

Prevalence of Transfusion Transmitted Infections among Blood Donors; a Prospective Study

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ABSTRACT

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.

Methodology: 300 blood donors from Jamila Sultana Foundation Rawalpindi Pakistan, including males and females were screened for the prevalence of five transfusions transmittable infections (TTIs). Donors having age less than 20 years, weight less than 50 Kg and Hemoglobin (Hb) less than 11.8 mg/dl were excluded from the study.

Results: Total 10.8 % males and 10 % females were infected with various TTIs whereas HBV, HCV and syphilis are the major infections present in blood donors.

Conclusion: Prevalence of TTIs at higher rate might be due to poor health practices, low economic values and costly treatment in good hospitals. 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, Syphilis.

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^{1,2}.

Blood Banks are an essential part of each and every hospital with basic purpose of 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 be some blood loss and to cope up with the blood loss transfusion of blood or blood products is unavoidable³.

Approximately 90% of individuals infected with HCV are either asymptomatic or have only mild symptoms^{4,5}. Almost 300 million individuals are infected with HBV, worldwide. Chronic carriers of HBV may have low level viremia and may not have detectable HBs Ag level, so some centers have started testing antibodies against HBV core protein (anti Hbc)⁶.

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 infected⁷. 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 malaria⁸. 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.

MATERIALS AND METHODS

Study involved the human subjects; it was approved by the ethical review committee of the Foundation. The persons having age more than 20 years, weight more than 50 Kg and haemoglobin level more than 11.8 mg/dl were included in the study. Those who did not fall the criteria were excluded from the study. Moreover written consent forms dually 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 50 Kg and haemoglobin level less than 11.8 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 300 blood donors from Jamila Sultana Foundation Rawalpindi were studied and screened for the prevalence of infectious disease. Out of these donors 250 were male and 50 were female. Among male donors 11 (4.4%) were infected with HCV, 7 (2.8%) with HBV, 3 (1.2%) with malaria, 6 (2.4 %) with syphilis and none of the donors has been infected with HIV (Fig. 1). Moreover, none of the donors have more than one infection, so total 27 (10.8 %) male donors were infected with various TTIs. In female blood donors 2 (4%) were infected with HCV, 2 (4%) with HBV, 1 (2%) with malaria and no one with HIV and syphilis

(Fig. 1). Total 5 (10%) female blood donors were infected with some of the disease.

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 recipients⁹. 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 variation in medical practices¹⁰. In current study, prevalence of infectious diseases is almost similar in both males and females blood donors. Prevalence of TTIs in blood donors might be due to poor hygienic and health conditions of people at homes⁸. Existence of syphilis in males might be due to no changing of beddings at common places. Good health practices ensure the better health conditions and economic status plays a very important role in it. The higher prevalence of HCV and HBV in all blood donors might be linked with poor health practices of people during normal diseases and non-availability of pure drinking water in most of the surrounding areas^{3,11}.

CONCLUSION

The prevalence of HCV and HBV in both male and female blood donors might be due to bad health practices adopted by peoples. Prevalence of syphilis among males might be related to common bedding in working places and no proper 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 ensured donation according to international standards and proper treatment of infected persons. Also to ensured the provision of pure water to every person because cure is better than treatment.

Conflict of Interest

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

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