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Update of Transfusion Transmitted Infections among Donors of North Coastal Andhra

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Abstract
Background: *Blood transfusion service (BTS) is an integral and indispensable part of the healthcare system. Safe blood availability is very important to prevent transfusion transmitted infections (TTI). Highly sensitive screening is an essential aspect of safe blood transfusion.*
Aims and objectives: *This Study was conducted to know the profile of the donors, the incidence of the various TTI among replacement and voluntary donors in a tertiary care hospital and evaluate the safety of the collected donations*
Materials and Methods: *A retrospective review of donors record covering the period between Jan 2013 to Dec 2016 at a tertiary govt hospital was undertaken. A total of 24649 donors blood were screened for HIV, HBsAg, HCV, Syphilis and Malaria.*
Results: *24649 donors were analysed for the prevalence of TTI over a period of 4 years. Among the total donors 45% were voluntary donors and 55% were replacement donors. Incidence of TTI in total donors was 2.75%*
Conclusion: *Efforts should be made to increase the availability of blood mostly though voluntary blood donations. Strict selection of blood donors and high intensive screening of donor's blood is very essential to prevent TTI .*
Keywords: *Voluntary donors, Replacement donor, Transfusion transmitted infection, incidence*

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I. Introduction

Blood transfusion system(BTS)play an integral and indispensable part of a health care system helping to save precious lives. The priority objective of BTS is to ensure adequate safe blood with easy accessability and efficient supply of blood at all levels (1)Blood transfusion is associated with a large number of complications, ranging from minor to potentially life threatening reactions sometimes even death. The most dreadful post transfusion infections mainly have been caused by Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV), Hepatitis C virus (HCV), Treponema Pallidum and Malarial parasites. Prevention of such incidents demands for meticulous pretransfusion testing and screening. Preventing the transmission of infectious diseases through blood transfusion in developing countries is difficult given that the resources required are not always available inspite of hard and clear policies and strategies in place. The chance of transfusion associated problems including TTI is 1% with every unit of blood, (2). Transfusion Transmitted Infections still pose a major concern to patients and physicians. Blood transfusion departments not only screens TTI but also gives clue about the prevalence of these infections in healthy populations (3). The present study was to find out prevalence of transfusion transmitted infections (TTI) in voluntary and replacement donors in a tertiary care hospital blood bank. This study also aids in evaluating the safety of the collected donations

II. Materials And Methods

A retrospective review of donors record covering the period between Jan 2013 to Dec 2016 at a tertiary govt hospital was undertaken. Professional donors were meticulously eliminated by taking elaborate history and clinical examination. All samples were screened for HIV, HBsAg, HCV, Syphilis and Malaria. Serological assays for HIV, HbsAg and HCV were done by manually read ELISA procedure and 3rd generation kits. VDRL tests was done for syphilis. Blood smears of donors were stained with Fields stain for detection malarial parasites.

III. Results

24649 donors were analysed for the prevalence of TTI over a period of 4 years. A total of 45% were voluntary donors and 55% were replacement donors (TABLE 1, FIG 1). Prevalence of TTI in total donors was

2.75% (Table 2, Table 3).Prevalence of Hepatitis B was highest (2.13%) (524) followed by HIV (.37%) (91) & HCV (0.22%) (54).No donors showed positivity for Malaria. Substantial donor selection and screening procedures will help in improving the blood safety. Among the total TTI (678) highest seropositivity was seen for HBsAg (77.28%) followed by HIV (13.40%) HCV (7.96%) (Table 4). No malaria cases were detected.

IV. Discussion

Blood transfusion helps to save over million lives worldwide. Yet it carries with it the risk of transmission of dreadful diseases like TTI to the recipients. In our study of 24649 donors over a period of 4 years. 45 % were voluntary donated blood while the rest 55% were replacement blood unlike studies done by Gupta et al (10) but was in concurrence with earlier studies (4-9) This probably indicates an increased need for awareness among common people to remove any myths regarding blood donation. Widespread use of media including social media should be sent to general public to encourage blood donation. Govt agencies like NACO should be actively involved in this movement.

Overall TTI was seen in 678 cases of the total 24649 donors with a prevalence of 2.5%. Of the entire donors, higher incidence of donation was by males. Hepatitis B was the leading cause among the TTI (77.28%) followed by HIV (13.40%) and HCV (7.96).This was also in concurrence with studies of Hilda fernandes et al (11).Many of the Indian studies show prevalence rates of HIV 0. 51 - 3.87% , HBsAg 1.2-3.5% ,HCV 0.12-4% ,VDRL 0. 03% -0.82%. Our studies showed a seropositivity of 0.37% in HIV, 2.13% in HBsAg, 0.22% HCV and 0.04%VDRL respectively .Difference in infection rates between voluntary and replacement donors have been observed in many earlier studies (12, 13, 14) with increased prevalence in replacement donors. This low prevalence of TTI inspite of an increased replacement blood donor probably resulted in our study from a stern protocol for the criteria to weed out and discourage professional donors and equally strict screening criteria. Concealment of vital facts by donors always pose a threat inspite of all measures taken hence a need of educating public the threats posed by an infected blood to the recipients.

Based on the results it was concluded that there is still a great need to increase the awareness among the general public, to change their attitude towards voluntary blood donation there by help stock the blood banks ultimately with sufficient safe blood from exclusively voluntary donors. Increased intensive screening and adherence to donor criteria is needed to maintain safety of blood donated .Finally the benefits arising from blood donations should also be communicated to the public at large.

Blood transfusion plays a vital role in Medical field saving precious lives. Unfortunately it is also associated with a large number of complications, some quiet minor and while others are potentially life threatening, demanding for intensive pretransfusion testing and screening. The most dreaded post transfusion infections are mainly have been caused by Human Immunodeficiency Virus (HIV), Hepatitis B virus (HBV), Hepatitis C virus (HCV), Treponema Pallidum and Malarial parasites. Preventing the transmission of infectious diseases through blood transfusion in developing countries is quiet difficult due to the limited resources inspite of clear policies and strategies in place. Transfusion Transmitted Infections(TTI) is still a dreaded complications to patients and physicians. A blood transfusion department not only screens TTI but also gives clue about the prevalence of these infections in healthy populations (15). The present study was to find out prevalence of transfusion transmitted infections (TTI) in voluntary and replacement donors in a tertiary care hospital. This study also aids in evaluating the safety of the collected donations

V. Conclusion

Replacement donors should be discouraged with planned ample stock of voluntarily donated blood .Efforts should be increased to increase the availability of blood though voluntary blood donations. In our study Voluntary donors were found to be safer as compared to replacement donors due to adherence to strict rules of donor criteria. Results of this study reflect the prevalence of these infections in the healthy population and warrant steps that should be taken to detect these infections and prevent transmission. It has been observed there is a decreasing trend in incidence of seropositvity of HBsAg, HCV, and Syphilis with a significant difference in Voluntary blood donar (VBD) and replacement blood donar (RBD)..Transmission of TTI during serologically negative window period is still a threat to blood safety. Strict selection of blood donors and high intensive screening of donor's blood for healthy VBD recruitment using standard methods and safe VBD retention strategies are highly recommended to ensure the blood safety with and for strengthening all levels in blood transfusion service.

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Table No 1 Total Donors

YEAR	Voluntary	Replacement	Total
2013	4235	1182	5417
2014	2726	2897	5623
2015	2372	4676	7048
2016	1757	4804	6561
Total	11090	13559	24649

Fig 1 Percentage Of VD And RD

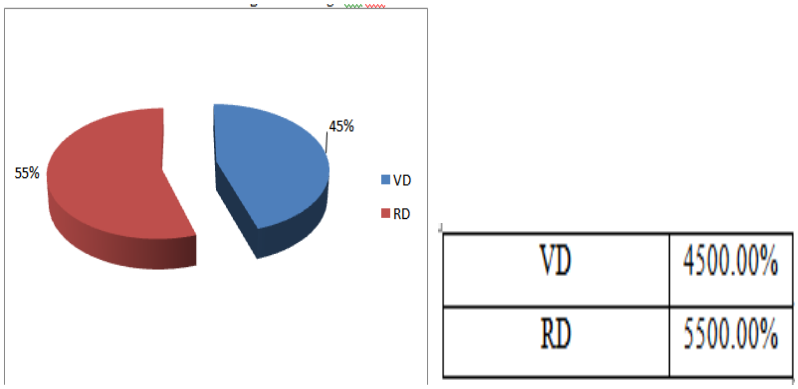

Table 2 Incidence of Various TTI

YEAR	HIV	HBsAG	HCV	VDRL	MALARIA
2013	40	105	15	3	0
2014	12	72	0	3	O
2015	22	198	17	2	O
2016	17	149	22	1	O
TOTAL	91	524	54	9	0

Table 3 Perecentage Of Various TTI In Total Donors

TTI	% OF INCIDENCE IN TOTAL DONORS
HIV	0.37
HBSAG	2.13
HCV	0.22
VDRL	0.04
MALARIA	0

Table 4 Percentage Of Various Infections In Total TTI

TTI	%OF THE TOTAL TTI
HIV	13.4
HBSAG	77.28
HCV	7.96
VDRL	1.32
MALARIA	0

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