

PREVALENCE OF HIV, HCV & HBV IN BLOOD DONORS AMONG THE POPULATION OF BHADRAVATHI TALUK, KARNATAKA, INDIA

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INTRODUCTION

Blood is a major source of different products that are used for the prevention and treatment of innumerable life-threatening diseases. Though, blood transfusion has remained as a subject for contamination with different human pathogens that may bring a wide variety of risk, especially transfusion-transmissible infections (TTIs) such as HIV, HBV, HCV and syphilis. unsafe transfusion practices puts millions of people ¹ at risk of transfusion transmissible infections (TTIs) though Timely transfusion of blood saves millions of lives. An unsafe blood transfusion is insecure from both human and economic points of assessment. Subsequently leading to Morbidity and mortality. Hence this burden is not only for the recipients themselves, but also for their families ^{2,3}. WHO recommends that all blood donations should be screened for infection prior to use. Screening should be mandatory for hepatitis B virus (HBV), hepatitis C virus (HCV), human immunodeficiency virus (HIV) and syphilis. Globally there are more than 300 Million HBV infected people and 75% of them are Asians⁴. The prevalence of HBV infection is reported to be high of 5-15% in south East Asia and China ⁵. In India the national average for HBV positivity in the healthy donor population is around 4.7%. According to WHO cataloguing, globally there are 34 million people living with HIV at the end of 2011 ⁶. According to NACO, In India there are around 2-3 million HIV infected people with the prevalence of 0.31% among adults ⁷. According to Karnataka State AIDS Prevention Society, there are 250,000 HIV infected people in Karnataka ⁸. The seroprevalence of HBV infection was confirmed to be 0.53%, HCV infection to be 0.098%, HIV to be 0.08% and

Syphilis to be 0.09% after supplementary testing in the blood donors during the various blood donation camps in Mangalore were investigated from January 2008 to March 2010⁹. The financial costs of the disaster to control the transmission of infection include better requirement for medical care employing a heavy burdens on already overstretched health and social services and on the national ^{2,4}economy. Hence continuous improvement and implementation of methods like donor selection, sensitive screening tests, and effective inactivation procedures can safeguard the elimination, or at least ⁵ drop, of the risk of acquiring TTIs. Globally, more than 81 million units of blood are ⁶ donated each year. More than 18 million units of blood are not^{7,8} screened for transfusion transmissible infections. Hence an evaluation of data on the prevalence of transfusion transmissible infections namely HIV, HBV, HCV and syphilis among blood and plasma donors permits the calculation of the existence of infections in the blood donor population and thus the safety of the collected donations.

MATERIALS AND METHODS

Blood collection was done from healthy voluntary donors through blood camps organized in Bhadravathi taluk. Each donor's Name, age (18-60 years), Sex, date of birth, address and contact number were recorded. A unique identification number was also given. Donors with history of any pre existing illness in the recent past, weight loss, uncontrolled diarrhea, recent jaundice, liver disease, cardiovascular disease, pulmonary disease, malignancy, epilepsy, malaria, unusual or excessive bleeding, recent donation of blood,

receipt of blood, and taking contraindicated drugs were excluded. Detailed history of immunization was also noted. Weight, pulse, blood pressure and temperature were recorded for each donor. Screening for anemia and Inspection for any marks of drug abuse or any skin lesions/ infections at the venepuncture site was also recorded. A written informed consent was taken from each donor before the blood donation. Proper sterilization and other precautions were taken during the blood collection and blood units were stored by appropriate methods.

RESULT

Among the 8931 blood units collected, seropositive was found to be 1.13% of the total units collected. This is depicted in the Pie chart showing the number of significant infectious disease (figure 1). The prevalence of blood borne infection in the Bhadravathi taluk during the period January 2009- 2013 is presented in table1.

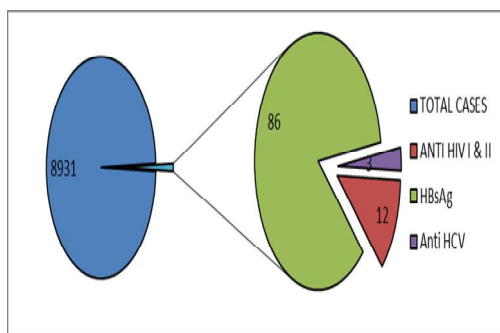


Fig. 1: Pie chart showing the number of significant infectious disease

Table 1: Distribution of blood born disease among the blood donors of Bhadravathi taluk for the year 2009-2013

Disease	Number	Percentage
Total cases	8931	
Anti HIV I & II	12	0.13
HbsAg(HBV)	86	0.96
Anti HCV	3	0.033

DISCUSSION

About 4 Crore units of blood is of need every year in our nation. Among this, only a petite of 40 Lakh units of blood are obtainable. Since blood is not a factory-made product– it can only be derived from generous donor. Gift of blood is a gift of life.

Bhadravathi is an industrial town and taluk in the Shimoga District of Karnataka state, India with a population of 160392. The necessity for

blood transfusion may arise at any time in both urban and rural areas. Through regular camps conducted by Jeevadahara charitable trust, a share of 8931 units of blood was collected and used by the needy. An acceptable and reliable supply of safe blood is assured by regular, voluntary, unpaid blood donors. Regular, voluntary, unpaid blood donors are the safest group of donors as the prevalence of blood borne infections is lowest among these donors.

In India, carrier rate of HBV is about 3%, and anti-HCV positivity presents in 1 to 1.5%¹⁵. It is estimated that 3.9 million people are infected by HIV in India and more than 29 000 AIDS cases have been reported¹⁶ which reflects the burden of the disease. In a study done by Bhattacharya et al shows an increasing prevalence of HBV (1.28 - 1.66%), HCV (0.28 - 0.35%), and HIV (0.23 - 0.35%) in blood donors of Kolkata in 2004 to 2005¹⁷.

India is now considered as the third largest number for HIV infected people this sharp increase in HIV/AIDS cases has now caused awareness among the donars and because of the screening of the donars for the transfusion-related HIV/AIDS, infected population has gone down from 16% - end November 1994 to 3% - end November 2002 for over a decade (national reports) which is high when compared to a small region like bhadravathi which has an seroprevalence of 0.13%.

HCV seropositivity 0.033% was seen in our study. A varing range of 0.4-19.2 % global seroprevalence of HCV among blood donors was seen in an epidemiological study done by Memom et al¹⁸. Further the seroprevalence of HCV in voluntary blood donors in India was reported to be between 0.12-4 per cent¹⁹. This geographical unevenness of HCV seroprevalence is mainly due to the different risk factors responsible for the transmission of HCV infection. HCV transmission is primarily through blood exposure, and majority of this leads to chronic infection or chance of cirrhosis and hepatocellular carcinoma.

World Health Organization (WHO) has estimated that more than 2 billion people in the world have been infected with HBV at some time in their lives and about 350 million people worldwide are HBV carriers with the majority in developing world mainly in Asia and Africa²⁰. As per a study conducted from a coastal Karnataka region, 0.62% prevalence of HBV was reported²¹. However our study reported a 0.96% of postiveness among the blood donors of bhadravathi,

Millions of lives worldwide each year is saved by blood transfusion. But the awareness of both donors and recipients of transfusions risk is less.

Accessibility of safe blood for transfusion is an essential for the recipients and the community. To achieve this, screening of donors and donated bloods is necessary. So, prevalence of HBV, HCV, and HIV among the blood donors or the replacement donors reveals the disease prevalence in the community. Furthermore it estimates the risk of accidental acquisition of these infections during blood transfusion. Motivation and recruitment of potential local blood donor population would help in effective implementing of voluntary blood donation program in the community.

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