

**Original Article**

## **KNOWLEDGE, ATTITUDE AND APPLICATION OF HEMOVIGILANCE BY POSTGRADUATES AND INTERNS IN A TERTIARY CARE HOSPITAL**

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### **ABSTRACT**

**Objective:** This study was conducted to assess the knowledge, attitude and application of hemovigilance by postgraduates and interns in a tertiary care hospital.

**Methods:** A pre-validated questionnaire is used in this cross-sectional investigation. Postgraduates' and interns' Knowledge, Attitude and Practice (KAP) about hemovigilance, potential reasons for under-reporting, and strategies for enhancing transfusion reaction reporting were all intended to be evaluated in this study. The study was carried out over a period of 2 mo and included all the clinical PGs and interns who willingly gave consent.

**Results:** The questionnaire was completed by 243 individuals in total. A mean of 94% of postgraduate students and 92% of interns were familiar with transfusion reactions. Merely 68% of the respondents possessed knowledge of India's Hemovigilance initiative. A total of 90% of participants concurred that it is essential to report adverse transfusion reactions. The idea of hemovigilance should be taught in UG curricula, according to 92% of participants overall. The majority of participants exhibited a favourable attitude towards the idea of hemovigilance. All the participants were willing to report unfavourable transfusion reactions.

**Conclusion:** Although most participants have a good attitude towards reporting transfusion reactions, there is a lack of information about the hemovigilance program and the reporting process. For this reason, our research recommends that reporting procedures be included in undergraduate curricula and that seminars like training programs be held for postgraduates and practitioners.

**Keywords:** Hemovigilance, Transfusion reactions, Interns, Postgraduates, KAP

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### **INTRODUCTION**

Transfusions of blood and blood products are life-saving measures [1]. According to the Drug and Cosmetic Act, blood is classified as a drug [2]. A transfusion reaction is characterised as any transfusion that carries some risk and any adverse event that happens to the patient during or after the transfusion and for which no other explanation can be identified [3].

Hemovigilance is a term used to describe a group of surveillance techniques that encompass the entire blood transfusion chain, from the collection of blood and blood components through transfusion and recipient follow-up. Its goal is to gather, examine and prevent unfavourable events by gathering and analysing data. It aids in the management of the blood transfusion system's quality, offers recommendations for preventive and corrective actions, and enhances the transfusion process safety and blood product quality [4].

The French Blood Agency created Hemovigilance first in 1994 [5]. This system is now adopted worldwide. The World Health Organization estimates that over 118.5 million blood donations are made annually worldwide, while approximately 13,300 blood facilities across 169 nations report receiving 106 million donations in total [6]. The International Health Vigilance Network connects the majority of wealthy nations, including the United Kingdom, Canada, the Netherlands, and Denmark [7]. The well-established Hemovigilance system is deficient in Asian countries. India, through the Hemovigilance Program of India (HvPI) is the second Asian country to be a member of the International Hemovigilance Network (IHN), after Japan. Since reporting adverse transfusion events is not compulsory, India lacks a standardised and effective hemovigilance system [8, 9].

To monitor adverse events related to blood transfusion and the administration of blood products, the HvPI was introduced in

December 2012 in 90 medical colleges under the Pharmacovigilance Program of India [10]. The ultimate goal is to spot any trends and recommend appropriate procedures and actions that will enhance patient safety and care, as well as to advise the relevant authorities on how to change policy [11].

Adverse transfusion responses can range in severity from mild to fatal. Even though a few recent studies have tried to report the prevalence of these adverse reactions in India, the actual situation could be different because transfusion reactions are not frequently reported in India. This is a result of the fact that our medical experts are still in the dark about disclosing these side effects. Furthermore, the fact that hemovigilance report filing is currently optional might be a factor in the underreporting.

Postgraduates and interns participation in hemovigilance programs is thought to be essential for guaranteeing blood transfusions for improved patient outcomes. Thus, the purpose of this study is to assess and investigate Postgraduates' and interns' awareness of the Hemovigilance initiative and the reasons behind their underreporting of hemovigilance.

### **MATERIALS AND METHODS**

A pre-validated questionnaire was used in this cross-sectional investigation. Postgraduates' and interns' knowledge, attitude and practice (KAP) about hemovigilance, potential reasons for underreporting and strategies for enhancing transfusion reaction reporting were all intended to be evaluated in this study. The study was carried out at our institute from June to July 2023, for 2 mo.

The study included all the clinical postgraduates and interns who willingly gave their consent and participated. Those postgraduates and interns who declined to take part in the study were not included. Statistical Package for Social Sciences (SPSS) software was

used to analyse data from the completed questionnaire after data compiling in the Excel sheet.

## RESULTS

The questionnaire was completed by 243 individuals in total. 102 (42%) were post-graduates, and 141 (58%) were interns. A mean of 94% of postgraduate students and 92% of interns were familiar

with transfusion responses. The notion of hemovigilance was understood by 88% of interns and 94% of postgraduates. Merely 68% of the respondents possessed knowledge of India's Hemovigilance initiative. A total of 90% of participants concurred that it is essential to report adverse transfusion reactions. The idea of hemovigilance should be taught in UG curricula, according to 92% of participants overall.

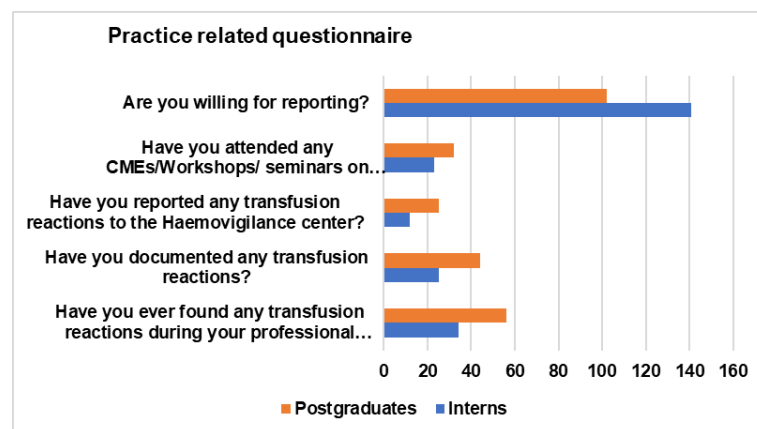
**Table 1: Number of participants who knew hemovigilance (n = 243)**

Knowledge	Interns (N=141)	Postgraduates (N=102)	Total N=243 (%)
Aware of transfusion reactions	130	96	93
Aware of the concept of Hemovigilance	124	94	89.7
Transfusion reactions can be prevented	127	88	88.5
A blood transfusion reaction can be reported	114	83	81.1
Aware of where to report these reactions	97	80	72.83
Know about the Hemovigilance Programme of India	78	87	67.9
Aware of the existence of the Toll-Free number reporting transfusion reactions	56	76	54.3
Know the full form of TRRF*?	67	85	62.55
Know about 3 phases explaining targets of the Hemovigilance programme of India	72	77	61.32
Know Haemo-vigil software	76	67	58.85

\*TRRF-Transfusion Reaction Reporting Form

**Table 2: Response to attitude-based questions**

Attitude		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
Reporting Adverse transfusion reactions is necessary	Interns	101(72%)	21(15%)	10(7%)	9(6%)	0
	Postgraduates	87(85.3%)	10(9.8%)	4(3.9%)	1(1%)	0
Reporting of each transfusion reaction is mandatory.	Interns	77(54.6%)	32(22.8%)	22(15.6%)	10(7%)	0
	Postgraduates	88(62.4%)	12(11.7%)	2(1.9%)	0	0
Every institute should enrol under Hemovigilance	Interns	97(69%)	32(22.5%)	12(8.5%)	0	0
	Postgraduates	89(87.3%)	11(10.8%)	2(1.9%)	0	0
One Hemovigilance Center is enough for a city	Interns	76(54%)	23(16.3%)	22(15.6%)	18(12.7%)	2(1.4%)
	Postgraduates	46(45%)	34(33.3%)	12(11.7%)	10(10%)	0
Reporting of Adverse Transfusion Reactions benefits patients	Interns	88(62.4%)	22(15.6%)	10(7%)	11(8%)	10(7%)
	Postgraduates	67(65.7%)	23(22.5%)	6(5.9%)	6(5.9%)	0
Concept of Hemovigilance should be included in Undergraduate curriculum	Interns	100(71%)	22(15.6%)	19(13.4%)	0	0
	Postgraduates	85(83.3%)	16(15.7%)	1(1%)	0	0



**Fig. 1: Practice-related questionnaire among interns and postgraduates**

**Table 3: Reason for not reporting**

Reason	Interns N=141	Postgraduates N=102	Total (%)
Lack of knowledge where to report, how to report	123	91	214(88)
Lack of time	23	45	68(28)
Lack of incentives	12	18	30(12.3)
I don't find it necessary to report	2	3	5(2)
Legal liability issue	51	31	82(33.7)
Fear of negative effects of report	5	0	5(2)

Table 4: Potential strategies to enhance transfusion response reporting

Potential strategies	Interns N=141	Postgraduates N=102	Total (%)
Should be trained in reporting	86	87	173(86.4)
CME's*/workshop/seminars	123	97	220(90.5)
Making reporting compulsory	132	100	232(95.5)
Keep the availability of transfusion reporting forms in the wards	125	99	224(92)
Make transfusion reaction reporting easier	140	102	242(99.5)
Remuneration of transfusion reaction reporting	56	12	68(28)

\*CME: Continued medical education

The majority of participants exhibited a favourable attitude toward the idea of hemovigilance. About 37% of participants had encountered a transfusion response in the course of their professional activity and all the participants were willing to report unfavourable transfusion reactions.

## DISCUSSION

It is a proven fact that raising healthcare professionals' awareness of transfusion event reporting and hemovigilance, together with their knowledge, attitudes and behaviours, increases the frequency of reporting [12]. Numerous investigations carried out in our nation have verified that healthcare practitioners exhibit inadequate understanding and attitudes regarding hemovigilance [4, 10, 12].

Safety research has shown that near-miss occurrences share similar root causes with transfusion mishaps. Thus, evaluating close calls may produce important data for safety and preventive initiatives [13]. Every step in the transfusion chain should be covered by ideal hemovigilance software to detect, record and look into any occurrences or near-miss events.

The range of a hemovigilance system changes as a result of variations in the reporting spectrum [14]. Standardized nomenclature and definitions are critical to the effectiveness of a hemovigilance system. Accurate classification and analysis of transfusion-related accidents and near-miss occurrences necessitate clear and exact definitions [15]. Based on the results of the current survey; it is clear that participants' inadequate knowledge may be the primary cause of their lack of understanding of the significance of reporting. Only 38.88% of the participants knew of India's transfusion event reporting system, according to Shivgunde *et al.* [12]. Nonetheless, in this study, 87.9% of participants were aware of the transfusion-related adverse event notification system. However, only 15% of patients have notified the hemovigilance centre about transfusion reactions and 88% of participants don't know where to report and how to report.

The primary obstacles to reporting incidents include the worry that mistakes would be used to judge a doctor's skill, the potential for organizational or personal consequences and the potential for error reports to be discovered legally. Medical personnel may suppress critical information for their own security and fear of reprisals, resulting in a lack of detailed information and reporting rates under mandatory and punitive reporting regimes. However, compared to the required systems, optional nonpunitive reporting systems encourage the reporting of near-miss incidents and offer greater details on the contributing reasons for mistakes. Though the hemovigilance system in India relies on voluntary reporting, a significant portion of medical professionals (33.7%) felt legally obligated to report transfusion reactions, which is comparable with other studies [4, 16–18]. Furthermore, many respondents (28%) agreed that the main discouraging factor for reporting transfusion reactions was the considerable amount of time required to complete the notification forms. Similar findings were observed in the study conducted by K. HimaBindu, *et al.* [4] (16.65%), Samaranayaka *et al.* [16] (57.6%) and Chowdhary R. *et al.* [17] where 56% of the respondents stated that lack of time was a limiting factor in reaction reporting.

Regular training sessions for younger physicians and nurses, together with Continued Medical Education (CME), have proven to increase the rates of adverse event reporting [19]. Medical laboratory technologists, nurses, and blood bank medical officers

can attend lectures and other education relating to hemovigilance conducted by the National Blood Transfusion Service (NBTS) teaching unit. NBTS does not currently provide any CME programs for healthcare workers outside of the transfusion medicine discipline. This may be the cause of the majority of doctors' statements (90.5%) that they had never attended training sessions or lectures on transfusion event identification, reporting and treatment.

To further enhance reporting and ensure the efficient operation of the hemovigilance system, hemovigil software was linked to the National Institute of Biologicals (NIB) portal under the direction of the advisory committee for hemovigilance [20]. A nationwide blood policy was created and it was taken into consideration in 2002. The policy recommended that hospitals establish transfusion committees (HTCs) and that the HTC should have the authority to determine the hospital's transfusion policy and to resolve any issues that may arise concerning it [21, 22]. In addition to this, the majority of research participants (95.5%) indicated that reporting should be mandatory.

## LIMITATIONS

One research limitation is that there were more interns than postgraduates among the respondents. The results of the study cannot be generalized because it was conducted at a single tertiary hospital.

## CONCLUSION

Although most of the participants have a good attitude toward reporting transfusion reactions, there is a lack of information about the hemovigilance program and the reporting process, due to which many people have never reported any transfusion reactions. For this reason, our research recommends that reporting procedures be included in undergraduate curricula and that seminars like training programs be held for postgraduates and practitioners.

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## AUTHORS CONTRIBUTIONS

The authors confirm contribution to the paper as follows: study conception and design: Swetha K; data collection: Vishnu K; analysis and interpretation of results: Swetha K; draft manuscript preparation: Swetha K, Vishnu K. All authors reviewed the results and approved the final version of the manuscript.

## CONFLICT OF INTERESTS

Declared none

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