International Journal of Contemporary Pediatrics
Lone RA et al. Int J Contemp Pediatr. 2022 Jul;9(7):680-683
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291
DOI: https://dx.doi.org/10.18203/2349-3291.ijcp20221613

Original Research Article

Incidence of hepatitis A in children with acute icteric hepatitis of district Shopian of Kashmir

Rais Ahmad Lone[1]*, Ishfaq Khurshid[2], Azhar Mushtaq[3]

[1]Department of Paediatric and Neonatology section, District Hospital, Shopian, Kashmir, Jammu and Kashmir, India
[2]District Public Health Laboratory, District Hospital Shopian, Kashmir, Jammu and Kashmir, India
[3]Department of Surgery, GMC Jammu, Jammu and Kashmir, India

Received: 24 May 2022
Revised: 13 June 2022
Accepted: 18 June 2022

***Correspondence:**
Dr. Rais Ahmad Lone,
E-mail: raislone@gmail.com

ABSTRACT

Background: Viral hepatitis is a major health problem worldwide. It is caused by at least five hepatotropic viruses, hepatitis A virus being the commonest one. The virus is responsible for most forms of acute benign hepatitis, although fulminant hepatic failure can occur. HAV spreads mainly through the fecal-oral route and hence is preventable by precautionary methods. Hepatitis A vaccine is available and highly effective in preventing disease. Objective of current study was to find the incidence of hepatitis A in children with features of acute icteric hepatitis of district Shopian of Kashmir.
Methods: We sampled 83 children aged above 1 year to 17 years who attended the hospital for different features suggestive of hepatitis and evaluated them after proper and detailed history followed by relevant investigations and serology. Cases were labelled positive or negative on the basis of HAV IgM antibody.
Results: We had 83 cases, 36 were boys (43.37%) and 47 were girls (56.62%). The girls made just more than a half of the cases and the boys just below half the cases. 13.25% (11 cases) were aged 1 to 4 years (none was below 2 years), 32.53% (27) were 4 to 7years, 32.53% (27) were 7 to 10 years, 16.87% (14) were 10 to 13 years, only 4.82% (4 cases) reported were 13 to 17 years. All 83 proved to be hepatitis A (100%).
Conclusions: This study found that the incidence of hepatitis A in children with features of acute icteric hepatitis is very high in the children of district Shopian & a survey with a very large sample size will be ideal.

Keywords: Hepatitis, Hepatitis A Virus, Hepatotropic, Icterus, Serology, Fulminant, Antibody

INTRODUCTION

Hepatitis simply means inflammation of liver. Viral hepatitis is a major health problem in both eastern and western countries. This disease is caused by at least five hepatotropicviruses: hepatitides A (HAV), B (HBV), C (HCV), D (HDV), and E (HEV) viruses.[1,2] HAV infection is the commonest hepatotropic virus. The virus is responsible for most forms of acute but benign hepatitis; although fulminant hepatic failure can occur, it is rare.[3] It is an enveloped RNA picornavirus that leads to symptomatic or asymptomatic infection in humans.[4] It is responsible for about one-half of the reported cases of viral hepatitis in the USA. Patients recover within two months of infection, although 10-15 percent of patients experience a relapse in the first six months. Hepatitis A virus does not result in chronic infection or liver disease.[5] HAV spreads mainly through the fecal-oral route through close personal contact or contaminated food and water.[6,7] The incidence rate and clinical course vary by age and are strongly associated with socioeconomic and hygiene conditions.[8] In India, the antibodies to HAV are found in more than 90% of adults; however, limited information is available on anti-HAV among children.[9] Hepatitis A is a

vaccine-preventable disease and typically has an abrupt onset following an incubation period of approximately 28 days (range: 15 to 50 days). Signs and symptoms of infection can include nausea, vomiting, diarrhea, dark urine, jaundice, fever, headache, weight loss, and abdominal pain, as well as a loss of desire for cigarette smoking or alcohol.[10] Symptoms are severe in the elderly or those with weak immune system. Patients with chronic liver diseases are at risk of developing fulminant hepatitis A with a possible fatal outcome.[11] Incidence of HAV is closely related to socioeconomic status, with presence of anti-HAV ranging from 50% in high-income regions (Western Europe, Australia, New Zealand, Canada, the USA, Japan, Republic of Korea, Singapore) to as high as 90% in low-income regions (Africa, parts of South Asia). India is hyper-endemic country for HAV. Studies conducted in the 2000s found nearly 90% of adolescents, adults and children acquired immunity to HAV infection in their preschool years.[12] Hepatitis A vaccines are available and are highly effective in preventing the disease in the immunized persons. Routine vaccination of children living in small communities that had experienced recurrent hepatitis A epidemics has been shown to be effective in interrupting the spread of the disease.[13]

Aims and objectives

Aim and objective of the current study was to find the incidence of hepatitis A in children with acute icteric hepatitis of district Shopian of Kashmir.

METHODS

This was a hospital-based outpatient study conducted in the pediatric patients of district hospital Shopian between October 2021 and May 2022. A proper consent was taken from the guardians or the parents of the children with icteric hepatitis accompanying them. We had children with acute icteric hepatitis between the ages 1 year and 17 years who presented with different symptoms like pain in upper abdomen, yellowish discoloration of eyes, nausea or vomiting, fever, high colored urine who were chosen for the study. A total of 83 cases were seen in OPD some of whom got admitted to pediatric ward for a few hours.

Exclusion criteria

We excluded the children with a known history of any underlying disease (especially of liver), drug exposure, hemolytic disease, any icteric illness in the past, obstructive and congenital defects of hepatobiliary system.

Procedure

A total of 83 cases met our criteria. Each case was followed until recovery (fortunately there was no death in any of our cases). In each case the presenting complaints/findings at admission were followed until recovery. Vomiting and pain in the abdomen were the universal symptoms in cases admitted to the ward. In each case history related to the source of drinking water was taken. Viral markers of hepatitis A virus were sent (HAV IgM antibody by Immune Assay) in all. Hepatitides B, C, and E were ruled out in all cases. All relevant investigations were sent on the initial visit and were repeated on need basis of the patient. The data analysis was done by using Statistical Package for Social Sciences Version 20 (SPSS Version 20).

RESULTS

Out of 83 cases, 36 were boys (43.37%) and 47 were girls (56.62%).

Table 1: Gender distribution of the sample (n=83).

Gender	N	%
Male	36	43.37
Female	47	56.62

This represents slight girls' predominance. In the present study 11 cases (13.25%) were aged 1 to 4 years (none was below 2 years) of which 6 (54.54%) were male and 5 (45.45%) were female cases, 27 (32.53%) were 4 to 7years of which 11 (40.74%) were male and 16 (59.26%) were female cases, 27 (32.53%) were 7 to 10 years of which 12 (44.44%) were male and 15 (55.56%) were female cases, 14 (16.87%) were 10 to 13 years, of which 5 (35.7%) were male and 9 (64.3%)were female cases and only 4 cases (4.82%) reported were 13 to 17 years of which male and female cases were 2 (50%) each.

Table 2: Age distribution of the sample (n=83).

Age group (years)	N	%	Male, N (%)	Female, N (%)
1 to <4	11	13.25	6 (54.54)	5 (45.45)
4 to <7	27	32.53	11 (40.74)	16 (59.26)
7 to <10	7	32.53	12 (44.44)	15 (55.56)
10 to <13	14	16.87	5 (35.7)	9 (64.3)
13 to 17	4	4.82	2 (50)	2 (50)
Total	83	100	36	47

Table 3: Symptoms of the patients with acute icteric hepatitis in order of decreasing frequency (n=83).

Symptoms	N (%)
Jaundice	83 (100)
Anorexia	75 (90.36)
Abdominal pain	70 (84.34)
Nausea/Vomiting	70 (84.34)
Dark colored urine	58 (69.88)
CNS symptoms	0 (0)

Of 83 cases, all proved to be hepatitis A (100%). We actually had two more cases that had indirect

hyperbilirubinemia with normal enzymes but unfortunately, they didn't follow our pediatric OPD or with the serology results at all. Clinically they looked like Gilbert syndrome.

Table 4: Few important biochemical parameters of the patients with acute icteric hepatitis (n=83).

Biochemical value		Lowest	Highest
AST/SGOT at presentation (units/ml)		60	4391
ALT/SGPT at presentation (units/ml)		106	3361
PT (seconds)		15.5	24.2
aPTT (seconds)		25.1	35
INR		1.19	1.83
Serum bilirubin	Total	1.90	7.16
	Conjugated	0.90	4.47
	Unconjugated	1.00	2.69

DISCUSSION

Hepatitis is a major health problem in east and west both which is caused mostly by viruses[1, 2] especially in the east and Hepatitis A virus happens to be the commonest culprit. The patients present with different symptoms, but the commonest symptom(s) in our study was yellowish discoloration of eyes (100%) & anorexia (90.36%) which was comparable to a study conducted by Behera et al[14] whose commonest symptoms were icterus (95.8%) &loss of appetite (95.8%). In our study, majority of the cases were in the age group of 4-10 years forming 65.06% of total cases (32.53% each age group of 4-7 & 7-10 years) and all cases of acute icteric hepatitis proved to be hepatitis A (100%) as was in a study reported by Rasheed et al with most affected age group of 6-10 years with 43.5% of all cases, with 75% case positivity for hepatitis A.[15] The virus is responsible for most forms of acute but benign hepatitis and spreads mainly through the fecal-oral route and hence is preventable by precautionary methods.[3,6,7] Boiling the water or cooking the food for at least 1 minute to 85 degree Celsius inactivates the virus which can bring a drastic decrease in the incidence of the disease as most of the people report either drinking un-boiled water for different personal or social reasons or the older children drinking directly from the stream or tap while playing in the fields.[16] Hepatitis A vaccine is available which is very effective in preventing disease.[13] The good thing about hepatitis A is that it does not lead to chronicity and death occurs in a very small percentage (approximately 0.2%) of population as was the case with our study with no death (0.00%).[17] In our study in the district of Shopian, two suspected cases of Gilbert syndrome didn't show up after the initial visit in the outpatient department.

Limitations

There were few limitations of the study as mentioned: (a) small sample- although we had good number of cases, but a bigger sample might have been better for, may be, a little bit different result; (b) no follow up of all the icteric patients as we had few patients who had indirect hyperbilirubinemia but didn't follow up. Few other cases with direct hyperbilirubinemia with transaminitis also didn't show up after the first visit. Maybe we might have got a little different result if all such cases followed up; and (c) refusal of evaluation- there were few guardians/parents who refused investigation in our hospital and went to the tertiary care centers; we don't know what they proved to be at the end of their evaluation or what their outcome was!

CONCLUSION

In our study, we found that hepatitis A in children with features of acute icteric hepatitis is very high in the district Shopian & a survey in very large water bodies or the sources of streams and taps water must be done as early as possible. All cases proved to be positive for hepatitis A by serology.

ACKNOWLEDGEMENTS

Since incidence of hepatitis A in children is very high in the district of Shopian, it is recommended to use clean and hygienic water only for drinking purposes. Proper treatment at the sources of supply including the reservoirs must be made mandatory. The streams must be identified for any source of contamination in areas with eruption of cases from a particular area. Water must be boiled in every household and mandatorily recommended by health authorities in all areas and advertised & propagated by all forms of the electronic and print media. And finally hand hygiene and uplifting the communities economically can't be over emphasized.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Salahuddin M, Syed S A, Manzoor H, Mahenaz A, Farhana T. Recent spectrum of acute viral hepatitis in children: an experience in a tertiary centre of Bangladesh. Adv Res Gastroentero Hepatol. 2017; 6(3):555-686.
2. Girish N. A clinical study of viral hepatitis in children: a prospective hospital based study. Int J Contemp Pediatr. 2018;5(2):563-8.
3. Jensen MK, Balistreri WF. Nelson Textbook of Pediatrics. 20th ed. United States of America: Springer; 1998.
4. Kozak RA. Development and evaluation of a molecular hepatitis A virus assay for serum and stool specimens. Viruses. 2022;14(1):159.
5. Matheny SC, Kingery JE. Hepatitis A. Am Fam Physician. 2012;86(11):1027-34.

6. Escobedo-Meléndez G. Prevalence of hepatitis A, B and C serological markers in children from western Mexico. Ann Hepatol. 2012;11(2):194-201.
7. Michaelis K. Hepatitis A virus infections, immunizations and demographic determinants in children and adolescents, Germany. Sci Rep. 2018; 8:166-9.
8. Pirinççioğlu AG, Adıgüzel S, Özekinci T. Seropositivity of Hepatitis A in Children Aged 7-14 Years in Diyarbakir Province Center. Med Sci Monit. 2018;24:936-43.
9. Gupta R. A study of hepatitis A virus seropositivity among children aged between 1 and 5 years of age: Implications for universal immunization. Med J Armed Forces India. 2019;75(3):335-8.
10. Matheny SC, Kingery JE. Hepatitis A. Am Fam Physic. 2012;86(11):1027-34.
11. Özekinci T. Hepatitis A virus infections, immunisations and demographic determinants in children and adolescents, Germany. Sci Rep. 2018;8: 16696.
12. Arankalle V. Changing epidemiology of hepatitis A virus in Indian children. Vaccine Develop Ther. 2014; 4:7-13.
13. Averhoff F, Shapiro CN, Bell BP. Control of hepatitis a through routine vaccination of children. JAMA. 2001;286(23):2968-73.
14. Behera MR, Patnaik L. Clinico-biochemical profile and etiology of acute viral hepatitis in hospitalized children: A study from Eastern India. Indian J Child Health. 2003;4:317-20.
15. Rasheed J, Khalid M, Rubab S. Clinical and epidemiological spectrum of acute viral hepatitis due to hepatitis A and E in Children: a descriptive, cross-sectional, hospital-based study. Cureus. 2014;4: e24056.
16. Walsey A, Bell BP. Hepatitis A in the era of vaccination. Epidimiol Rev. 2006;28:101-11.
17. Franco E. Hepatitis A: epidemiology and prevention in developing countries. World J Hepaol. 2012;4(3): 68-73.

Cite this article as: Lone RA, Khurshid I, Mushtaq A. Incidence of hepatitis A in children with acute icteric hepatitis of district Shopian of Kashmir. Int J Contemp Pediatr 2022;9:680-3.