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Knowledge, Attitude and Practice Towards Haemovigilance Among Medical Interns- Future of our health Care System.

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Abstract

Background: Blood transfusions are life-saving interventions and form an essential component of the health care of millions of patients. Haemovigilance Programme of India was launched in 2012 with the purpose to identify, analyse and learn the complications related to transfusion and blood donation, to avoid such complications in future.

Aim and objectives: 1. To assess the knowledge, Attitude, and practices of medical interns about haemovigilance programme.2. Create awareness of haemovigilance among the future doctors of our healthcare system

Material and Methods: 100 medical interns during their training period were selected to assess their knowledge, attitude & practice towards haemovigilance. A questionnaire survey was conducted during the period of internship training course**.**

Results:57%were male and 43% were female interns. Among them 27% were aware about haemovigilance and 73% did not have knowledge about how to report transfusion reaction. Factors discouragingwere50% of them expressed fear of consequences and 50% interns said that due to lack of time they did not report any transfusion reaction. 86% participants opined that interns should be trained in haemovigilance reporting. Conclusion: A proactive approach and use of big data can play an important role in achieving these goals. Additional and sustained efforts should be made to prevent under-reporting of events and to improve data comparability through clear definitions and grading systems.

Keywords: Haemovigilance, Adverse reaction, Knowledge, Blood safety Practice.

Introduction

Haemovigilance is defined by the International Haemovigilance Network (IHN) as "A set of surveillance procedures, includes the whole transfusion chain, from the collection of blood and its components to the follow-up of recipients, intended to collect and assess information on unexpected or undesirable effects resulting from the therapeutic use of labile blood products, and to prevent their occurrence or recurrence".1 Since its emergence in the early 1990s, hemovigilance safety concept focused on surveillance of adverse reactions and events in patients, to a well-defined system that monitors the entire transfusion chain and improves its safety. The importance of hemovigilance has been recognized globally in a relatively short time, but the level of its implementation varies significantly between countries. Initiatives taken towards the safety of transfusion practice has improved in many segments, primarily related to the risks of adverse events in recipients of blood components. As the transfusion practice has changed, the hemovigilance process has also matured. It is also a continuous process of data collection and analysis of blood transfusion related adverse reactions to investigate their cause and outcome and prevent their occurrence or recurrence.[2-5] Haemovigilance gives insight into the current ongoing practices and helps in identifying areas for improvement and standardization. Education of technical staff, resident doctors, and interns in the handling, administration, and storage of blood components is of paramount importance. Training in proper storage &recognizing signs and symptoms of transfusion reactions will help in diagnosing and reporting of more transfusion reactions. Strict adherence to the blood center standard operating procedure by technical staff will be helpful in reducing newer events such as ABO incompatibility HTR.[4-6] Since the launch of

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haemovigilance programme, though there is a continuous increase in Blood centre participation in the program, it remains alarming need of the hour to increase the awareness regarding reporting of haemovigilance as a step towards safe blood transfusion and patient safety.[7]The blood transfusion process is a full of risky operations. The quality of blood and its components get affected by contamination from the external factors and errors. Incorrect and infected blood transfusion may cause harmful effects to the patients with life-threatening diseases or sometimes even death. Most haemovigilance systems in western world are outcome of co-operation of International Haemovigilance Network (IHN) and International Society on Blood transfusion (ISBT).[8]In hospital training, especially for medical interns before embarking upon their career, they need to be made aware of transfusion risks. Transmission of serious blood-borne infections and potentially fatal immunologic and non-immunologic reactions are to be taught to them. They should have a thorough knowledge of pathophysiology of transfusion reactions and presenting symptoms. They must learn management of transfusion reactions and safety. The recent SARS-Cov-2 pandemic and possible effects on donor blood and the patients receiving blood can only be solved by haemovigilance. Various questions include, do patients with active or clinically resolved COVID-19 infection show a different vulnerability to TACO or to TRALI from patients without COVID-19 infection in their medical history? Do donors who have recently recovered covid-19 or those vaccinated with covid-19 vaccine show more cytokine levels and put recipients at more risk of transfusion reactions? Haemovigilance-related studies in specific patient groups can yield additional learning on risks, mitigation and help to optimise transfusion practice in these groups.[9] Haemovigilance has a fundamental role in the quality systems of the transfusion chain and is a relevant factor in data-driven changes in transfusion practice. Learning from adverse events forms the basis. Haemovigilance contributes to the identification of risk factors for adverse reactions enabling subsequent measures preventing morbidity and mortality.[9] Further developments are needed with progressing time. In low-resource settings there are challenges to establish the haemovigilance system, international harmonisation, and the prevention of underreporting. Again, the causal relationship between the transfusion and the reaction is often unclear. New biomarkers may help in the imputability. Assessment and their role in the diagnosis of transfusion reactions needs to be further investigated. This is era of automated reporting, the use of big data and increased shareability of international data, contributing to a better understanding of the causal mechanisms and risk factors, towards prevention of adverse events. Haemovigilance is an evolving discipline and will continue to contribute to improving the safety of blood donation and transfusion.[10] Aim of this research was to assess the knowledge of reporting of adverse reactions of blood-transfusion complications among medical interns before they embark upon their career as a physician/surgeon in real world. Objectives were to assess the basic knowledge, Attitude, and practice of medical interns about haemovigillance programme and to create awareness among these future physicians of our healthcare system.

Material and Methods

This study included 100 medical interns at Prakash institute of medical sciences &research hospital at Urun-Islampur, Maharashtra. The study period was from May 2022 to December 2022. During their internship training, data was collected using pre-validated questionnaire. Questionnaire emphasized on checking knowledge, attitude, and practice of medical Interns towards haemovigilance. Data was analysed using SPSS software version 22 and results are presented in the form of percentages in tables. Ethical clearance was obtained from the IEC.

Results

A total of 100 participants were involved in the study, majority were in the age-group of 22-25 years and male (57%). Despite historical gender bias against female physicians, few studies have investigated patients' physician gender preference in the emergency department (ED) setting.[11] Achievement of women in academic emergency medicine lags that of men. Findings in this mirror those of most medical specialties: women in academic EM are less likely to hold major leadership position.[11]Resident knowledge of transfusion medicine studied elsewhere in prior published papers found less awareness of knowledge of adverse transfusion reactions. Table 1 shows results of knowledge of various aspects of haemovigilance; majority of interns were unaware about haemovigilance (73%). Only about 23% had attended seminar/workshop on haemovigilance. About 70% have knowledge about transfusion reactions and 30% do not have knowledge about transfusion reactions. About 61% have the knowledge about patient preparation required before the blood collection and 39% did not have knowledge. 75% have knowledge about storage of the blood. Only half of interns have knowledge about privacy and security of data sent through haemovigilance. Only Seven percent have knowledge about haemovigil software. Only a quarter of interns have knowledge on how to report transfusion blood related adverse events. About 62% have knowledge about risks to donors caused during blood transfusion. Nearly half (47%) have knowledge about the form which is used to report haemovigilance.

Table 1: Knowledge on haemovigilance among medical interns (n=100)

Sr No.	Knowledge of haemovigilance	Yes (%)	No (%)

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1	Awareness about haemovigillance	27	73
2	Seminar /workshops attended on haemovigillance	23	77
3	Knowledge about transfusion reactions	70	30
4	Knowledge about patient's preparation before issue of blood unite from blood centre	61	39
5	Knowledge about issued blood bag storage that is going to be infused.	75	25
6	Knowledge about privacy & security of data sent through haemovigillance	50	50
7	Knowledge about haemovigilance software	7	93
8	Knowledge about how to report adverse transfusion reactions	26	74
9	Knowledge on risk to donors caused during blood withdrawal	62	38
10	Knowledge on donors & recipient adverse reaction forms to be filled towards haemovigillance	47	53

Table: 2 shows attitude of interns towards various aspects of haemovigilance. It shows that 88% strongly agree that the blood transfusion is useful in Health conditions, while 2% disagree on this. Nearly 91% agree that blood transfusion poses risk to patients. About 95% of interns felt reporting of transfusion reactions is essential and 94% felt that reporting transfusion reactions has benefits for patients.

Table 2: Attitude towards haemovigilance among medical interns (n=100)

Sr no.	Statement	Strongly agree (%)	Agree (%)	Strongly disagree (%)	Disagree (%)	Un-Decided (%)
1	Blood transfusion useful in health conditions.	88	10	0	2	0
2	Blood transfusion is a risk to patient.	38	53	7	1	1
3	Reporting of blood transfusion reactions essential.	56	39	2	2	1
4	Transfusion reaction reporting has benefits for patients.	64	30	0	3	3

Table 3: Practice of haemovigilance among medical interns(n=100)

Sr no.	Question	Yes (%)	No (%)
1	Have you documented/or notified any transfusion reaction during training?	17	83
2	Have you pricked yourself with needle during blood collection?	28	72
3	Have you suspected any donor which has been tested for HIV?	1	99
4	Have faced issuing wrong blood group bag &noticed after few hours?	2	98
5	Have you faced situations to discard blood bags due to other issues in ward.	4	96

Table: 3 shows practice of hemovigilance among medical Interns. Only 17% of interns documented a transfusion reaction, and slightly more than a quarter (28%) reported needle injury while collecting blood. About 2% interns reported situations like giving wrong blood group bag to patient in a ward and noticed it next day. About 4% faced ward staff returning the blood due to transfusion reactions.

Table 4: Factors discouraging reporting of transfusion reactions according to medical interns (n=100)

Sr. no.	Factors	%
1	Lack of knowledge on how and where to report.	79
2	Only blood bank reports	54

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3	Lack of time to report	89
4	Legal liability issues	58
5	Concern that report may be wrong	45
6	No remuneration for reporting	23

Table: 4 shows factors discouraging reporting of transfusion reactions according to medical interns. About 79% expressed lack of knowledge on how and where to report transfusion reactions, the main discouraging factor. About 89% felt lack of time a discouraging factor. Other discouraging factors were legal liabilities/ issues (58%), fear that reporting may be wrong (45%), and no remuneration for reporting (23%).

Discussion

Since its emergence in the early 1990s, haemovigilance is well planned system for controlling, identifying, reporting, investigating, and analysing adverse events and reactions related to transfusion and manufacturing blood products. The importance of haemovigilance need co-operation of international organizations & their contribution to the promotion, implementation, and education in this field. In parallel with changing transfusion practice, the haemovigilance process has also matured in its safety by reducing adverse reactions & its management plans in cases of such minor or major adverse reactions. Research in haemovigilance is more increasingly focused on specific categories of patients, specific blood components and methods of their preparation, rare reactions, and transfusion efficacy and efficiency.[9]Objectives of reporting adverse reactions in transfusion in National Haemovigilance Programme of India are[12] 1. Reporting is a tool for obtaining information. 2. A national reporting system which can be regarded as a measure of advance public policy relating to patient safety. 3. Reporting can determine hazards and risks and provide information as to where the system is at fault. 4. This can help to reduce the probability of injury to future patients. 5. Prompt reporting facilitates effective risk management. Haemovigilance programs, usually face curtailed reporting of severe adverse transfusion reactions. Symptoms of transfusion reactions are often non-specific and delayed symptoms of adverse events in many sick patients may be difficult to recognize. Underreporting decreases the accuracy of the data and leads to underestimation of the true incidence of transfusion reactions.[13]It is well recognized that active reporting, characterized by the evaluation of the response to a transfusion regardless of the outcome, leads to increased reporting rates.[14-15] In a large study, transfusion reactions noted in the active surveillance did not match with the those reported to the transfusion medicine department.[16] Most haemovigilance systems however, rely on passive reporting. Incorporating elements of active surveillance in passive systems, for example through the application of wearable devices,[17]may improve reporting. Algorithms to actively screen electronic medical records for signs of transfusion reactions may be of value to extract relevant data,[18] and automated electronic surveillance need to be widely implemented. In present study most of the medical interns have a positive attitude towards transfusion reaction reporting but the knowledge regarding the haemovigilance concept was poor and most of them were unable to report adverse transfusion reactions. Continued training programs on basic transfusion reactions and their reporting to strengthen at the start of the internship will help strengthen haemovigilance system to capture severe adverse transfusion reactions.

Conclusion

Looking at the results obtained in the present study, it is realized that there are gaps to be addressed in the knowledge and practice of interns for handling and reporting of blood transfusion reactions. The current medical educational program for transfusion medicine is inadequate. We propose a more comprehensive educational program inclusive of haemovigillance knowledge, covering both theoretical and practical aspects of it, in conjunction with several workshops during internship and after graduation. Also sustained efforts should be made to prevent underreporting of events and to improve data comparability through clear definitions and grading systems.

Conflict Of Interest: None.

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