PREVALENCE OF HEPATITIS A AND E IN ACUTE VIRAL HEPATITIS PATIENTS ATTENDING A TERTIARY CARE HOSPITAL IN SOUTH INDIA

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ABSTRACT

Background and Objectives: Worldwide, viral hepatitis causes substantial morbidity and mortality in both developed and developing countries. Hepatitis A & E viruses, important causes of acute viral hepatitis, are transmitted by the fecal-oral route. Poor personal hygiene and inappropriate sanitary conditions favours their spread. The study aimed to assess the prevalence of both the viral infections in patients of acute viral hepatitis. Materials and Methods: Blood from 88 acute hepatitis cases of both sexes and of all age groups were collected from April 2011 to March, 2012. The serum was separated from the blood samples and IgM ELISA was conducted on them. Results and Conclusion: - 21 cases (24%) were sero-positive for Anti-HAV and 4 (5%) for Anti HEV. Males had higher prevalence (27.27%) of HAV infection while females (5.45 %) of HEV. More no. of cases was in the months of July- August. Thus sanitation and poor living standard play an important role in hepatitis A and E transmission.

Keywords: Hepatitis A, Hepatitis E, fecal-oral route.
INTRODUCTION

Worldwide, viral hepatitis is a common problem. Its acute and/or chronic consequences produce substantial morbidity and mortality in both developed and developing countries.\cite{1} Enterically transmitted *hepatitis A and E viruses* are a major cause of epidemic and acute sporadic hepatitis in many areas of Asia, Africa and Mexico.\cite{2}

*Hepatitis A virus* (HAV) is a non-enveloped 27-nm, heat-, acid-, and ether-resistant ribonucleic acid (RNA) virus in the genus *Hepatovirus* of the family *Picornaviridae*\cite{3} transmitted by the fecal-oral route, favored by poor personal hygiene and inappropriate sanitary conditions.\cite{4} The infection can be sub clinical/acute and self-limiting/fulminant hepatitis with liver failure; true chronic disease is however unknown.\cite{5} The disease is milder in children and complete recovery is the rule.\cite{6}

*Hepatitis A* is the most common cause of infectious jaundice in the world today being responsible for about 1.4 million new infections worldwide every year.\cite{7} It is endemic in most developing countries; in India its exact incidence is not known because of high proportion of asymptomatic cases.\cite{8} Recently outbreaks have been also been reported in homosexuals, among hemophiliacs receiving factor VIII concentrate and among illicit intravenous-drug users.\cite{9}

*Hepatitis E virus* (HEV) is another enterically transmitted virus occurring primarily in Asia, Africa, and Central America. It is a non-enveloped, single-stranded positive-sense RNA virus in the genus *Hepevirus* family *Hepeviridae*.\cite{9} The infection due to it is a widespread problem prevailing predominantly in developing countries where environmental sanitation facilities are inadequate as *Hepatitis A*.\cite{10} It induces fulminating acute disease especially in pregnant women, producing mortality of approximately 80%.\cite{11}

This study was conducted to determine the prevalence of *HAV* and *HEV* in patients presenting with acute viral hepatitis.

MATERIALS AND METHODS

A cross-sectional study was conducted on the sera of 88 patients suffering from suspected acute viral hepatitis (AVH) of both sexes and all age groups over a period of one year April 2011 to March 2012 attending a tertiary care centre in South India. Serum was separated from the blood samples and was tested for IgM anti *HAV* and IgM anti-*HEV* for the detection
of acute hepatitis A and acute hepatitis E, respectively using commercially available ELISA kits (Immuno LISA for HAV IgM ELISA and for Immuno LISA HEV IgM ELISA from ORGENICS Ltd). Serum samples positive for hepatitis B & C were excluded from the study.

RESULTS AND DISCUSSION

Our study showed that 21/88 cases (24%) was sero-positive for HAV and HEV showed a sero-positivity of 4/88 (5%). (Fig. 1). The highest prevalence rate of HAV infection was found in the age group of 0-10 years (7/21). HEV infection was seen in all the age groups showing no age specific preference. (Fig. 2)

![Fig 1. Sero-prevalence of HAV and HEV](image)

![Fig 2. Age-wise prevalence of HAV & HEV](image)

Males had higher prevalence-15/21 of HAV infection and females 06/21. HEV infection in males was 01/04 cases and in females was 03/04. It was noted that the liver enzymes like alanine amino transferase, aspartate amino transferase were found to be deranged in all the cases but no mortality was reported.

HAV and HEV infections were seen to be prevalent all around the year with a predominance seen towards the end of monsoons in the months of July-August. (Fig. 3)
The commonest symptom complained by the patients was anorexia (96.59%) and malaise (95.45%) with hepatic enlargement being found in 96.59% cases. Clinical jaundice was found in only 75% cases. The least common symptom found was abdominal distension (38.64%) and tenderness of the liver (36.36%). (Fig. 4)

DISCUSSION

Our study was conducted mainly to determine the prevalence of HAV and HEV and it showed a 23.86% (24%) sero-positivity for HAV & 4.54% sero-positivity for HEV but Radhakrishnan S et al from CMC, Vellore in 2000 reported HAV IgM prevalence in 13.3% cases & HEV IgM in 17.3% patients with acute hepatitis in a tertiary-care hospital in South India. [12] In our study the highest prevalence (7.95%) of HAV infection was found in the 0-10 yrs age group. Hussian E et al in 2006 also concluded that the mean age of hepatitis A infection was 8.6 ± 3.8 years. [13]
Hepatitis E infection, however, showed no age specific prevalence in our study as also Murhekar MV et al who in’88-’89 observed even distribution in all age groups.\textsuperscript{[14]} Our study showed males having higher prevalence of HAV (15/21 cases) whereas females showed higher prevalence of HEV (03/04 cases). However Malt ML et al in 2000 found both sexes were equally susceptible to enterically transmitted hepatitis A and E infections.\textsuperscript{[8, 15, 16]}

Prevalence of both the infections HAV & HEV was more common during and after rainy seasons in our study. Studies by Kaur H et al and Waheed-uz ZT et al found that both the infections occurred throughout the year with no preponderance of cases following the monsoons.\textsuperscript{[17, 18]}

CONCLUSION

Though the prevalence of HAV is much higher than that of HEV (sero-prevalence of 23.86%) the screening for HEV is mandatory because of the grave consequences it may lead to especially in pregnant women. With similar faeco-oral mode of transmission of Hepatitis A and E viruses and improving levels of personal and food hygiene among higher socio-economic population, periodic surveillance of HAV/HEV exposure pattern is of immense public health value as infection with both the enteric hepatic viruses (HAV and HEV) are quite frequent. These data will be essential for planning of future vaccination strategies and for better sanitation program.

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REFERENCES


