

Epidemiological Profile Of Hepatitis C Virus Infection In Chronic Liver Disease Patients In Tertiary Care Hospital In Telangana

Aliya Fatima

Assistant Professor, Department of Microbiology, Gandhi Medical College & Hospital, Secunderabad, Telangana, India

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Abstract

Background: A Significant proportion of chronic liver disease (CLD) are caused by viral infections. The major cause of non-A, non-B hepatitis is Hepatitis C virus. WHO estimates 170-200 million people are infected with HCV worldwide. **Aim & Objective:** 1) To study Epidemiology of Hepatitis C virus infection 2) To identify the risk factor for HCV infection. **Materials & Methods:** A total of 100 chronic liver disease patients attending Gastroenterology department were included in the study between January 2015 and June 2016. Demographic data and clinical findings were recorded using a structured proforma. All the samples were screened for anti HCV antibodies by ELISA (HCV MICROLISA) by following manufacturer's instructions. **Results:** Out of 100 CLD Patients, 81(81%) were Males & 19(19%) were Females. Male to Female ratio of the total chronic liver disease patients was 4.2:1. HCV antibodies was found Reactive in 4 patients, of which 3 were Males & 1 was Female. HCV Reactive patients belong to 40-60 Yrs of age group. 2 HCV Reactive patients belong to Rangareddy district. Surgery was found to be the major risk factor for HCV infection. **Conclusion:** The Prevalence of HCV in CLD Patients was 4%. Males were more commonly affected than females with 40-60yrs age group commonly affected. Surgery was found as a major risk factor and all the 4 HCV Reactive patients belonged to lower socioeconomic status.

Keywords: Hepatitis C virus (HCV), Chronic liver disease (CLD), Enzyme-linked immunosorbent assay (ELISA).

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Introduction

Chronic liver disease (CLD) is the liver disease resulting from an inflammation due to immunological, infiltrative, metabolic or mechanical injury to the liver, persisting for six or more months without complete resolution⁽¹⁾

In 1970s, an infectious agent that caused chronic hepatitis distinct from the hepatitis A virus (HAV) and hepatitis B virus (HBV) was identified and was frequently transmitted by blood and blood products called Non-A Non-B Hepatitis (NANBH)⁽²⁾. In 1989, Harvey J. Alter discovered Hepatitis C virus as the major causative agent of post-transfusional Non-A, Non-B hepatitis (PTNANBH) which belongs to the Hepaci-viruses⁽³⁾. HCV is a small, spherical, enveloped RNA virus with an icosahedral capsid that encloses long, single-stranded, positive sense genomic RNA. The envelope contains two structural proteins E1 and E2, and NS2, NS3, NS4A, NS4B, NS5A, and NS5B are nonstructural proteins⁽⁴⁾. HCV can lead to chronic liver disease causing cirrhosis, hepatocellular carcinoma and end stage liver disease among 5-20% of infected persons⁽⁵⁾. HCV genome is highly mutable. The mutation occurs in hyper variable region of the genome coding for the envelope proteins and escapes immunity by the host and at the same time knocks host's innate immunity resulting in HCV chronic infection. Unsafe therapeutic injections, injection drug abuse, Blood transfusions from unselected donors and other healthcare related procedures are the major risk factors for HCV transmission worldwide. Others route of HCV transmission have also been implicated like sexual, vertical and household contacts⁽⁶⁾. Past and present knowledge of HCV prevalence is important in order to predict the future burden of HCV-related liver disease⁽⁷⁾. Prevalence of Chronic HCV ranges from 0.1% to 5% in different

countries⁽¹⁾. HCV seroprevalence reported in South India is 0.22%, 0.3% in Western India, 1.8% in Central India and 1.9% in North India⁽²⁾.

No effective vaccine has been developed to prevent HCV infection⁸. Hence we undertook the present study to know the epidemiological profile of HCV infection in CLD patients at Gandhi hospital, Secunderabad, Telangana.

Materials and Methods

Patients & sample collection: A total of Hundred CLD patients were screened at the department of Gastroenterology unit in Gandhi Hospital, Secunderabad, India, for a period of 18 months from January 2015 to June 2016. Informed consent from patients and ethical clearance was obtained from the Institutional Ethical Committee (IEC Re No. IEC/GMC/2015). Chronic liver disease patients of all age groups and both the sexes attending Gastroenterology unit in Gandhi Hospital were included & Chronic liver disease secondary to metabolic disorders were excluded. About 2ml of blood was collected under aseptic conditions. All samples were screened for anti-HCV antibodies using third generation ELISA. The procedure was strictly followed according to the instructions of the kit manufacturer (HCV Microlisa).

Results

100 chronic liver disease patients admitted in Gastroenterology unit of Gandhi Hospital were included in the study.

*Correspondence

Aliya Fatima

Assistant Professor, Department of Microbiology, Gandhi Medical College & Hospital, Secunderabad, Telangana, India

E-mail: dr.aliya22@gmail.com

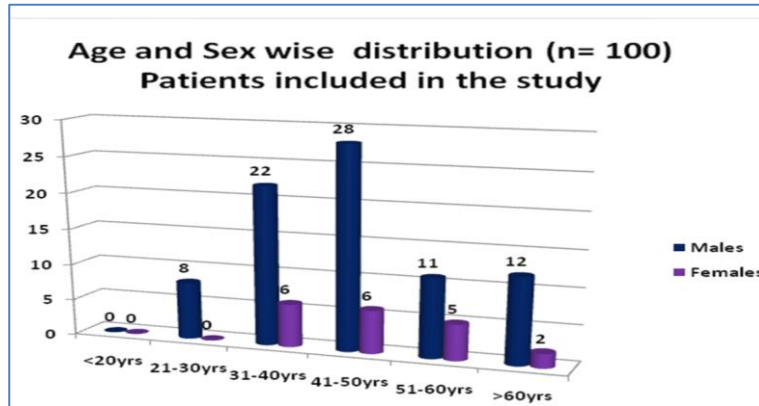


Figure 1: Gender and Age wise distribution of Chronic liver disease patients included in the study

In Present study, 81 CLD Patients were Males and 19 patients were Females.

Male to Female ratio of the total chronic liver disease patients was 4.2:1. Most of the patients belong to the age group of 41-50years.

Table 1: Socioeconomic status of Chronic liver disease patients

Class	Number of cases
Upper class	1
Middle class	6
Lower class	93

Most of the CLD patients belong to lower socioeconomic status.

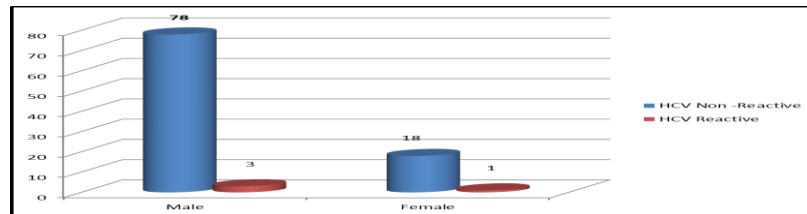


Figure 2: Comparison of HCV Reactive and Non- Reactive patients in Chronic liver disease with regard to gender

In Present study, Out of 4 HCV Reactive cases, 3 were males and 1 was Female.

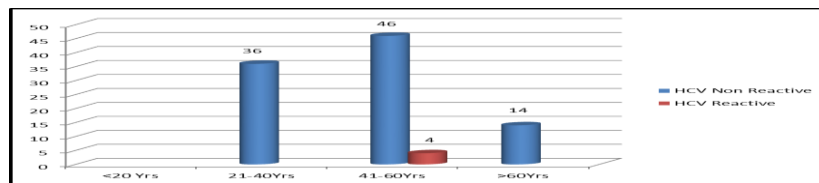


Figure 3: Prevalence of HCV in different age groups

All 4 patients belong to 40-60 years of age group.

Table 2: Risk factors among HCV Reactive and HCV Non- Reactive Patients

Risk factors	HCV Reactive Patients (n = 4)	HCV Non-Reactive Patients (n = 96)
Injection drug use	-	-
Recipient of clotting factors	-	-
Recipient of blood transfusion	1	2
Previous surgery	2	7
Needle stick injury	-	-
Born to HCV positive mother	-	-
Sexual partner of person with hepatitis c infections	-	-
H/o Hemodialysis	-	1
HIV Coinfection	-	1
Alcohol abuse	3	77

In Present Study, Surgery is a major risk factor for HCV infection in Chronic liver disease Patients.

Socioeconomic status of HCV patients

All the 4 HCV Reactive patient belong to lower socioeconomic status.



Figure 4: Geographical distribution of HCV Reactive and HCV Non-Reactive cases among liver disease patients in Telangana

Out of 4 HCV Reactive Patients, 2 Patients belong to Rangareddy district, 1 Patient belong to Hyderabad and 1 Patient belong to Mahabubnagar district.

Discussion

We studied the Epidemiologic profile of HCV infection in CLD patients using different criteria (geographical, gender, age, socioeconomic status and risk factors) in tertiary care hospitals in Telangana, India. Different researchers have studied the prevalence of HCV in CLD in various demographic regions in India. In the present study, the prevalence rate of HCV in CLD patients is low (4%) compared to the other studies. Amarapukaret al[9] explained that Bombay's prevalence rate was 15- 20%. Sumathietal[10] observed a higher prevalence rate of 23.9% in South India. However, in North India, the prevalence rate is 10.8 % [11]. The other studies in Calcutta, Haryana and Farrukhabad have 8.06%, 4.28% and 4% rates respectively [8, 12, 13].

Subramanian et al (2013) [14] reported that HCV affected percentage higher in male 59.6 % than female 40.4% at Tamilnadu. Sanjay et al.,(2016) [13] observed that 65% males and 35% females were infected with HCV infection. In the present study, the same results were observed 75% males and 25% females were infected with HCV infection in Telangana.

In the present study, the most common age group affected with HCV infection was 40- 60 years, similar to a study from South India [15], who reported 41- 60Yrs commonly affected age group. However, Parveen et al.,(2015) [16] observed that lower age groups 25- 38 years were commonly affected in the new Hub-Haryana.

Researchers have studied the different percentage of risk factors for causing HCV infection. Montalvo et al., (2008) [17] reported that surgery (53.7 %) was found to be a major risk factor of HCV infection followed by blood transfusion (38.9 %) in Mexico. In North India, multiple injection exposure (43.1%) was found to be the major risk factor [18]. In New Delhi, surgery (26.76%) followed by blood transfusion (12 %) were the major risk factors for HCV infection [19]. Sonia et al.,(2015)[20] observed that in Ludhiana, major risk factor was blood donors(1.45%). In the present study, surgery (50 %) was found to be a major risk factor.

Conclusion

In Present study, Prevalence of Hepatitis C in chronic liver disease cases was 4%. Of which, 75% of Males and 25% of females were affected. Hepatitis C infection was common in 40-60 Yrs of age group. Surgery was the major risk factor associated with Hepatitis C infection among chronic liver disease patients.

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