

ORIGINAL RESEARCH

To study the prevalence of HCV infection in tertiary care hospital at GBCM and Subharti hospital, Dehradun (UK), India

¹Dr. Seema Singh, ²Dr. Swapna R Kurup, ³Mr. Pankaj Rawat

¹Assistant Professor, ²Professor, ³Tutor, Department of Microbiology, GBCM and Subharti Hospital, Dehradun, Uttarakhand, India

Corresponding Author

Dr. Seema Singh

Assistant Professor, Department of Microbiology, GBCM and Subharti Hospital, Dehradun, Uttarakhand, India

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ABSTRACT

Introduction- A number of infectious pathogens can cause hepatitis, an inflammation of the liver. One of the causes of hepatitis is hepatitis C, which can result in hepatocellular cancer. Using serological techniques to detect antibodies, an infection's diagnosis is made. The aim of present study is to study the prevalence of HCV infection in tertiary care hospital at GBCM and Subharti Hospital, Dehradun (UK), India. **Material and methods-** The present prospective study was conducted at department of microbiology among patients who visited to OPD & IPD of Subharti hospital during the period of July 2022 to July 2023. Total 3833 test were conducted. Demographic of patients were noted and results were analyzed using SPSS version 25.0. **Results** – Out of total 3833 test conducted only 44 tests came positive depicting the prevalence of HCV as 1.14%. Most of patients were from the age group of 31 to 45 years (29.5%) followed by 46 to 60 years (25%) and 16 to 30 years (22.7%), 61 to 75 years (22.7%) . Out of all patients 50% were male and 50% were female. 36.3% patients were from general surgery department. **Conclusion** – In India, hepatitis C is becoming more common. Prevention should focus on providing education, risk reduction counseling, HCV screening, and drug misuse treatment to individuals who are susceptible to contracting the hepatitis C virus.

Keywords- HCV, Hepatitis C, infection, north India, prevalence

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INTRODUCTION

Hepatitis C was discovered in 1989 using molecular biology techniques, it is a RNA virus which belongs to the Flaviviridae family and genus Hepacivirus [1]. The hepatitis C virus (HCV) is the cause of hepatitis C infection, a liver disease [2]. One of the major risk factors for acute to chronic sickness, such as altered liver function or the onset of cirrhosis, hepatocellular cancer, chronic hepatitis, and liver failure, is this [3,4]. After an acute infection, 75–85% of individuals go on to develop chronic illness, depending on what factors affect how the host and HCV interact [5].

Studies that used data from the general population to estimate the prevalence have been done. However, some nations lack these kinds of data, hence area-specific data has been computed in comparison to national data. From less than 1.0% in Northern Europe to more than 2.9% in Northern Africa, the prevalence has been reported [6]. Egypt has been claimed to have the highest prevalence (15–20%), whereas the United Kingdom and Scandinavia have the lowest prevalence (0.01%–0.1%) [7]. In the Indian

Arunachal Pradesh's prevalence rate was 7.89%, higher than that of Maharashtra (0.09%), Andhra Pradesh (1.4%), and West Bengal (0.71%), according to prevalence surveys [8-11]. When compared to hepatitis A and B, hepatitis C is less common but has significantly more severe consequences for the patient once it is contracted.

The HCV infection from many sources, such as unscreened donors, injectable drug use, unsafe injection, etc., continues to add to the disease pool in the lack of effective anti-HCV screening in our nation [12,13]. Since HCV infections are typically asymptomatic, only a small number of patients are recognized during the acute phase of the infection. Patients who develop chronic HCV infections frequently go untreated because the infection persists without symptoms until symptoms arise as a result of significant liver damage. Hepatitis C cannot be prevented by vaccination; instead, infection must be avoided by lowering exposure risks.

Hence the aim of present study is to study the prevalence of HCV infection in tertiary care hospital

at GBCM and Subharti hospital, Dehradun (UK), India

MATERIAL AND METHODS

The present prospective study was conducted at department of microbiology among patients who visited to OPD & IPD of Subharti hospital during the period of July 2022 to July 2023. Ethical permission was taken from institutional ethical committee before the commencement of study. Patients were asked to sign an informed consent form after explaining them about the complete research protocol.

Total 3833 serum samples were taken and tested for Hepatitis C virus. The study included all consecutive anti-HCV positive patients who reported at hospital, and who did not exhibit primary liver disease-related symptoms at the time of initial diagnosis. Individuals with decompensated HCV cirrhosis, HCV cirrhosis, HCC, pregnancy, HIV or HBV co-infection, chronic renal disease, or dialysis with HCV were excluded from the study.

The serum was divided in order to use ELISA for the qualitative detection of HCV antibodies. The manufacturer's instructions and standard methodology

were followed for both the test technique and result interpretation.

Thorough physical examination, comprehensive history, history for family screening and risk factor assessment, hematological, biochemical, and radiological investigations were performed in accordance with protocol. Patients' HCV RNA was analyzed using real-time polymerase chain reaction. Blood transfusions, surgeries, needle stick injuries, self-reported dental procedures, tattoos, acupuncture, unprotected many sexual partners, and intravenous drug misuse were among the procedures that were examined for the possibility of HCV acquisition in the patients. Patients who had been routinely consuming more than 20 grams of alcohol per day for ten years or longer before presenting were considered to have a substantial alcohol intake.

A variety of parameters were examined using descriptive statistics. The connection between the variables was determined using the chi-square test. P values less than 0.05 were deemed significant. The statistical analysis was conducted using SPSS version 25.0.

RESULTS

Out of total 3833 test conducted only 44 tests came positive depicting the prevalence of HCV as 1.14% as shown in figure 1.

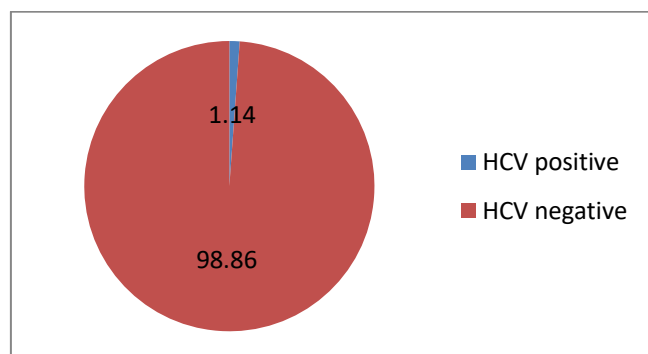
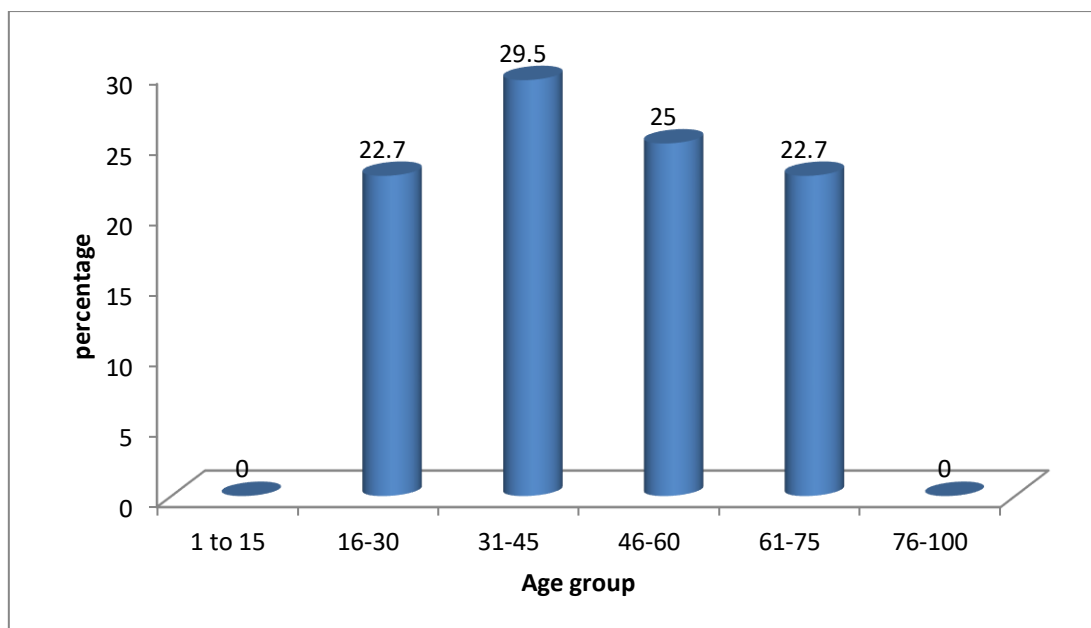


Figure 1 – Prevalence of HCV infection

Most of patients were from the age group of 31 to 45 years (29.5%) followed by 46 to 60 years (25%) and 16 to 30 years (22.7%), 61 to 75 years (22.7%) as shown in table 2.

Table 2, figure 2 Distribution of HCV positive patients on the basis of age

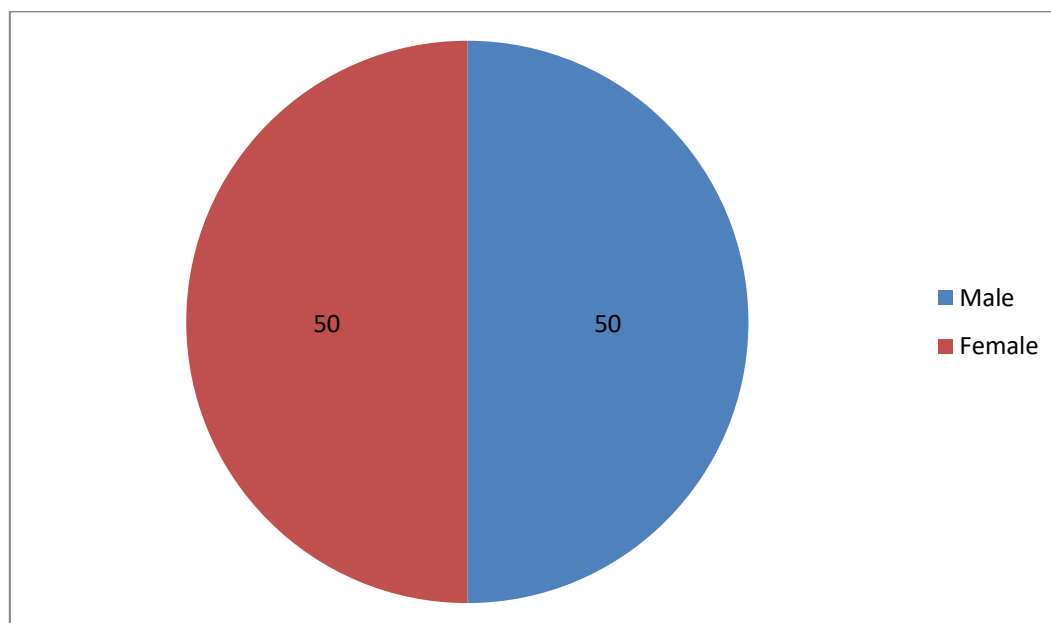
Age group (years)	Frequency (%)
1-15	0
16-30	10 (22.7)
31-45	13 (29.5)
46-60	11 (25)
61-75	10 (22.7)
76-100	0
Total	44 (100)



Out of all patients 50% were male and 50% were female as shown in table 3.

Table 3, figure 3 Distribution of HCV positive patients on the basis of gender

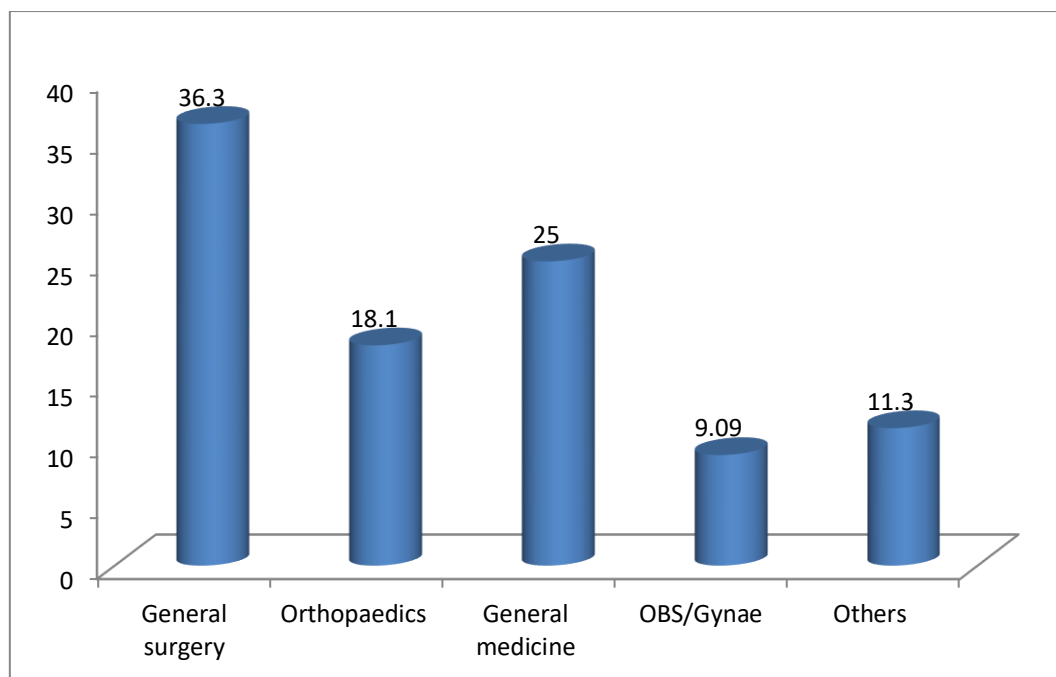
Gender	Frequency (%)
Male	22 (50)
Female	22 (50)
Total	44 (100)



36.3% patients were from general surgery, 18.1% from ortho department, 25% from general medicine, 9.09% from OBS and rest 11.3% were from other various department as shown in table 4.

Table 4, figure 4 Distribution of HCV positive patients according to OPD attended

OPD	Frequency (%)
General surgery	16 (36.3)
Orthopaedics	8 (18.1)
General medicine	11 (25)
OBS/Gynae	4 (9.09)
Others	5 (11.3)
Total	44 (100)



DISCUSSION

Parenterally transmitted infections like viral hepatitis can be contracted. The Hepatitis C Virus (HCV) is one of the etiological causes of infectious Hepatitis.

The present study was done in the department of Microbiology, over a period of one year. Serum sample of 3383 patients attending the hospital were collected and tested for Hepatitis C virus over a period of one year. In the present study out of 3383 patients 44 (1.14%) patients were found positive for HCV test. According to a 2007 study by Sangeeta Pahuja et al., India has been kept The World Health Organization classifies the intermediate zone of hepatitis C prevalence (2–7% prevalence rate) as having a 1–2% HCV prevalence. According to a 2003 study by Abhijeet Chaudhry et al., 0.87% of the patients had positive hepatitis C antibody tests.[14]

Germany (0.6%), Canada (0.8%), France (1.1%), and Australia (1.1%) had comparatively low rates of HCV seroprevalence, according to a 2005 study by Colin W. Sheferd et al. However, the USA (1.8%), Japan (1.5–2.3%), and Italy (2.2%) have reported somewhat higher seroprevalence rates. There is a documented seroprevalence of 3.2% in China reported an overall rate of 0.9% in India. Indonesia has a rate of 2.1%, while most reported rates in Pakistan range from 2.4% to 6.5%. With a reported seroprevalence rate of 22%, Egypt leads the pack.[15]

In the present study the maximum patients were in the age group of 31 to 45 years. This is strikingly similar to three other studies of CKD with HCV, with a median age of 48 years, and to a study of symptomatic individuals (56% Cirrhotic, 37% Chronic Hepatitis, and 7% HCC),[16] where the median age was 49 (range: 15e95) years.[17] In a hospital-based study and a population-based study, the mean age of asymptomatic patients was 41.89 ± 18.38 years and

38 years, respectively.[18,19] With just 0.4% of patients older than 80 years old and 0.20% in the younger age group of less than 20 years old, the highest prevalence was found in the older age group of 40–59 years (48.32%), followed by 25% in the 20–39 years age group and 18.48% in the 60–69 years age group. According to the aforementioned population-based study, the age range 41–60 years had the highest prevalence. This finding is consistent with another population-based study, where 41.3% of patients were in the 41–60 year age group, 2.2% were under 20 years old, and 1.1% were over 80 years old.[19] Similar results were found in a hospital-based study of 516 asymptomatic incidental patients, with 44.8% of them falling between the ages of 41 and 60.[14,18] This indicates a prolonged asymptomatic phase and a high frequency of suggested risk factors at this age.

The male to female ratio was 1:1 i.e. number of male and female were equal. Male to female ratio was found to be 79:18 in a study of treatment-naïve HCV patients from Northern India[20]; however, male predominance was shown to be 66% and 68.3%, respectively, in other research on demographics in India among blood donors.[21,22] This could be explained by the male preponderance in physician referral bias, which also exists in the donor population. The population-based investigations on HCV prevalence in Punjab and West Bengal were the only other studies that revealed a male to female prevalence similar to the current study.[19] The majority of population-based research have demonstrated comparable male and female prevalence, thus it's critical to realize that the discrepancy in hospital-based and donor studies can be due to masculine bias in both of these contexts.

The major limitation of this study was that it has been conducted at a single centre of northern India hence the results cannot be generalized for the whole population.

CONCLUSION

Infection with hepatitis C is on the rise in India. The illness prevalence in the current study was 1.14%. Both genders were equally impacted, and the age range of 31 to 45 years was where it was most common. In developing nations, the majority of people cannot afford antiviral medication.

Due to the high prevalence of HCV infection, new strategies for secondary and tertiary prevention as well as increased efforts in primary prevention—including the development of vaccines—are required in order to lessen the burden of chronic liver disease and increase the prognosis of individuals who already have liver disease. Prevention should focus on providing education, risk reduction counseling, HCV screening, and drug misuse treatment to individuals who are susceptible to contracting the hepatitis C virus.

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