



ORIGINAL RESEARCH PAPER

Pathology

STUDY OF PREVALENCE OF HEPATITIS C VIRUS (HCV) INFECTION IN A PATIENTS ATTENDING TERTIARY CARE HOSPITAL

KEY WORDS: HCV, Hepatitis C Prevalence, ELISA

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ABSTRACT

Hepatitis C infection is a liver disease caused by the hepatitis C virus (HCV). It is one of the important risk factor causing acute to chronic illness in form of altered liver functions or development of chronic hepatitis, cirrhosis, hepatocellular carcinoma and liver failure. In India reported prevalence rates vary widely in range of 0.09%-2.02%. This retrospective study was carried out in patients attending Government General Hospital, Government Medical College, Suryapet during January 2016 to December 2018. Serum samples were collected and screened for antibody against HCV by ELISA method.

INTRODUCTION

Chronic liver disease (CLD) is a major cause of morbidity and mortality worldwide. Infection by hepatitis C virus (HCV) stands out as a major cause of CLD (estimated global HCV prevalence 2%–3%, i.e., 130–170 million people).^{[1],[2]} Annually, around 700,000 people die of HCV-related liver disease.^[3] Belonging to the family Flaviviridae, HCV is a hepatotropic ribonucleic acid (RNA) virus that is notorious for its propensity for chronicity Only in ~25% of the patients infected with HCV, the infection is self-limiting with spontaneous clearance and undetectable HCV RNA levels in blood. In the majority of the cases (~75%), the virus persists and establishes chronic infection, which causes progressive liver damage that may eventually lead to a spectrum of pathologies, namely chronic hepatitis, liver cirrhosis and hepatocellular carcinoma.^{[1],[2],[4]}

Hepatitis C virus (HCV) causes both acute and chronic infection. Acute HCV infection is usually asymptomatic, and is only very rarely (if ever) associated with life-threatening disease. About 15–45% of infected persons spontaneously clear the virus within 6 months of infection without any treatment.

The remaining 60–80% of persons will develop chronic HCV infection. Of those with chronic HCV infection, the risk of cirrhosis Hepatitis C is found worldwide.

According to the World Health Organization (WHO) the prevalence of HCV infection is up to 3% of the world's population. In India reported prevalence rates vary widely in range of 0.09%–2.02% (Mukhopadhyaya, 2008)^[5]. In India about 20 million people are known to have Hepatitis C virus (HCV) infection HCV infection is usually asymptomatic so only few patients are diagnosed during acute phase, those patients who develops chronic HCV infection often undiagnosed because the infection remains asymptomatic, after infection symptoms develop secondary to serious liver damage. There is no vaccine available for hepatitis C therefore prevention of infection is only depends upon reducing risk of exposure. The aim of this study was to determine the prevalence of Hepatitis C virus infection in patients attending the tertiary care Hospital

MATERIALS AND METHODS

A retrospective study was carried out from January 2016 to December 2018 on patients attending OPD & IPD at Government General hospital, Government Medical College, Suryapet. Blood samples of all patients for HCV testing were collected that referred to the Microbiology laboratory. The serum was separated for the qualitative detection of HCV antibody by ELISA. The test procedure and interpretation of result was done according to standard protocol and manufacturer's instructions. The test result of patients were noted and analyzed

RESULTS AND DISCUSSION

The overall prevalence of HCV infection was 0.21 % (Table 1)

Prevalence of HCV infection was different in all age group in range 0 to 0.084 %. The study showed maximum prevalence of HCV infection in aged 30-39 years (0.084 %) (Table 2)

Out of total positive maximum number of patients were identified in preoperative screening. Indication wise distribution of patients is shown in table 3.

The most affected regions are WHO Eastern Mediterranean and European Regions, with the prevalence of 2.3% and 1.5% respectively. Prevalence of HCV infection in other WHO regions varies from 0.5% to 1.0%. Depending on the country, hepatitis C virus infection can be concentrated in certain populations (for example, among people who inject drugs) and/or in general populations. There are multiple strains (or genotypes) of the HCV virus and their distribution varies by region

About 2.3 million people of the estimated 36.7 million living with HIV globally have serological evidence of past or present HCV infection. Conversely, among all HIV-infected persons, the prevalence of anti-HCV was 6.2%. Liver diseases represent a major cause of morbidity and mortality among persons living with HIV Risk factors for HCV transmission differ between developed and developing countries. Transmission of HCV was strongly associated with intravenous and percutaneous drug users (IDUs). Studies from the developed countries also reveals that most of the new HCV infection associated with injection drug use (Wasley et al., 2000).^[6]

In the developing countries, unsafe therapeutic injections and transfusions are likely to be the major modes of transmission, especially in countries where age-specific seroprevalence rates suggest ongoing increased risk of HCV infection (Shepard et al., 2005)^[7].

The seroprevalence of HCV among general population of India has been reported between 0.22-1.8 per cent (Gowri et al., 2012; Jaiswal et al., 1996)^[8,9]

In our study overall prevalence of HCV infection is 0.21% which is similar to study done by Gowri et al., (0.22%), lower seropositivity was reported from Madurai²⁰ and Parimal H. Patel et al., (0.28%)^[10] was reported from Gujarat, while study done by Preeti Mindolli et al., (2.6%)^[11] and Mishra et al., (1.57%)^[12] 21 Showed higher prevalence as compare to our study. Differences in prevalence rates may be due differences in health resources and educational levels awareness of the disease in different regions. The prevalence of HCV in both genders is controversial. While some studies showed higher HCV incidence among men, other population based surveys showed similar rates in both sexes. In this study prevalence were high among men.

Table.1 Prevalence of Hepatitis C infection among patients in a tertiary care hospital

Total no. of sample received	Total no. of positive sample	Percentage of total no. of positive sample
7100	15	0.21

Table.2 Age-wise prevalence of HCV in hospital based general population

Age group (in years)	Total no. of positive patients	Percentage(%) of total no. of positive patients
0-9	0	0 %
10-19	1	0.014 %
20-29	4	0.056 %
30-39	6	0.084 %
40-49	3	0.042 %
≥50	1	0.014 %
TOTAL	15	0.21 %

Table.3 Categorization of Hepatitis c patients according to probable cause

Indication	No. of HCV positive patients	Percentage(%) of HCV positive patients
patients Symptomatic(Patients admitted in dialysis ward)	1	6.7 %
Pre donor Screening	14	93.3 %
Total	15	100 %

In patients attending OPD 14 was positive for HCV and 01 of them were positive for HIV.

The rate of HIV-HCV coinfection in the present study was 6.66%, other studies in our India have reported a prevalence of 3.02% in Andhra Pradesh (Ponamgi et al., 2009)⁽¹³⁾, 2.2% in Tamil Nadu (Saravanan et al., 2007)⁽¹⁴⁾ and 1.6% in Lucknow (Tripathi et al., 200)⁽¹⁵⁾, 10% in Gujarat (Parimal H. Patel et al)⁽¹⁰⁾, Co infection is due to similarity in mode of transmission.

CONCLUSION

HCV would be responsible for emerging infection in India. In order to prevent transmission of infection, educational program and screening to target group as well as illiterate people in collaboration with health care provider are require.

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