



PREVALANCE OF TRANSFUSION TRANSMITTED INFECTION AMONG DIFFERENT BLOOD GROUPS: A RETROSPECTIVE STUDY

Ravi rani*

Assistant professor, corresponding author, Transfusion medicine department, Moti Lal Nehru medical college Prayagraj, Uttar Pradesh, India. *Corresponding Author

Vatsala Mishra

Professor & Head of department Pathology, Moti Lal Nehru medical college Prayagraj, Uttar Pradesh, India.

ABSTRACT **Aim:** The aim of this study was to find the prevalence and correlation of transfusion transmitted infection (TTI) among various blood groups.

Material & Methods: This was a 5 years record based retrospective study from January 2015 to December 2019 conducted at blood bank of Motilal Nehru medical college Prayagraj, Uttar Pradesh. Total 42316 healthy donors were selected after taking proper medical history and general health examination. Post donation blood was tested for TTI.

Results: Data of 42316 donors were collected in 5 years from records. Seroprevalence was found to be highest for hepatitis B (332) followed by Hepatitis C (43), HIV (12), syphilis (01) and malaria (0). Among blood groups highest number of TTI was found to be associated with O positive.

Conclusion: The present study indicates higher prevalence of Hepatitis B among TTI and strong correlation of blood group O with it.

KEYWORDS : Transfusion transmitted infection, Blood group, Rh system

INTRODUCTION:

Blood transfusion service is vital for every health care system. To ensure safe blood transfusion, blood is tested for certain infections which can be transmitted through blood. (1) Drug controller of India mandates screening of blood for five major transfusion transmitted infection (TTI) namely Hepatitis B, Hepatitis C, HIV, syphilis and malaria. With every blood transfusion there is 1% risk of transfusion associated complications including TTI. (2) Blood Recipient's genetics and environmental factors also play a role in the genesis of disease. (3) It is observed that genetically determined blood group antigens may block binding of causative organism to the cell surface of red blood cell. (4) Non secretors lack these antigens and are particularly at risk of TTI.

MATERIAL AND METHODS:

This is a five years retrospective study. Test for TTI was done using ELISA for HBV, HCV, HIV and rapid diagnostic kit for malaria and syphilis. Total number of donations during this period were 42316. Both voluntary and replacement donors were selected after thorough history taking and general health examination. ABO blood grouping was done by serum (Reverse) grouping using patient serum. Antiglobulin technique was used to confirm Rh negative status of donor. All weak Du groups were considered Rh positive. All the blood units were tested for HIV, HBV, HCV by ELISA and malaria, syphilis test was done by rapid diagnostic kit. Data was analysed by percentage and comparison.

OBSERVATIONS:

Total number of blood donations during this period was 42316 including both voluntary and replacement donors. Male donors were 41,686(98.5%) while female donors were only 630(1.48%). Out of 42316 donors, seroprevalence of TTI was seen in 388 donors (0.9%). 41,372 donors (97.7%) were Rh positive and 944 donors (2.23%) were Rh negative. Among TTI, hepatitis B was observed highest with seroprevalence rate of 332(85.5%) followed by hepatitis C in 43 donors (11%), HIV in 12 donors (2.8%), syphilis in 01 donor (0.25%) while no donors were found to be positive for malaria parasite.

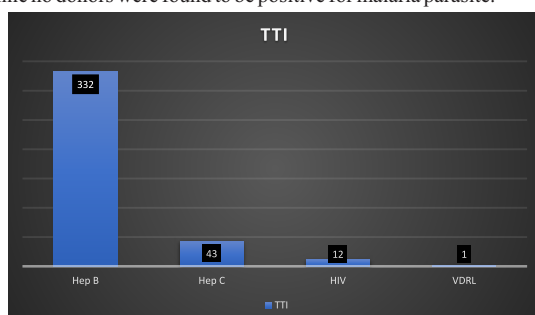


Figure 1: Distribution of TTI

A correlation of blood group with seroprevalence of TTI was done and tabulated. Blood group O positive has maximum association with TTI with 151 cases(38.91%) followed by B positive 131(33.7%), A positive 71(18.2%), AB positive 31(7.98%), B negative 02(0.51%) A and O negative 01(0.25%) while no case of TTI was observed in AB negative blood group.

Table 1: Distribution pattern of TTI among blood group

	O+	B+	A+	AB+	B-	A-	O-	AB-
Hep B	130	116	58	25	02	01	0	0
Hep C	17	12	09	04	0	0	01	0
HIV	03	03	04	02	0	0	0	0
VDRL	01	0	0	0	0	0	0	0
MP	0	0	0	0	0	0	0	0
Total	151	131	71	31	02	01	01	0

DISCUSSION:

Transfusion transmitted infection continues to be a threat to health care in India. So, it is imperative to screen all the donated blood units for these infection.(5)

Out of 42316 blood donations, 388 were found to be positive for TTI. Seroprevalence of TTI was found to be highest among blood group O positive which is in concordance with several studies.(6-8). However Present study is in discordance with studies done by Tyagi et al and Nigam et al who observed that TTI is more common in Rh negative blood group.(9-10) Among TTI seroprevalence of hepatitis B was found to be highest. This could be attributed to the higher prevalence of asymptomatic carriers of Hepatitis B in the community. In India transfusion associated hepatitis B infection is estimated to be approximately 50% or more especially in multiple transfused patients.(11) Hence mere absence of HBsAg does not ensure safe blood donation to the recipient. Routine blood screening for anti Hbc is recommended to reduce the risk of post transfusion HBV infection. (12)

However, this study did not find any significant association of TTI with blood groups.

CONCLUSION:

TTI still continues to be a threat to safe blood transfusion. Hence following measures should be taken to contain it

- 1- More extensive diagnostic tests to pick it up at early stage and to detect even small amount of DNA or RNA.
- 2- Encouragement of voluntary blood donation
- 3- Public should be made aware about general health and hygiene to avoid these infections

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