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Seroprevalence of Hepatitis C Virus in Blood Donors of Kathua District (J & K)

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Abstract

Background: Hepatitis C is a transfusion transmitted infection and leads to Chronic liver disease and cirrhosis in about 10 to 20 percent of infected individuals. Aim: To find out the seroprevalence of HCV in Blood donors of Kathua district and also see the trend of the HCV infection. Methods: Retrospective analysis of the number of HCV seroreactive donors over a period of 6 years was done from the records. Results: In the present study, the seroprevalence of HCV in blood donors was 0.7% (n=57) and the number of HCV seroreactive donors has increased gradually from 3 in 2016 to 27 in 2021. Maximum (73.68%) HCV seroreactive donors were in the age group of 18-30 years. Conclusion: The seroprevalence of HCV infection is increasing that too in the young population so for provision of safe blood, focus should be laid on the prevention of HCV infection at the community level.

Keywords: Blood Donor,Transfusion Transmitted Infection, Hepatitis, Seroprevalence

Introduction

Blood is a life saving resource but at the cost of risk of acquiring Transfusion Transmitted Infections via Blood Transfusion. Hepatitis C is one of the infections that can be transmitted via blood transfusion and primarily affects the liver leading to chronic liver disease and cirrhosis in about 10 to 20 per cent of those infected and can also lead to hepatocellular carcinoma (HCC). The worldwide seroprevalence of HCV varies from 0.4 to 19.2 per cent in blood donors and therefore the risk of transmission of HCV infection from donors who are in the window period is quite significant. In India, every blood unit is tested for HIV, HBV, HCV, malaria and syphilis. The main route of HCV transmission is blood-to-blood contact via intravenous drug abuse, unsterilized medical devices, needlestick injuries in healthcare, and Blood Transfusions. In addition, vertical transmission from mother to child can occur during birth [1]

It is estimated that worldwide about 58 million people have chronic hepatitis C virus infection and he incidence of HCV is 1.5 million per year. According to WHO factsheet 2019 , approximately 290 000 people died from hepatitis C, the most common cause being cirrhosis and hepatocellular carcinoma .[2]

Our institute is a newly established Medical College and therefore the present study was conducted to find out the seroprevalence of HCV in blood donors of Kathua district as no such previous data was available from this area.

Materials and Methods

This is a retrospective observational study conducted in Blood Centre, GMC Kathua (J&K) over a period of 6 years from April 2016 to March 2022 to find out the seroprevalence of Hepatitis C infection in blood donors of this region and also to see its changing trend over the years.

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All the Blood Donors were screened according to the standard Blood Donor Questionnaire and blood was collected from those found fit. About 5 ml of blood sample was collected in test tubes at the end of donation and screened for the five mandatory markers i.e HIV, HBV, HCV, malaria and syphilis. HCV screening was done by Enzyme Linked Immunosorbent Assay (ELISA) method using ErbaLisa HCV Gen 3 kits.

Results

Out of the total 8192 blood donors, 8127 were males (99.21%) and 65(0.8.%) were females. 57 blood donors were found reactive for HCV. In the present study, the seroprevalence of HCV in blood donors was 0.7% and the number of HCV seroreactive donors has increased gradually from 3 in 2016 to 27 in 2021 (Table 1)Maximum(73.68%) HCV seroreactive donors were in the age group of 18-30 years (Table 2).

Table I. Number of HCV seroreactive donors

Year	Total number of donors tested	Number of HCV seroreactive donors	HCV seroreactive donors(%)
2016	956	3	0.31
2017	1008	1	0.1
2018	993	3	0.3
2019	1194	10	0.84
2020	1771	13	0.73
2021	2270	27	1.19
Total	8192	57	0.7

Table II. Age distribution of Seroreactive HCV donors

Age (yr)	Total number of donors	(%) of HCV seroreactive donors
18-30	42	73.68
31-40	13	22.8
41-50	1	1.75
51-60	1	1.75

Discussion

Maximum donors in our study were males 8127 (99.2%).All HCV seroreactive donors were also males which is comparable with studies of Dowerah et. al[3] where male donors showed greater seropositivity than female donors.

In our study, HCV seroprevalence of 0.7% was found in blood donors which is comparable to study done in Kaur et.al.(0.77%)[4] & Pahuja et.al. (0.66%)[5] in Punjab & New Delhi respectively but higher than the retrospective studies done in Jammu region i.e Sidhu et.al. with HCV seroprevalence of 0.2% and 0.17% in replacement and voluntary donors respectively[6] & Arora et. al. reported a seroprevalance rate of 0.075%[7].This difference in seroprevalence rate could be due to different sociodemographic variables, lack of awareness about blood safety & high risk behaviour.

Among studies done in New Delhi,Makroo et.al. reported seroreactivity for anti HCVas 0.39%[1] Pahuja et.al. as 0.66%[5] , Jain et.al.as 1.57%[8]. Kaur et.al.showed high HCV seropositivity of 2.44% in punjab[9] & Arora et.al. 1.0% in Haryana[10].Other studies have shown variable results, Khaneta et.al. HCV 1.04% in Mumbai[11], Kumar et.al.0.28% in Wardha,Maharashtra[12], Karmakar et.al. 0.59% in Kolkata[13]& Dowerah et.al. 0.1%North East[3]

There was a increasing trend in HCV seroprevalence over a period of 6 years which is consistent with studies by Kumar et. al[12], Saini et. al[14], Ram et. al[15],Patel et. al[16].

In the present study,73.68% seroreactive donors were in the age group of 18-30 years as also reported by Makroo et.al.[1]. In another study conducted by Karmakar et.al al[13] more than two-third seropositive (69.36%) were in the age group of 21-40 years of age.

The rising seroprevalence that too in the young population is a matter of concern for Blood Centres as it shrinks the donor pool. India is a developing country and unlike the western countries, is far away from the universal implementation of NAT testing in all Blood Centres of the country, so for minimizing the chances of HCV transmission from donors who may be in the window period ,we still have to depend on vigilant History taking and identification of blood donors with high risk behavior. Thus we should put emphasis on the need of a trained and efficient Counselor in every Blood Centre. Healthcare authorities should also focus more on the prevention of the disease by creating awareness as there is no vaccine available till date and it is an ailment with high chronicity and thus increased morbidity and mortality in our population.

Conclusion

The seroprevalence of HCV infection is increasing that too in the young population so for provision of safe blood, focus should be laid on the prevention of HCV infection at the community level.

Ethical Clearance

Taken from Institutional Ethical Committee(IEC), GMC Kathua

Conflict of Interest: NIL

Funding: SELF

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