



## Original Research Article

## Occurrence and pattern of Hepatitis-A among patients with suggestive symptoms of hepatitis

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## ABSTRACT

**Introduction :** Viral hepatitis is a systemic disorder with primary inflammation in the liver. Till now, the hepatitis are of six types i.e. A, B, C, D, E and G in which hepatitis-B is a DNA virus and (A, C, D, E and G) place RNA virus. Hepatitis viruses can cause an acute disease with symptoms including reduced appetite, muscle or joint pain, fever, nausea with yellowish discoloration of human body and eyes (jaundice) and dark urine (bilirubinuria).

The most clinically symptoms of HAV infection are dark golden-brown urine, fatigue, malaise, loss of appetite, nausea and vomiting. HAV a positive-strand RNA viruses, is stable at moderate temperature and low pH allowing the virus to survive in the environment and be transmitted by the fecal-oral route.

**Aim :** Occurrence and pattern of hepatitis-A among patients with suggestive symptoms of hepatitis.

**Objectives :** 1. To determines the frequency of Hepatitis-A virus infection. 2. To determine the pattern of Hepatitis-A infection in different Age group.

**Materials and Methods:** 5ml blood was collected from anterior cubital vein by Venipuncture from recruited patient. Samples were collected after proper consent and aseptic precautions. Then every blood sample was transfer overhead a tagged tube plane vial.

**Result:** The study was conducted in Department of Microbiology, Teerthanker Mahaveer Hospital. Blood sample from 87 patients including both male and female were collected from various department of the Hospital for the analysis purpose. Out of them, 10 (11.50%) cases were Hepatitis-A virus positive and 77 (88.50%) cases were Hepatitis-A virus negative.

**Conclusion:** The results of our study put up valuable information and connection in Hepatitis-A positive cases. Females 6 (60%) were more affected by the Hepatitis-A virus infection as compare to Males 4 (40%). An important preventive measure is the screening for Hepatitis-A Virus in blood donors. Hepatitis-A Virus infection can also be prevented by using fresh food and water, Oral-anal sex.

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## 1. Introduction

Viral hepatitis is a systemic disorder with primary inflammation in the liver. Till now, the hepatitis are of six types i.e. A, B, C, D, E and G in which hepatitis-B is a DNA virus and (A, C, D, E and G) place RNA virus.<sup>1</sup> Hepatitis viruses can cause an acute disease with symptoms including reduced appetite, muscle or joint pain,

fever, nausea with yellowish discoloration of human body and eyes (jaundice) and dark urine (bilirubinuria). The most clinically symptoms of HAV infection are dark golden-brown urine, fatigue, malaise, loss of appetite, nausea and vomiting.<sup>2</sup> HAV a positive-strand RNA viruses, is stable at moderate temperature and low pH allowing the virus to survive in the environment and be transmitted by the fecal-oral route<sup>3</sup> Hepatitis A (formerly known to be infectious hepatitis) is an acute infectious disease of the liver caused

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by HAV. Approximately 1.5 million cases are reported every year throughout the world.<sup>4</sup> Acute hepatitis-A (AHA) is supposed to be endemic in developing countries because of low socioeconomic status, increased density of houses and untreated water consumption. Frequent infection leads to development of acquired immunity in nearly 90% of children below 10 years of age.<sup>5</sup>

### 1.1. Ethical approval

Ethics approval was obtained from TMMC Moradabad institutional Ethical Committee (TMMC-IEC) Ref. No. TMMC & RC /IEC/18-19/086.

## 2. Materials and Methods

The research design was attached in serology section of microbiology department, Teerthanker Mahaveer hospital (Moradabad), from September 2018 to December 2019. Total 87, Hepatitis-A suspected cases were interpreted in this study. Patients of all age grouping with a history of body temperature, sickness, pale yellow skin, or liver cancer were involved in this study. The sample was transported to designated place for processing. 5ml blood was collected from anterior cubital vein by Venipuncture from recruited patient. Samples were collected after proper consent and aseptic precautions. Then every blood sample was transfer overhead a tagged tube plane vial.

## 3. Results

Blood sample from 87 patients including both male and female were collected from various department of the Hospital for the analysis purpose. Out of them, 10 (11.50%) cases were Hepatitis-A virus positive and 77 (88.50%) cases were Hepatitis-A virus negative.

Table 1 Showing their were total 87 patients were selected in this study. Out of them, 10 (11.50%) cases were positive and 77 (88.50%) cases were negative.

Table 3 Total 10 infected HAV patients in this study. The clinical symptom in HAV positive cases Out of them, 100% Fever cases, 100% Headache, 100% Jaundice, 80% Abdominal pain, 80% vomiting, 70% Fatigue, 50% Joint pain, 30% Nausea and 30% Loss of appetite.

## 4. Discussion

Hepatitis-A virus is a RNA virus, which is responsible for 1.5 million people of Indian origin death every year worldwide. Viral Hepatitis continues to be a main public health problem in India and other developing countries. Ever since the first epidemic of hepatitis that had occurred in 1995 at Delhi, several outbreak of hepatitis have continued to occur. In India available epidemiological data on HAV infection is limited. However many recent reports have published the changing scenario

for seroepidemiological patterns of hepatitis-A infection in India.<sup>6</sup> Hepatitis A virus is a common, mostly self-resolving gastrointestinal infection occurring in children of the developing world. At times, this relatively benign infection may be associated with fulminant hepatic failure, resulting in increased morbidity and mortality. Extrahepatic manifestations and complications, especially hematological ones, secondary to HAV infection is rare in children. Most reports on hematological manifestations as a result of HAV infection in the literature concern adults.<sup>7</sup> The reported hematological manifestations in association with HAV include hemolysis, a plastic anemia, vacuities, thrombocytopenia, pancytopenia without a plastic anemia, red cell aplasia, and the hemophagocytic syndrome. Decreased platelet count has been attributed to various etiologies like bone marrow depression, secondary to disseminated intravascular coagulation in association with hemophagocytosis and immunologic destruction of platelets in the peripheral circulation secondary to circulating immune-complex deposits or anti-cardiolipin and anti-phospholipids antibodies.<sup>8</sup> In our study circle 87 cases were time-tested and take apart for Hepatitis-A in all age group. Among 87 all age group, 10 cases were responsive for HAV, 6 were active for HBsAg, 4 were active for HCV, 2 were responsive for HBeAg, and 1 were positive for HEV, 1 case was responsive for co-infection HAV-HBsAg. This study high lights the high prevalence of HAV infection among both sex and all age group attending patients in TMMC & RC.

The overall contrast ratio spread value for several infections were HAV 11.50%, HBsAg 6.90%, HCV 4.60%, HBeAg 2.30% and HEV 1.15%.<sup>9</sup>

In some state of India, New Delhi lies in many most high prevalence states for HAV next Chandigarh in North India. Hepatitis-A is responsible for about Approximately 1.5 million cases are reported acute infection.<sup>10</sup>

In our report the overall spread value for infections were HAV 11.50% in comparison to higher than the prevalence rate of HAV 17% recorded by Vidya Arankalle et al (2014).<sup>11</sup>

In our study the frequency of HAV 11.50% different age group. The finding is in agreement with studies carried out by Rahamathulla Syed et al (2012),<sup>12</sup> Vidya Arankalle et al (2014), Our study differ from study of Shahin Merat et al (2010)<sup>45</sup> and Rachna Tewari et al (2016).<sup>13</sup> Where hepatitis-A reactive cases were 13.7% and 33.9%. In this study alike Rachna Tewari et al. and Vidya Arankalle et al. record highest spread of Hepatitis-A positive cases.

## 5. Conclusion

The results of our study put up valuable information and connection in Hepatitis-A positive cases. Females 6 (60%) were more affected by the Hepatitis-A virus infection as compare to Males 4(40%). An important preventive

**Table 1:** Hepatitis-A positive and Hepatitis-A negative cases with percentage

S. No	Hepatitis-A positive	Hepatitis-A negative	Total
1	10	77	87

**Table 2:** Showing the sex wise distribution Hepatitis-A positive cases

S. No	Test	Male 4(40%)		Female 6(60%)	
		No. of cases	Percentage	No. of cases	Percentage
1	Immuno chromatographic	4	40%	6	60%

**Table 3:** Clinical Symptoms in 10 HAV Positive cases

Symptoms	No. of cases	Percentage (%)
Fever	10	100%
Headache	10	100%
Jaundice	10	100%
Abdominal Pain	8	80%
Vomiting	8	80%
Fatigue	7	70%
Joint Pain	5	50%
Nausea	3	30%
Loss of appetite	3	30%

measure is the screening for Hepatitis-A Virus in blood donors. Hepatitis-A Virus infection can also be prevented by using fresh food and water, Oral-anal sex. Our finding concludes that most common mode of transmission of Hepatitis-A virus Faeco-oral route is using contamination food and water and most effective transmission by blood transfusion. Old group age Female 51-60 years have highest prevalent rate for HAV. The prevalence of HAV in the patients attending Teerthanker Mahaveer hospital was very low in compare to the general population in India. The prevalence of HAV is very high in rural people with compare to urban people. Rural people are not aware about vaccination due to lack of education so the whole Nation and vaccination programmed should be implemented properly by the government against HAV infection.

## 6. Conflicts of Interest

All contributing authors declare no conflicts of interest.

## 7. Source of Funding

None.

## References

1. Wilkins JK, Raina D, Schade RR. Hepatitis-A diagnosis and treatment. *Am Fam Physician*. 2010;81(11):1351–71.
2. Robertson BH, Jansen RW, Khanna B, Totsuka A, Nainan OV, Siegl G, et al. Genetic relatedness of hepatitis A virus strains recovered from different geographical regions. *J Gen Virol*. 1992;73(6):1365–77. doi:10.1099/0022-1317-73-6-1365.
3. Elikaei A, Sharifi Z, Shoostari MM, Hosseini M, Maroufi Y. Prevalence of HAV among health blood donor referring to Tehran Transfusion center. *Iran J Public Health*. 2008;37(4):126–30.

4. Jeong SH, Lee HS. Hepatitis-A Clinical manifestations and management. *Int virol*. 2010;53(1):15–9.
5. Tewari R, Makeeja V, Dudeja M. Prevalence of hepatitis A in southern part of Delhi, India. *Int J Med Sci Public Health*. 2016;5(10):2067–70. doi:10.5455/ijmsph.2016.20112015426.
6. Havens WP. Period of infectivity of patients with experimentally induced infectious hepatitis. *J Exp Med*. 1946;83(3):215–8. doi:10.1084/jem.83.3.251.
7. Asher LV, Binn LN, Mensing TL, Marchwicki RH, Vassell RA, Young GD, et al. Pathogenesis of hepatitis A in orally inoculated owl monkeys (*Aotus trivirgatus*). *J Med Virol*. 1995;47(3):260–8. doi:10.1002/jmv.1890470312.
8. Ashida M, Hamada C. Molecular cloning of the hepatitis A virus receptor from a simian cell line. *J Gen Virol*. 1997;78(7):1565–9. doi:10.1099/0022-1317-78-7-1565.
9. Inman RD, Hodge M, Johnston ME, Wright J, Heathcote J. Arthritis vasculitis cryoglobulinemia associated with relapsing hepatitis A virus infection. *Ann Int Med*. 1986;105(3):700–3.
10. Mosley JW, Visoná KA, Villarejos VM. Immunoglobulin M Level in the Diagnosis of Type A Hepatitis. *Am J Clin Pathol*. 1981;75(1):86–7. doi:10.1093/ajcp/75.1.86.
11. Coulepis AG, Locarnini SA, Lehmann NI, Gust ID. Detection of Hepatitis A Virus in the Feces of Patients with Naturally Acquired Infections. *J Infect Dis*. 1980;141(2):151–6. doi:10.1093/infdis/141.2.151.
12. Kurane I, Binn LN, Bancroft WH. Human lymphocyte responses to hepatitis-A virus infected cells interferon production and lysis of infected cells. *J Immunol*. 1985;135(2):2140–4.
13. Ticehurst J, Hollinger FB. Detection of antibodies to hepatitis C virus in seronegative patients using an immune complex dissociation assay. *J Viral Hepatitis*. 1997;4:383–6. doi:10.1046/j.1365-2893.1997.00068.x.

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