

**SEROPREVALENCE OF HEPATITIS A VIRUS: A RETROSPECTIVE ANALYSIS AT A TERTIARY CARE HOSPITAL IN HIMACHAL PRADESH**

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ABSTRACT This retrospective cross-sectional study aimed to assess the seroprevalence of Hepatitis A virus, examine demographic trends, and analyse clinical profiles of affected patients. The study was conducted from January to December 2024 in the Microbiology Laboratory at Shri Lal Bahadur Shastri Government Medical College and Hospital Mandi, Himachal Pradesh. Data were collected from patients of all ages presenting to the departments, and HAV infection was confirmed using anti-HAV IgM antibody testing through ELISA. The study found a seroprevalence of 53.57%, with the 11–30 age group being most affected. Males had a higher infection rate than females. A significant spike in cases occurred during the monsoon months (July–September), with a local outbreak in August resulting in two deaths. The findings highlight the importance of hygiene practices, safe drinking water, and the urgent need for effective vaccination and improved public health planning to control HAV.

KEYWORDS : Hepatitis A virus, seroprevalence, IgM ELISA

INTRODUCTION

Hepatitis A caused by Hepatitis A virus (HAV) is a non-enveloped, single-stranded RNA virus measuring 27 nm. According to WHO estimates, 1.4 million new cases of Hepatitis A virus are found globally every year. Hepatitis A virus, spreads mainly through the faecal-oral route by consumption of contaminated food and water. It is a serious health problem in developing countries, especially in rural areas with low socioeconomic status.^[1]

The severity and clinical prognosis of a HAV infection are primarily influenced by the age of the infected individual.^[2] The course of more serious liver illnesses, such as cholestatic and relapsing hepatitis, is longer in adults, whereas infected children usually exhibit extremely mild constitutional symptoms or no symptoms at all.^[3]

The current study was carried out at a tertiary care hospital to find out the seroprevalence of hepatitis A virus infection, identify demographic trends, and evaluate clinical presentations in patients suffering from hepatitis A virus during this period.

MATERIALS & METHODS

This is a record based, retrospective cross-sectional study carried out from January 2024 to December 2024 in our Microbiology Laboratory at Shri Lal Bahadur Shastri Government Medical College and Hospital Mandi (H.P.).

This study included data of patients of all ages presenting to the outpatient departments, who tested positive for Hepatitis A virus infection. Clinical signs and symptoms were recorded from their respective case files, and demographic data was collected accordingly. The blood samples were received in the Department of Microbiology with clinical suspicion of Hepatitis A and were tested by GENLISA™ HAV IgM ELISA kit, through which anti-HAV IgM antibodies were analysed. The data was collated and analysed using Microsoft Excel spreadsheet software.

RESULTS

During the study period a total of 336 blood samples were tested for Hepatitis A virus infection in the Microbiology Laboratory. Anti-HAV IgM was detected in 53.57% (n=180) of the 336 examined samples. The anti-HAV IgM seropositivity was 57.22% (n=103) in males and

42.77% (n=77) in females as shown in Table 1. High seropositivity was seen in the age distribution of the individuals. In the age group of ≤10 years, there were approximately 16.11% (n=29), followed by those aged 11–30 years (74.44%, n=134), and those aged beyond 30 years (9.44%, n=17) as shown in Table 2. There was a sharp increase in cases during the monsoon months i.e. in July, August, and September as shown in Table 3. In the month of August, there occurred a local outbreak which also led to an increase in the number of cases. In that outbreak, total notified cases were 358, out of which blood samples of 23 cases were tested in our Microbiology laboratory and all of them were found positive for Hepatitis A virus. Two deaths were reported in that outbreak, one of a nursing student and other was of an elderly male. The details of the outbreak are presented in Table 4. The common presenting complaints were fever (99%), followed by malaise, abdominal pain, yellowish discoloration of eyes, dark-coloured urine, and loss of appetite.

Table 1: Gender Distribution

Gender	Total positives (n)	Total positives (%)
Males	103	57.22%
Females	77	42.77%

Table 2: Age Distribution

Age group in years	Total positives (n)	% of positives
<10 years	29	16.11%
11–30 years	134	74.44%
>30 years	17	9.44%

Table 3: Cases of Hepatitis A from Jan 2024–Dec 2024

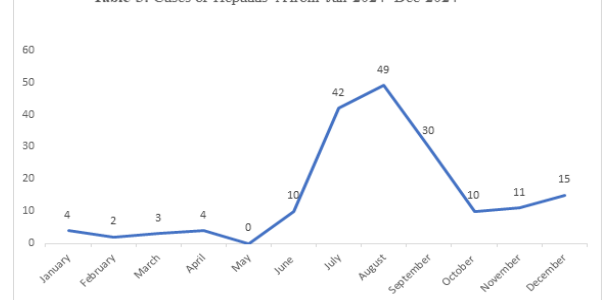


Table 4: Cases Tested During The Local Outbreak

Outbreak in Joginder Nagar in August 2024	Total cases	Total positive cases	Males	Females	<10 years	11-30 years	>30 years
	23	23 (100%)	14 (60.86 %)	9 (39.13%)	4 (17.3 9%)	14 (60.86 %)	5 (21.7 3%)

DISCUSSION

Hepatitis A is a common cause of infectious jaundice. Globally the estimated prevalence of Hepatitis A virus in developing countries ranges from 30-60%.The geographic distribution of HAV infection appears to be changing as countries improve their standards of sanitation and personal hygiene. The incubation period of virus ranges from 10 to 50 days.^[4]

Hepatitis A virus is a hardy virus and can withstand environmental conditions.Common disinfectants like bleach and hypochlorite can make it inactive. The faecal-oral route is the primary means of HAV transmission between individuals worldwide.^[5]

It is not uncommon for epidemics to recur. When faeces contaminate a single source, like milk, food, or drinking water, the hepatitis A virus usually produces abrupt, explosive outbreaks. HAV is seldom transmitted by blood transfusions or the use of contaminated needles and syringes.^[6]

The overall prevalence of Hepatitis A virus in the current study was found to be 53.57%.

According to a 2016 study by Manjunatha Sarthi et al., the frequency in central Karnataka was 37.25%.^[2] In 2022, Meghna S. Palewar et al. reported that the prevalence of hepatitis A was 14.55%.^[6]

The age group between 11 and 30 years old had a high rate of anti-HAV positive (74.44%) in this study. In a similar study conducted by Manjunatha Sarthi et al. also found that acute hepatitis was more common in a similar age group.^[2]

Fever was the most frequent presenting complaint in this study. Javaria Rasheed et al. carried out comparable research in Multan, Pakistan.^[3]

Anti-HAV antibodies can be detected during acute illness when serum aminotransferase activity is elevated and faecal HAV shedding is still occurring. This early antibody response, which is mostly of the IgM type, seldom lasts six to twelve months. After convalescence, however, IgG-class anti-HAV antibodies become the most prevalent antibody. Hepatitis A is still self-limiting and does not progress to chronic liver disease.

In this study, males had higher seropositivity for HAV than females. According to a study by A. Muneer et al. they have documented the male prevalence of HAV infection and the seroprevalence of the hepatitis A virus in that study was 60%.^[7] Seroprevalence before and after vaccination was compared in a study conducted by Bing-Yu Yan et al. between 2006 and 2014 which showed decrease in cases of Hepatitis A viruses.^[8] In 2014, comparison research using the hepatitis E virus in the rural Amazon revealed seropositivity of 82.9%.^[9] A seropositivity of 66.92% was found in a related investigation by Pooja Semwal et al.^[10] In 2020, a study conducted on children in Uttarakhand found that 85.2% of them had seropositivity.^[11] Seropositivity was 48.93% in 2021, according to a study by Geetika Rana et al.^[12]

Studies have revealed that fatality rates among individuals who co-infected with Hepatitis B were up to 5.6 times greater than those who did not co-infect, despite the fact that Hepatitis A is rarely fatal.^[13]

The most effective control measures must prevent faecal contamination of sick individuals before their clinical symptoms appear. Therefore, washing your hands correctly and avoiding work behaviours that make it easier for your hands to become contaminated are the most critical control measures when caring for infants under two. The vaccine is recommended for use in those older than one year and is safe and effective. Adults, adolescents, and children one year of age and up have excellent immunogenicity, with protective antibody levels (≥ 20 m IU/mL).^[4] Immunoglobulin, which is produced from large pools of normal adult plasma, offers passive protection to about 90% of those infected to Hepatitis A when given one to two

weeks after exposure. HAV vaccines, which offer longer-lasting protection, should take the role of immunoglobulin.^[6]

Limitations And Strength

The results of this study only apply to our healthcare environment because it was only carried out in our tertiary care facility.A larger multicentric study is required to have the exact seroprevalence in this region.

CONCLUSIONS

The current study indicates that HAV infection is still common in our region despite ongoing development.The study emphasizes on developing improved Hepatitis A control programmes which should include vaccination, clean drinking water and improved sanitation practices.

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