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Assessment of Knowledge, Attitude and Practice of Hemovigilance Among Postgraduates In A Tertiary Care Hospital, Chengalpattu

Dr. Shaki. S[1], Dr. Vishwasrao Sunil Mhatarba[2], Dr. Prathap. B[3], Dr. R. Prem Richardson[*4]

[1]Department of Pharmacology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Chengalpattu, Tamil Nadu.

Email ID: drshakisam@gmail.com, Orchid id:0009-0006-3919-748X

[2]Department of Pharmacology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Chengalpattu, Tamil Nadu

Email ID: sunilpharmac@gmail.com, Orchid id:0000000238120062

[3]Department of Pharmacology, Karpaga Vinayaga Institute of Medical Sciences and Research Centre, Chengalpattu, Tamil Nadu

Email ID: prathap.thap@gmail.com, Orchid id:0000-0002-8579-5847

[*4]Department of Biochemistry, Government Medical College, Thiruvallur, Tamil Nadu.

Email ID: premrichardson@gmail.com, Orchid id:0009-0005-5063-4129

***Corresponding Author:**

Dr. R. Prem Richardson

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ABSTRACT

Background: Blood transfusion is one of the lifesaving procedures that has the potential to cause adverse events. The occurrence of adverse events is up to 1% of overall blood transfusions. As per the available data, 1 in every 19,000 units of red blood cells is transfused to the wrong patient every year, 1 in 76,000 transfusions results in an acute hemolytic reaction, and 1 in 1.8 million units of all transfused red blood cells result in death due to the acute hemolytic reactions.[1]

Aim and Objective: The aim of the study was to assess the knowledge, attitude and practice of hemovigilance among postgraduates in a tertiary care hospital, Chengalpattu.

Material and Methods: A cross-sectional questionnaire-based study was conducted for one month after obtaining approval from the Institutional Ethics Committee. The participants were provided a sheet containing 16 questions pre-validated by the experts. There were 7 questions based on knowledge, 5 on attitude and 4 on practices.

Results: 77 volunteers were enrolled, and their responses were recorded. The response rate was 100%. It has been recorded that 39% had excellent knowledge,7.8% had good knowledge, 28.6% had average knowledge, and 24.7% had poor knowledge towards hemovigilance. It was also reported that 70.1% had excellent attitude,7.8% had good attitude, 6.5% had Average attitude, and 15.6% had poor attitude towards hemovigilance. About practices towards hemovigilance, 27.3% responded to an excellent score, ,23.4% had good practices, 22.1% had average practices, and 27.3% had poor practices.

Expected outcomes: Knowledge, Attitude and Practice about Haemovigilance among postgraduates in a tertiary care hospital.

Keywords: *Blood transfusion, Transfusion Reactions, Adverse reaction, blood products.*

1. INTRODUCTION

As stated by Maiti R, Hemovigilance is defined as a set of surveillance procedures which covers the whole blood transfusion chain from the collection of blood and its components to follow up of its recipients mainly intended to collect and access information on unexpected or undesirable effects caused due to the therapeutic use of labile blood products and to prevent their occurrence and recurrence[2].

Hemovigilance mainly includes monitoring, identification, reporting, investigating and analysis of adverse events or any adverse reactions or near-miss events caused by transfusion and manufacturing of blood products[2]. Thus, hemovigilance is mainly intended to improve the safety of blood transfusion. The term hemovigilance was first used in France in 1990, and then it was developed in 1994 by the French blood agency as a national system of surveillance and alert from blood collection to the follow-up of the recipients. Several countries have implemented Hemovigilance in the last two decades.

In India, National Institute of Biologicals, Uttar Pradesh, in collaboration with the Indian Pharmacopoeia Commission had started a Hemovigilance program of India on 10th December 2012 all over the country under the pharmacovigilance program of India under the Ministry of Health and Family Welfare, Government of India[3]. The main objective is to track adverse reactions or events and incidences related to blood transfusion and its blood product administration, and to recommend the best interventions required to improve patient safety and care[3].

A Hemovigilance software has been developed to collect data from medical colleges and hospitals throughout India[3]. Department of Transfusion Medicine of the respective medical colleges or hospitals has to report with all details and assessment of the transfusion reaction that occurred as per TRRF format, Transfusion Reaction Reporting Form (TRRF) [3].

The TRRF form is then forwarded to national institute of biologicals, Noida, Uttar Pradesh where collection, collation, analysis of data, review completeness, quality checks, through core group hemovigilance and hemovigilance advisory committee which includes signal review panel, core training panel and quality review panel for preparation of SOP, guidance documents and training manuals, training & feedback will be given to technical associate in medical colleges and hospitals[3].

Thus, the hemovigilance program in India analyses and facilitates corrective and preventive measures to minimize potential risks associated with safety and quality in blood transfusion for patients.

2. MATERIALS AND METHODS

It was a cross-sectional questionnaire-based study that was conducted among the postgraduates of Karpaga Vinayaga Institute of Medical Science & Research Centre, Chengalpattu, Tamil Nādu, from December 2023 to February 2024. A total of 77 postgraduates, both male and female, were selected for this study.

Study design: A cross-sectional questionnaire-based study

Study location: This study was done in Karpaga Vinayaga Institute of Medical Sciences & Research Centre, a tertiary care hospital, in Chengalpattu, Tamil Nādu

Study duration: 3 months (December 2023 to February 2024)

Subjects and selection method: The study population was postgraduate doctors of all departments from Karpaga Vinayaga Institute of Medical Sciences & Research Centre.

Study tool: self-structured questionnaire

Validation of Questionnaire:

The faculty from the Department of Pharmacology from KIMS & RC developed the questionnaire with 16 items, comprising 7 questions towards knowledge, 5 questions towards attitude and 4 questions towards practice.

The questionnaire is made up of 2 sections. The first section consists of Demographic data, and the second section consists of the 16 questionnaires about hemovigilance under the 3 domains, such as Knowledge, Attitude, and Practices.

Content Validation of the questionnaire was done by an expert panel, which reviewed the questionnaire and commented on the relevance, clarity and simplicity of the questions.

The reliability was assessed by the Cronbach's alpha value. The Cronbach's alpha of the Questionnaire was 0.726.

A pilot test was conducted for this study with 30 postgraduates to assess the relevance, feasibility, comprehension and clarity of the questionnaire with the 16 items. The pilot study participants were not included in the main study and its analysis.

Inclusion criteria:

1)Participants Aged >18 and <70 years

2)Medical doctors studying postgraduates willing to participate and have given written informed consent.

3)Both the Male and Female population.

Exclusion criteria:

1) Medical doctors are not willing to give written informed consent.

2)Incomplete questionnaire

Sampling Method: Purposive sampling

Sample size with calculation methods:

The proportion of the post-graduates had knowledge about hemovigilance programme was reported as 0.2 by K. Hima Bindu et al (2020) in the recent edition of the IOSR Journal of Dental and Medical Sciences[9]. With this reference and assuming a 95% confidence interval, a 5% absolute precision value, and with the available population size of 120. The minimum required sample size will be 75 ~ 85

$$n = \frac{Z^2_{1-\frac{\alpha}{2}}\, p(1-p)}{d^2}$$

Data collection:

The study was started after approval from the Institutional Ethics Committee (IEC Ref no : KIMS/PG/12/12/2023) in the month of December 2023. Prior to the study, the Objectives and purpose of the study were explained in detailed to the participants and those willing to give written informed consent were enrolled in the study.

- The instrument for data collection was a semi-structured questionnaire developed by the researchers, which consisted of open-ended and closed-ended questions.
- The questionnaire consisted of the knowledge, attitude and practice of hemovigilance.
- The data instrument was earlier reviewed by the experts for face and content validity and final adjustments in structure and language were made thereafter as appropriate.
- The duration of data collection was 1 month.
- The participants were selected by using inclusion and exclusion criteria.
- All the collected data was compared, and an analysis was done.
- The confidentiality of the data was maintained.

Statistical Analysis:

The collected data was entered in Microsoft Excel 2016 and analysed with IBM SPSS Statistics for Windows, Version 29.0.(Armonk, NY: IBM Corp). To describe the data, descriptive statistics, frequency analysis, and percentage analysis were used for categorical variables, and the mean & S.D were used for continuous variables.

3. RESULTS

DEMOGRAPHIC CHARACTERISTICS

A total of 77 postgraduates participated in the study, of which 39 (50.64%) were males and 38 (49.35%) were females. The response rate is 100%.

Table No. 1 : Demographic characteristics

GENDER	N	%
FEMALE	38	49.35
MALE	39	50.64
TOTAL	77	100

TABLE 2: Assessment of Knowledge about the Hemovigilance

Knowledge grade	Frequency	Percent
Excellent	30	39.0
Good	6	7.8
Average	22	28.6

Poor	19	24.7
Total	77	100.0

From table 2, it is evident that 39 % of postgraduates were found to have excellent knowledge, 7.8% had good knowledge, 28.6% had average knowledge, while 24.7% showed poor knowledge about hemovigilance (Table 2 & Figure 1)

FIGURE 1: Assessment of Knowledge about Hemovigilance in Postgraduates

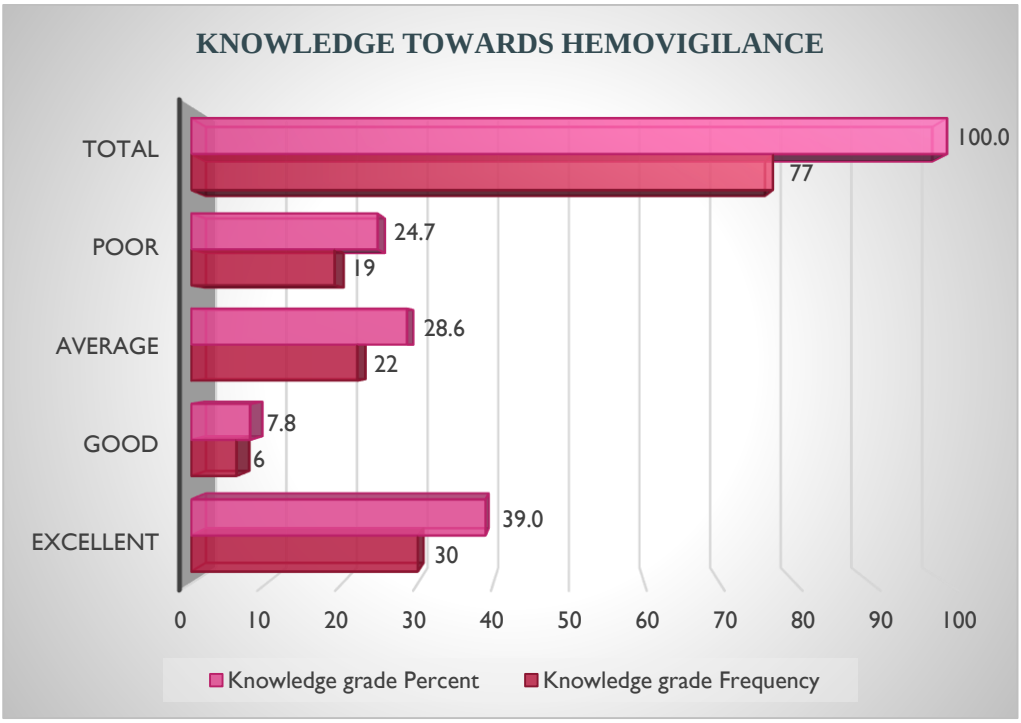


Table 3: Assessment of Attitude of the postgraduates towards Hemovigilance

Attitude grades	Frequency	Percent
Excellent	54	70.1
Good	6	7.8
Average	5	6.5
Poor	12	15.6
Total	77	100.0

It is seen from Table 3 that 15.6 % of postgraduates were found to have excellent attitude,7.8% had good attitude, 6.5% had average attitude and 70.1% had poor attitude towards hemovigilance (Table 3 & Figure 2)

FIGURE 2: Attitude about Hemovigilance in Postgraduates

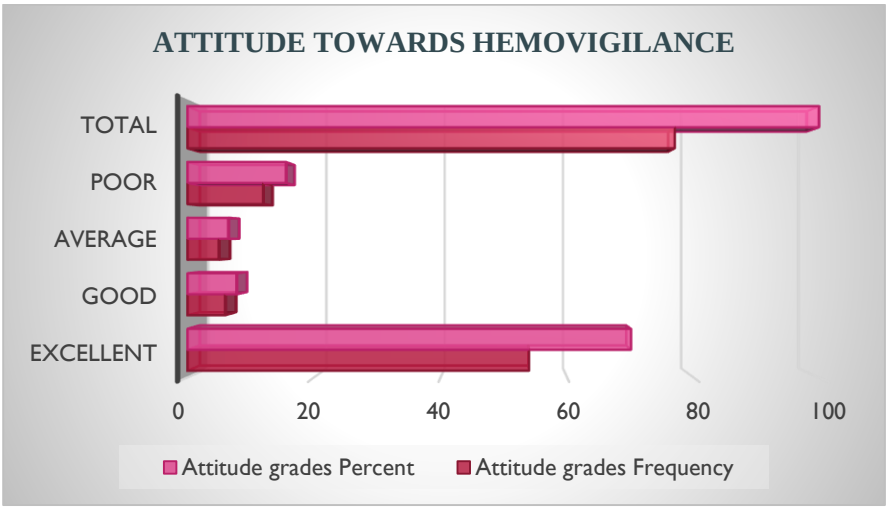


TABLE 4: Practices of Postgraduates Towards Hemovigilance

Practice grades	Frequency	Percent
Excellent	21	27.3
Good	18	23.4
Average	17	22.1
Poor	21	27.3
Total	77	100.0

It is evident from Table 4 that 27.3 % of postgraduates were found to have an excellent practice towards hemovigilance, 23.4% had good practice, 22.1% had average practice, and 27.3% showed poor practices towards hemovigilance (Table 3 & Figure 3)

FIGURE 3: Hemovigilance practices in Postgraduates

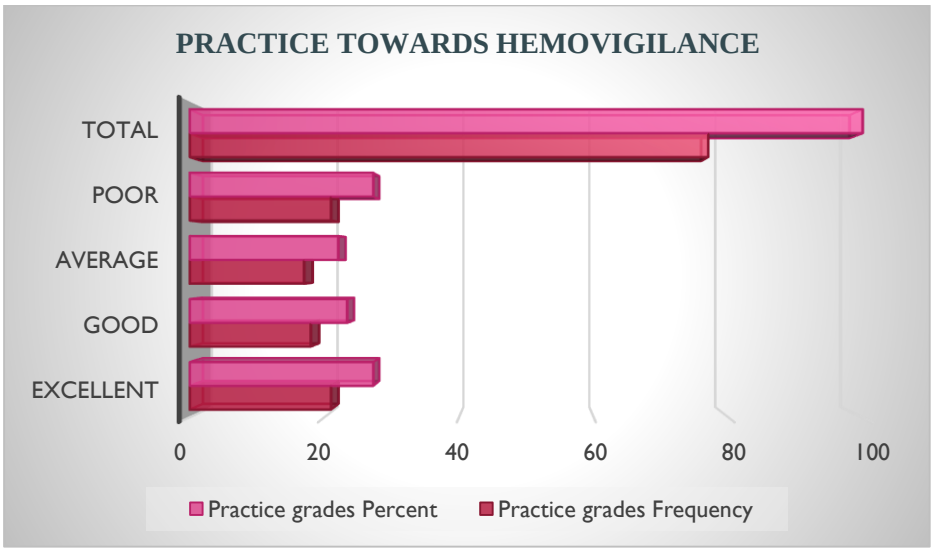
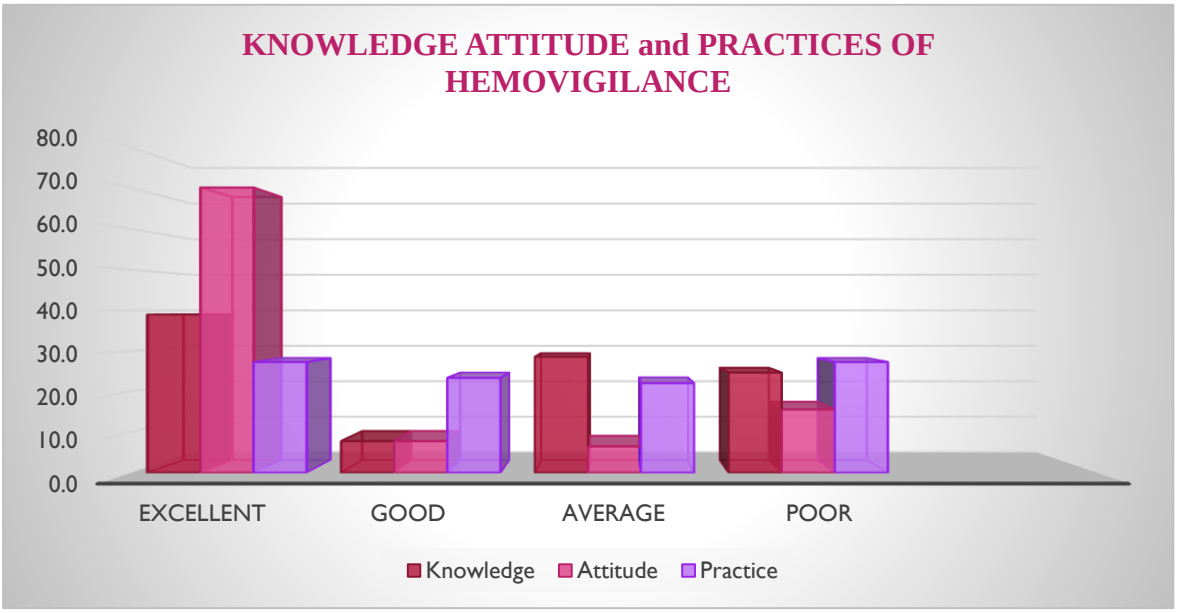


Table 4: Mean, median and Standard deviation

Statistics		Knowledge in %	Attitude in %	Practices in %
N	Valid	77	77	77
Mean		59.0	68.2	64.4
Median		57.1	62.4	80.0
Std. Deviation		34.6	38.3	33.0
IQR		50.0	50.0	60.0
Percentiles	25	35.7	36.0	40.0
	50	57.1	45.0	80.0
	75	85.7	50.0	100.0

FIGURE 5: Knowledge, Attitude, and Practices Towards Hemovigilance Among Postgraduates



4. DISCUSSION

The study aimed to assess the knowledge, attitude and practices (KAP) towards hemovigilance among postgraduates., More than 50 % of individuals have knowledge and attitudes towards pharmacovigilance. The findings are similar to a study conducted by Khandade S, where 59.5% of postgraduates had knowledge about hemovigilance[4]. The response rate was 100 % in our study, Similar studies conducted in by Date A et al., found a response rate of 75%[5] while another study of hemovigilance in South India by Sireesha N et al, a response rate of 59%[6]. Higher response rate in our study could be better priming and sensitization of the postgraduates about the study.

While assessing the attitude of postgraduates in our study, 70.1% had an excellent attitude, signifying a willingness to report blood and blood product-related adverse drug reactions. Similar results were observed in a study conducted by Shivgunde PP et al[7] which showed a positive attitude of the participants towards transfusion reaction reporting. A similar result was seen in a study conducted by Date A et al, which had a much higher positive attitude rate of 81.11%[5].

The present study showed that more than 50% of the participants were following the hemovigilance practices. A study conducted by Syed MA[8] found that more than 70% of the participants followed hemovigilance practices. Despite a good

percentage in hemovigilance practices, there is a need for a hemovigilance training and awareness program. The hemovigilance training for all the postgraduates is a must. If the knowledge is improved, the perception towards reporting blood transfusion reactions will also be enhanced to a great extent, which ultimately leads to an increased practice of reporting towards hemovigilance.

The present study had a few limitations.

The sample size was small, and the study was conducted in a single centre, which may limit the generalizability of the study. All the participants were undergoing postgraduate training, and healthcare workers were not included in the study. Further study with a large sample size involving postgraduates and healthcare workers is recommended.

5. CONCLUSION

The present study showed more than 50% of postgraduates had adequate knowledge, attitude and practice towards hemovigilance, which was optimal. To improve further blood transfusion reporting practices and improve the quality of patient care, continuing medical education programs (CEP), workshops, and seminars need to be conducted regularly. Launching toll-free numbers, mobile applications will support the data collection process and make it more simplified. This will improve the quality of hemovigilance practices.

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