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RECIPIENT HEMOVIGILANCE: A RIMS PERSPECTIVE

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Introduction

- Blood transfusion is often considered a double edged sword
- Even though life saving; still not free from risk (side effects)
- Adverse reactions that occur due to transfusion of blood and blood components during or after transfusion are called transfusion reactions[1]
- Infectious/Non-infectious complications
- Non-infectious complications are much more common
- Transfusion-related acute lung injury (TRALI), transfusion-associated circulatory overload (TACO), and hemolytic transfusion reactions (HTRs), now account for significant morbidity and mortality[2]
- As a result of these, many countries have started hemovigilance systems ("Hema"= blood and "vigilance"= paying particular attention to) to collect and assess information on the incidence of these complications and to prevent recurrence[3]
- In India, a centralized program, Hemovigilance Programme of India (HvPI) was started on December 10, 2012[4]
- Integral part of Pharmacovigilance Program of India which scrutinizes, expedite remedial and preventive actions to be taken to improve blood safety
- Department of Transfusion Medicine, RIMS also enrolled in 'HvPI' in July, 2014 and started reporting adverse transfusion reaction from 15/07/2014 onwards.

Objectives

- To analyze the frequency and incidence of adverse transfusion reactions among blood recipients in RIMS, Imphal.

Materials & Methods

- This was a retrospective study, done in the Department of Transfusion Medicine, Regional Institute of Medical Sciences, Imphal from July 2014 to May 2024
- Data was collected from the Transfusion Reaction register maintained in the department to calculate the frequency and incidence of acute transfusion reactions

Results

- During the study period involving 162714 blood components, the incidence of acute transfusion reactions (ATRs) was 168 (0.1%)

Components	No. (n= 162714)	%
Packed Red Cells (PRBC)	**90168**	**55.40**
Fresh Frozen Plasma (FFP)	35712	21.90
Platelet Concentrate (PC)	36297	22.30
Whole Blood	193	0.10
Cryoprecipitate	344	0.20

Table 1: Blood & blood components issued during the study period

Out of 168 total reactions observed, females (63.69%) experienced slightly more reactions than males (36.31%), with the majority of reactions occurring in patients aged 31-40 years (26.80%).

Gender of recipients	No. (n=168)	%
Male	61	36.30
Female	**107**	**63.69**

Table 2: Gender Distribution of Transfusion Reactions

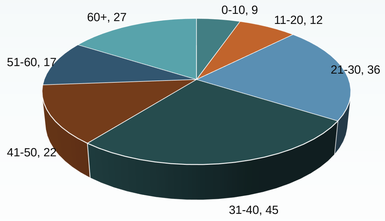

Fig. 1: Age-wise distribution of patients with transfusion reactions

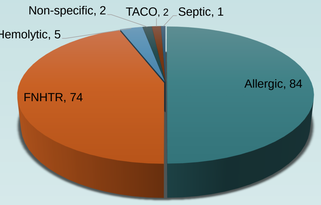

Fig. 2: Different adverse transfusion reactions occurring among the recipients

The most frequent type of reaction encountered was allergic reactions (50%) followed by Febrile Non-Hemolytic Transfusion Reaction (FNHTR) (44%)

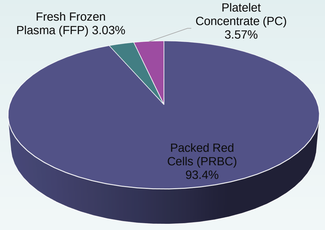

Fig. 3: Transfusion reaction according to type of blood component transfusion

Packed Red Blood Cells (PRBCs) were implicated most commonly in reactions (93.4%), with platelets & fresh frozen plasma (FFP) involved in a smaller number of cases (3.57% & 3.03% respectively).

Discussion

- The frequency of ATRs in the present study was 0.1%
- The majority of reactions were due to PRBC transfusion
- Allergic and FNHTR reactions were the most common Acute transfusion reactions encountered

Sl. No.	Study Done By	Year	Place	Findings		Incidence of Adverse Transfusion Reactions
1	Sinha et al[1]	2016	Maharashtra, India	PRBC>PC>FFP	Allergic>FNHTR	0.2%
2	Prakash et al[2]	2017	Chennai, India	PRBC>PC>FFP	Allergic >FNHTR	0.2%
3	Basavarajegowda et al[3]	2018	Puducherry, India	PRBC>FFP>PC	FNHTR>Allergic	0.15%
4	Saha et al[4]	2019	Kolkata, India	FFP>PRBC>PC	Allergic>FNHTR	0.2%
5	Kar et al[5]	2020	Turkey	PRBC > PC>FFP	Allergic >FNHTR	0.09%
6	Present Study	2024	Imphal, India	PRBC>PC>FFP	Allergic>FNHTR	0.1%

Table 4: Comparative studies on Transfusion Reactions about different blood components & their incidence

Conclusion

- Blood transfusion is an essential part of modern healthcare, however, it always carries potential risks for the recipients and should be prescribed for conditions with significant potential for morbidity & mortality that cannot be prevented or managed by other means
- In our Study we observed that PRBC (93.4%) caused maximum transfusion reactions followed by Platelet concentrates (3.5%), and females are more affected (63%) v/s 37% (males)
- Allergic reactions accounts (50%) of all transfusion reactions tops the list followed by FNHTR (44%)
- This study shows the importance of rational use of blood, adoption of proper bedside practices, documentation of adverse events and implementation of the hemovigilance system
- Hemovigilance system- provides corrective and preventive actions for the continual improvement of the safety of blood

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