatitis E. 15 (30%) cases diagnosed with viral hepatitis did not give positive result for any of these viral markers. Thus hepatitis due to HAV was most common compared to other viral hepatitis.

Table 9: Laboratory Investigations

Name of test	No. of patients	Percentage
Anemia Grade 1 (9-11 gm%)	18	36%
Grade 2 (7-9 gm%)	8	16%
Grade 3 (<7 gm%)	4	8%
Thrombocytopenia	2	4%
SGPT 80-120 IU/L	-	-
120-400 IU/L	7	14%
>400 IU/L	43	86%
S. ALP <250 IU/L	8	16%
250-500 IU/L	25	50%
>500 IU/L	17	34%
S. Bilirubin normal(<2 mg%)		
<2	8	28%
2-5 mg%	28	56%
>5mg%	20	40%
PT (INR >1.5)	7	14%

(n=5)

Anemia was most common co-morbid condition observed in this study with grade 1(36%), grade 2 (16%) and grade 3(8%). Thrombocytopenia was seen in 4% of cases as comorbid condition. There was

severe elevation (>400 IU/L) of SGPT seen in 86% of patients. S. ALP was moderately elevated in 50% of patients. S. Bilirubin was normal in 8% while elevated (>5mg%) in 40% of patients. Prothrombin Time (PT) was abnormal in 7(14%) of cases.

Table 10: SGPT on First Presentation

SGPT Level IU/L	No. Of Cases in Present Study%	LALA%
100-200	4	26.6
201-500	12	66.7
501-1000	42	44.5
1001-3000	38	23
3001-5000	2	6
Above 5000	2	7

(n=50)

From above table 12% patients had SGPT value between 201-500 iu/l. Maximum number of patients (42%) had SGPT value between 501-1000 iu/l. Above 1000 level there were decreasing number of patients. Above 3000 level suggest significant liver prenchymal necrosis. Out of 4 patients that had SGPT >3000, 1 patient was expired.

Table 11: Mortality

No. Of Patients	Recovery	Mortality
50	49(98%)	1(2%)

In present study 49 % patients recovered. Out of 50 patients in the study, 1(2%) patient was expired. The expired patient had hepatic encephalopathy with other complications like bleeding tendency, mild pleural effusion and thrombocytopenia. USG abdomen of that expired patient was suggestive of ascites with mild hepatomegaly and splenomegaly. That expired patient was HAV positive and SGPT level of the same was very high.

CONCLUSION

- Total number of patients in this study 50. This study suggest that majority of the patients were from lower socioeconomic class and age of group of patients was usually 4-6 years. Majority of patients presented with short history of fever, anorexia, vomiting, yellowish discoloration of urine and sclera. Main clinical signs were presence of icterus and hepatomegaly. In all cases of viral hepatitis, clinical features and laboratory investigations correlated. Out of 50 patients 49 patients recovered without any complication and 1 patient expired. Out of 50 patients only 1 patient was proved to be HBsAg positive. Other were HBsAg negative. So this implicates that most of the cases of infective hepatitis were due to hepatitis A and/or E that transmitted futurely. Icterus was the specific feature of viral hepatitis seen almost all cases of viral hepatitis A,B and Hepatitis A virus infection was most commonly seen in children in present study. Altered liver function test noted in all case of viral hepatitis cases show raise in liver enzyme and serum bilirubin level. Icterus followed by hepatomegaly were most common signs that are present in our patients. Prothrombin time was deranged in 14% of cases. Anemia was most common comorbid condition in present study. Cases of viral hepatitis has good outcome. The mean duration of stay of patients with complications was less in viral hepatitis A as compare to other type of viral hepatitis's of cases of infective hepatitis can be just prevented by explaining mode of transmission to parents, heath education to parents and children, good hygiene, better sanitation, proper and safe water supply, vaccination whenever available to children.

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