



Study of prevalence of hepatitis C among replacement donors versus voluntary donors in Tertiary care Hospital

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Abstract

Introduction: Hepatitis C infection is a major global health problem, which could easily lead to chronic liver disease, cirrhosis and even hepatocellular carcinoma. The rapid global spread of HCV is believed to have occurred primarily because of efficient transmission through blood transfusion and parenteral exposures with contaminated equipment\

Materials and Methods: This study was carried out at the Blood bank, Department of Pathology M.Y. Hospital Indore. A retrospective review of 77108 donors over a period of 2 years (2015- 2017) was carried out. All individuals who presented themselves for blood donation during this period were included in the study. Screening of the donors was done with rapid test kit as well as ELISA The data were collated and analysed with SPSS version 20. Prevalence of HCV antibodies was expressed in percentages. Associations of HCV seropositivity with demography,

Results: A total of 77108 donors presented themselves for blood donation during the study period, Out of these 8.92%(6883) were replacement donors while 91.07% (70225) were voluntary donors. Among voluntary donors 0.01%(11) and among replacement donors 0.03%(29) were reactive to HCV antibody . Donor with PCV value between 34-42% had highest HCV infection.

Conclusion: In conclusion, the frequency of active infection of HCV amongst the blood The seroprevalence of Hepatitis C virus infection in the study centre is 0.04 %. This is considerably low percentage while keeping in view the previous publicized rates. Application of strict measures during blood donor selection and use of proper screening essay such as ELISA.

Introduction

Hepatitis C infection is a major global health problem, which could easily lead to chronic liver disease, cirrhosis and even hepatocellular carcinoma. The rapid global spread of HCV is

believed to have occurred primarily because of efficient transmission through blood transfusion and parenteral exposures with contaminated equipment^[1]. Blood donors, particularly those that rely on blood donation as a source of income, had

a very high prevalence of HCV infection^[2] The prevention and control of HCV infection showed complexity and challenge in describing geographic distribution of HCV infection, determining its associated risk factors, and evaluating cofactors that accelerate hepatitis C progression.

As a result, the WHO included the screening for HCV antibodies as one of the four mandatory screening tests in blood donors. The various means of reducing the spread of these infections through blood transfusion include careful donor selection, routine screening of blood donors for HCV antibodies, irradiation of blood components, and judicious clinical use of blood. We therefore commence on this study to establish the prevalence of Hepatitis C and provide a baseline data in the tertiary care centre. M.Y. Hospital Indore.

Materials and Methods

This study was carried out at the Blood bank, Department of Pathology M.Y. Hospital Indore. A retrospective review of 77108 donors over a period of 2 years (2015- 2017) was carried out. All individuals who presented themselves for blood donation during this period were included in the study. Data on socio-demography, blood group, packed cell volume (PCV) and results of HCV screening were retrieved from the donor register. Screening of the donors was done with rapid test kit. The kit tested for the presence of the antibodies to the infective agent in donor plasma. The rapid test kit had a sensitivity of 96.6% and specificity of 99.5%. The data were collated and analysed with SPSS version 20. Prevalence of HCV antibodies was expressed in percentages. Associations of HCV seropositivity with demography, PCV and blood groups were checked with Chi-square. P-value less than 0.05 was regarded as statistically significant.

Results

A total of 77108 donors presented themselves for blood donation during the study period, Out of

these 8.92% (6883) were replacement donors while 91.07% (70225) were voluntary donors. Among voluntary donors 0.01% (11) and among replacement donors 0.03% (29) were reactive to HCV antibody. Donor with PCV value between 34-42% had highest HCV infection.

Table: HCV seropositivity according to PCV level and type of Blood donor

Characteristics	Positive n (%)	Negative n (%)
Hematocrit (%)		
34-42	25(62.5)	35000(45.41)
43-50	15(37.5)	42000(54.49)
51-59	00	68(0.09)
Type of blood donation-		
Voluntary Donor	11(27.5)	70214(91.1)
Replacement Donor	29(72.5)	6854(8.89)

Discussion

Only replacement and voluntary donors were encountered in this study, as it is the policy of the hospital not to accept blood from remunerated donors. Voluntary donors were much more than Replacement donors in our study. However, replacement donors still comprise a large proportion of blood donors in many other parts of the world⁽³⁾.

The seroprevalence of Hepatitis C virus infection in the study centre is 0.04 %. This result is lower than the 17.8% recorded in similar study in Lahore, Pakistan⁽⁴⁾ and 13.6% in Egypt⁽⁵⁾. The high prevalence rate in Lahore, was attributed to the use of very sensitive third generation ELISA screening method as against the rapid kits used in our study.

Our result is however similar to the findings of Ryas et al⁽⁶⁾ Rehman et al.⁽⁷⁾, Asif et al.⁽⁸⁾, Farooqi et al.⁽⁹⁾, from other parts of Pakistan who reported the prevalence of hepatitis C as 4.7%, 4.1%, 5.14% and 3.21%, respectively. These latter studies use immune-chromatographic diagnostic technique as in our study. But in most of the earlier studies, an earlier generation of anti-HCV ELISA (which was less sensitive and less specific) was used⁽⁹⁾.

Mutimer et al.⁽¹⁰⁾ and Halim et al.⁽¹¹⁾ had reported high seroprevalence rates of 12.3% and 14.0% respectively, but this was among commercial blood donors in Nigeria. These corroborate the high risk of this infection among commercial donors who should be discouraged from blood donations as it is done in many parts of the world. Alao et al.⁽¹²⁾ had earlier in 2010 reported a 5.4% rate of HCV antibody among blood donors in Makurdi, Benue State, North Central Nigeria. The decreasing trend of hepatitis C prevalence in this city as shown by our study may have resulted from behavioral changes that have led to decreased transmission of infection.

Lower prevalence of HCV among blood donors have been reported in North Region of Jordan⁽¹³⁾. 0.8%, 0.33% for Saudi Arabia,⁽¹⁴⁾ 1.8% in India,⁽¹⁵⁾ 1.3 in Egypt,⁽¹⁶⁾ 0.95% in Syria,⁽¹⁷⁾ and Turkey⁽¹⁸⁾ 0.07%. Several other studies⁽¹⁹⁻²⁶⁾ have also reported lower HCV Seroprevalence in blood donors than our study. The differences in the prevalence between our study and other studies may be attributed to differences in the sensitivities of the assays used, the criteria of positivity, types of donors as well as in the degree to which individuals with risk factors for blood-borne viral infections may have been excluded.

Conclusion

In conclusion, the frequency of active infection of HCV amongst the blood donors. The seroprevalence of Hepatitis C virus infection in the study centre is 0.04 %. This is considerably low percentage while keeping in view the previous publicized rates. Application of strict measures during blood donor selection and use of proper screening assay such as ELISA.

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