

## Original Research Article

# PREVALENCE OF TRANSFUSION TRANSMITTED INFECTIONS AMONG BLOOD DONORS OF TERTIARY CARE HOSPITAL OF CENTRAL INDIA; A RETROSPECTIVE STUDY

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Received : 25/10/2023  
Received in revised form : 02/12/2023  
Accepted : 15/12/2023

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DOI: 10.5530/ijmedph.2023.4.5

Source of Support: Nil,  
Conflict of Interest: None declared

Int J Med Pub Health  
2023; 13 (4); 23-25

### ABSTRACT

**Background:** Background and Aims: Blood transfusion is the major cause of infectious diseases in recipient due to no screening of donated blood. Aims of current study are to get assessment of the prevalence of diseases in donor's blood and to create awareness for blood donation among people.

**Materials and Methods:** Blood donors from Vidarbha region of central India, including males and females were screened for the prevalence of five transfusions transmittable infections (TTIs). Donors having age less than 18 years, weight less than 45 Kg and Hemoglobin (Hb) less than 11.5 mg/dl were excluded from the study.

**Results:** Total 0.74 % males and 0 % females were infected with various TTIs whereas HBV, HIV, HCV, and syphilis are the major infections present in blood donors.

**Conclusion:** Prevalence of TTIs at LOWER rate might be due to strict screening practices and voluntary donation from healthy individuals. This study will help to monitor the quality of blood donation and screening practices and to spread awareness among non-donors for the screening of dangerous infectious diseases.

**Keywords:** Blood transfusion, Transfusions transmittable infections, screening, positive and negative.

## INTRODUCTION

After blood transfusion, blood transmitted infection is the commonest cause of death. All patients on regular packed cell volume (PCV) or any blood component are at increased risk of transfusion transmitted infections. The etiological agents can be virus, bacteria or protozoa. These organisms can persist in recipient as carrier state or can cause asymptomatic infection. Screening procedures are usually performed at blood banks to prevent recipient from such infections.<sup>[1,2]</sup> A high seroprevalence of transfusion transmitted infections (TTIs) in donated blood is the main blood safety issue.<sup>[3]</sup>

Blood Banks are an essential part of each and every hospital with basic purpose for the provision of

blood transfusion services. Blood transfusion services are required in a number of clinical conditions like Anemia (Low amount of blood), Thalassemia (Abnormal production of globin chains of Hemoglobin), Hemophilia (Deficiency of certain blood clotting factors i.e., factor IX) or may be required in gynecological problems e.g., in case of labor, Intrauterine death or when surgery of patient is unavoidable because during surgery there may be some blood loss and to cope up with the blood loss, transfusion of blood or blood products is unavoidable.<sup>[5]</sup> Approximately 90% of individuals infected with HCV are either asymptomatic or have only mild symptoms.<sup>[4,5]</sup> Almost 300 million individuals are infected with HBV, worldwide. Chronic carriers of HBV may have low level viremia and may not have detectable HBsAg level,

so some centers have started testing antibodies against HBV core protein (anti HBC).<sup>[6]</sup> Syphilis is caused by infection with *Treponema pallidum*. It is spread primarily through sexual contact. *T. Pallidum* can also be transmitted by vertical transmission from mother to fetus or through blood if donor is already infected.<sup>[7]</sup> Malaria is an important parasitic infectious disease worldwide, caused by four species of *Plasmodium*, namely *vivax*, *ovale*, *malariae* and *falciparum*. Patients of chronic hemolytic anemia, as of thalassemia are on regular packed RBC's infusion and are at risk for malaria.<sup>[8]</sup> HIV is transmitted through sexual contact, sharing of HIV contaminated needles and/or syringes, transfusion of blood components, The current study involves the analysis of screening of donor's blood to investigate the prevalence of infectious diseases. This analysis will help to adopt better screening practices against high prevalence diseases, also creates awareness of importance of screening among the donors.

## MATERIAL AND METHODS

This Study conducted during 2021 at Govt. medical college, tertiary care hospital of central India involved the healthy human subjects. The persons having age more than 18 years, weight more than 45 Kg and haemoglobin level more than 12.5 gm/dl were included in the study. Those who did not fall

the criteria were excluded from the study. Moreover, written consent forms duly signed by the patients were also taken before the start of the study. All blood donors were thoroughly examined by physician before blood donation and screening. Donors having age less than 18 years, weight less than 45 Kg and haemoglobin level less than 12.5 g/dl were excluded from the study. Before recommendation of donors for blood donation, blood was screened for HCV, HBV, Malaria, HIV and Syphilis by using standard protocols. Patients suffering from any of infections were referred for the necessary treatment.

## RESULTS

Total 4255 blood donors from Govt medical college ,tertiary care hospital of central India were studied and screened for the prevalence of infectious disease. Out of these donors 4000 were males and 255 were females. Among male donors 13 (0.32%) were infected with HBV, 4 (0.1%) with HIV, 1 (0.023%) with HCV, 1 (0.023 %) with syphilis and none of the donors has been infected with malaria. Moreover, none of the donors have more than one infection, so total 19 (0.47 %) male donors were infected with various TTIs. Female blood donors were not infected with HCV, HBV, malaria and HIV and syphilis. [Table 1]

**Table 1: Prevalence of TTI in Donors**

Year 2021	HIV +	HBSAG+	HCV+	VDRL+	MP
4255	4 [0.10%]	13 [0.32% ]	1 [0.023%]	1 [ 0.023 ]%	00

**Table 2: Prevalence of TTI in Male and Female Donors**

Year 2021	HIV+	HBSAG+	HCV+	VDRL +	MP
Male	04	13	01	01	00
Female	00	00	00	00	00

## DISCUSSION

Transfusion Transmitted infections (TTIs) are major issue in Blood transfusion to the recipients of Blood or Blood products. Post transfusion infections are potential risk for the recipients.<sup>[9]</sup> According to World Health Organization's (WHO) recommendation, the screening should be performed for at least five WHO recommended transfusion transmitted infections which include HCV, HIV, HBV, malarial parasite and syphilis. Prevalence of these infectious diseases varies from place to place due to variation in medical practices.<sup>[10]</sup> In current study, prevalence of infectious diseases is seen in males and females blood donors are non infected. This is due to fewer number of blood donation from females.<sup>[13]</sup> more than 90% blood donation is from males. Prevalence of TTIs in blood donors might be due to poor hygienic and health conditions of people

at homes.<sup>[8]</sup> Good health practices ensure the better health conditions and economic status plays a very important role in it. The higher prevalence of HIV and HBV in all blood donors might be linked with poor health practices of people during normal diseases, non-availability of safe sex measures and iv abusers in most of the surrounding areas.<sup>[4,11]</sup>

## CONCLUSION

The prevalence of HIV and HBV in males blood donors might be due to bad health practices adopted by peoples. Prevalence of syphilis among males might be related to improper cleanliness. Consultancy with health specialist during normal diseases may reduce the prevalence of infectious diseases. Ensuring good health facilities at low cost by Government may also reduce the risk factor of these common infectious diseases.

Recommendations: We recommend the government and private organizations involve with blood donation to create the awareness among common people for screening and donation of blood. Also to ensure donation according to international standards and proper treatment of infected persons.

Conflict of Interest: Authors declare that there is no conflict of interest in current study.

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