

# Seroepidemiology of HIV, HBV, HCV infections among blood donors in Bagalkot district- A cross sectional study

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## Abstract

**Background:** Blood transfusion department not only screens transfusion transmitted infections but also gives clue about the prevalence of these infections in healthy looking individual.

**Objective :** The aim was to estimate an approximate disease burden of HIV( Human Immunodeficiency virus) ,HBV( Hepatitis B Virus),and HCV( Hepatitis C virus) in healthy blood donors so as to determine how well we are doing in the fight against these killers,as these diseases are among the greatest threats to blood safety for the recipient.

**Material and methods:** Two year of consecutive blood cross sectional study was done covering the period between January 2009 to December 2011 .It was conducted in blood bank of SN Medical college Bagalkot. All the blood donors who came to SN Medical college to donate blood during January 2009-december 2010 were selected for study.Seroprevalance of antibodies against HBV,HCV,HIV was studied by enzyme linked Immunosorbent Assay (ELISA) technique.

**Results:** Blood samples of 6008 donors were tested. The seroprevalence of HIV, HBV, HCV was found to be 0.46%, 2.77%,0.366% respectively.

**Conclusion.-**seroprevalence of HBV is more compared to HIV, HCV among voluntary blood donors.

**Keywords:** Hepatitis B Virus, Human Immunodeficiency virus, Hepatitis C virus, blood donor

## Introduction

Timely transfusion of blood saves millions of lives, but unsafe transfusion practices puts million of people at risk of transfusion-transmissible infection [1] Improvement and implementation of donor selection, screening tests and effective inactivation procedures can ensure the elimination, or at least reduction, of the risk of acquiring transfusion transmissible diseases [2]. The possibility of hepatitis transmission through blood and blood products were known since 1950 [3,4,5,6].

Hepatitis B virus is a DNA virus from hepadnaviridae family. Hepatitis C virus is a RNA virus with lipid coat similar to flaviviridae family. Infected persons or asymptomatic carriers with viral hepatitis B and C are only reservoir of infection [5,6,7,8,9]. Hepatitis B is one of the most common diseases transmitted by blood and has infected two million people worldwide including an estimated 400 million chronically infected cases. Individuals with chronic infection have a high risk of developing liver cirrhosis and hepatocellular carcinoma [10].

Hepatitis C Virus infection is another common chronic blood born infection with an estimated 3.9 million persons infected by the virus and a high rate of development of liver cirrhosis. Infection by HBV and HCV cause serious mortality and morbidity. There is an estimated 5.7 million cases of HIV in India, second highest pool of patients in the world [11]. This study is aimed to assess the prevalence and trends of the transfusion transmissible infections from 2009–2010 among blood donors of Bagalkot.

## Materials and Methods

This cross-sectional study was conducted from Jan 2009- Dec 2010. The total sample number included the number of blood donors donating blood only once during the study period. Prior to blood collection, the donors were requested to answer a questionnaire to determine whether they were eligible for donation. Each donor sample was surveyed for HIV, HBV and HCV by ELISA techniques and positive samples were retested by ELISA technique by using another different Kit.

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## Results

Majority of the donors belonged to the age group of 18-40 yrs. The seroprevalence of HIV, HBV, HCV among the 6008 donors was found to be 28 cases (0.46%), 167 cases (2.77%), and 22 cases(0.366%) respectively.

## Discussion

Stringent screening of donors for transfusion transmissible infections is crucial to ensure safe supply of blood and blood products. The size of voluntary donors was smaller and infections slightly less prevalent. Voluntary donors mainly consisted of students, religious groups and voluntary organizations. Females made a smaller section of the study as they were found to be anaemic and did not fulfill the required fitness criteria. The prevalence of all infections were found to be low among females. In our study, HIV, HBV and HCV prevalence among donors shows a downward trend over years. The HIV prevalence of 0.46% is high compared to other Indian studies of this period. There is a dip in HIV incidence from the year 2010 onwards. The earlier prevalence rate of HIV among blood donors in bagalkot was 0.56%. The prevalence of HBV infection was higher compared with the other Indian studies. The prevalence of HCV is in accordance with other studies, but slightly less than that seen by Mathai et al [12-15].

## Conclusion

It is concluded from the study that seroprevalence of Hepatitis B infection is higher than Hepatitis C and HIV infection in blood donors. This is similar to other studies which show higher prevalence of Hepatitis B in our country. Prevention is the most important aspect on which we all need to work hard.

Infection with HBV and HCV are worldwide significant problem in public health. Screening of transfusion-transmissible infections (TTIs) among blood donors can be a cost-effective approach to monitor the prevalence, distribution, and trends of the infections among healthy-looking individuals. It is of utmost importance to continue screening donated blood with highly sensitive and specific tests and to counsel donors who are positive to any of the above infections.

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