KNOWLEDGE, ATTITUDE AND PRACTICE ABOUT PRE-ANALYTIC ERRORS OF BLOOD TRANSFUSION AMONG INTERNS

ABSTRACT:

AIM: To evaluate knowledge, attitude and practice about pre-analytic errors among interns.This elicits the efficiency of interns on the basis of knowledge, attitude and practice in blood transfusion and to analyse about the pre-analytic errors in blood transfusion.

STUDY DESIGN: A cross sectional study

PLACE AND DURATION OF STUDY: Department of Transfusion Medicine, Saveetha Medical College Sriperumbudur, between January 2020 to August 2020.

METHODOLOGY: The prospective study on the pre-analytical errors of interns will be done by distributing online questionnaire. From the questionnaire the interpretation of pre-analytical errors will be analysed statistically.

RESULT: A total of 150 interns in a Tertiary care teaching hospital were given the online questionnaire containing questions regarding pre-analytical errors of transfusion of blood components, in which 136 interns responded and 14 were not responded and this study showed lower frequency of incidents in pre-analytic errors.

CONCLUSION: Though the pre analytic errors were less, the lack of knowledge of the medical staff in transfusion is obvious. We must therefore have the possibility of organizing regular training and follow-up activities.

KEYWORDS:*Blood transfusion, pre-analytic errors, prevalence*

INTRODUCTION:

Blood transfusion is the process of transferring of blood or blood products from one individual (donor) into another individual's bloodstream recipient[1].This life saving procedure can replace one's blood loss following a surgery or injury. Before transfusing the blood, pre-analytic tests called ABO compatibility and RhD compatibility are done between thedonorand the recipient. Transfusion transmitted infections Screening is also done for the donor's blood sample. Improper compatibility and screening testmay lead to incompatible blood transfusion causing severe hemolytic disease which at times leads to fatal consequences and infectious blood transfusion causing disease[2, 3].

Blood transfusion errors occurs due toinfusing incorrect blood to a patient due to misidentification of patients[4], wrong labeling of blood bags can cause adverse reactions[4], errors in compatibility testing can cause hemolytic reactions,antibodies present in donor blood are against recipient antigens causing antigen antibody reactions, transfusing infectious blood due to improper screening of blood which contains infectious agents like HIV,hepatitis B and C[5],infusion of large amount of blood can cause iron overload,storage of blood at incorrect temperatures can cause adverse reactionsetc.

Policies and guidelines related to blood transfusion have been established by increasing safety procedures in transfusing blood and preventing the side effects triggered by incompatible blood transfusion. Much attention must be paid to safety of blood products prior to transfusion rather than the actual blood transfusion process[6].

METHODOLOGY:

The prospective study on the pre-analytical errors of actual transfusion of blood components was conducted by distributing online questionnaire among the interns of tertiary care teaching hospital during January to August 2020. From the responses collected, the data for interpretation of pre-analytical errors will be analyzed statistically.

RESULTS:

A total of 150 internsin a Tertiarycare teaching hospital were given the questionnaire containing questions regarding pre-analytical errors of transfusion of blood components, in which 136 interns responded and 14 were not responded. [Fig 1] The significant findings of the pre-analytical errors of blood transfusion are: 105 [77.8%] of the interns were aware of the blood transfusion manual guidelines and remaining 31[22.2%] were unaware of it. 116[85.9%]of the interns stated that the blood components have to be transfused within 30mins from the time of issue, remaining 29[14.1%] stated blood has to be transfused with in 1hour. 122 [90.3%] of the interns stated that transfusion time should be completed within 4hrs for packed red blood cell and 14[9.7%] interns stated that transfusion should be completed within 6hrs. 109[80.1%] of the interns stated that the request generation was granted by resident doctor for blood transfusion, remaining 27[19.9%] from faculty.

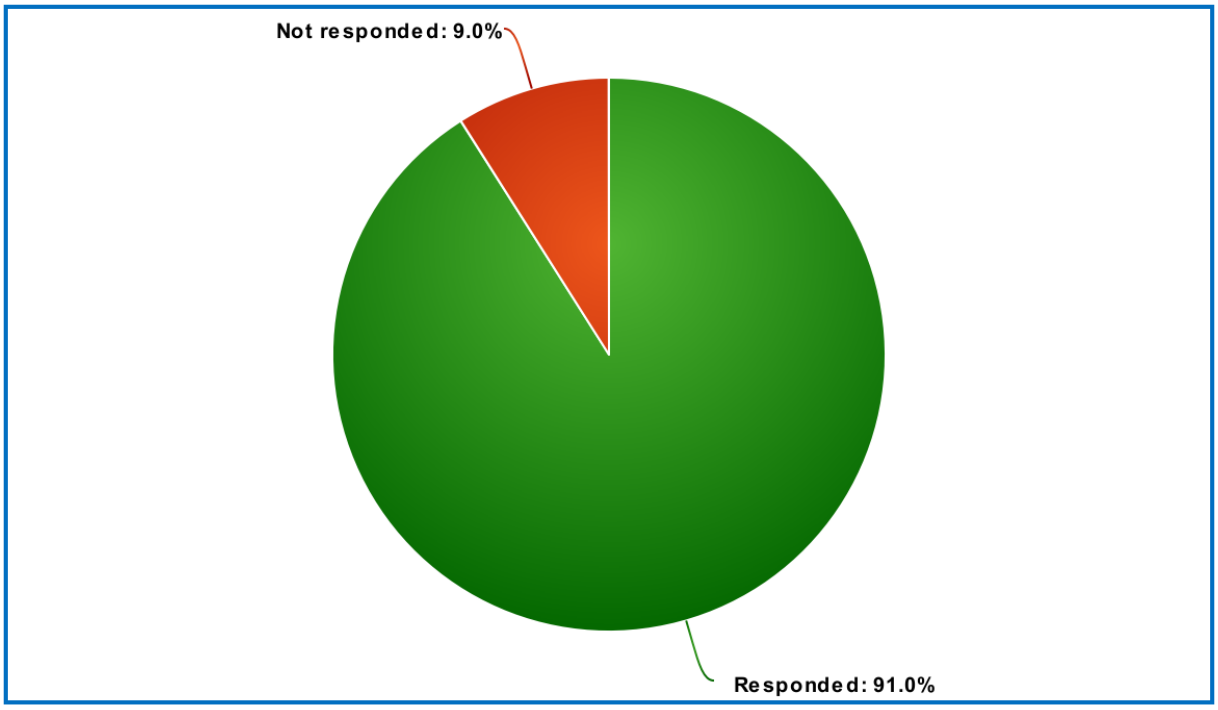

Fig: 1 Survey Respondents

Around 103 [76%] of the interns stated labeling should be done at bedside for collecting bloodsample, 26 [19.5%] of the interns stated labeling should be done at nursing counter and then sample should be

collected at bedside, 7 [4.5%] of the interns stated sample should be collected first and then labeling should be done at nursing counter. 24[18.4%] of the internsstated blood sample should be collected in EDTA and remaining 110[81.6%]stated as Plain and EDTA.

132[97.1%] of the internswere aware of checking compatibility report of bloodbag but remaining 4[2.9%]wasn't aware of checking compatibility report.

Regarding test tube labeling 99 [73.5%]of the interns stated that both name and hospital registration number of the patient is necessary and 37[26.5%] opted for only hospital number.

126[92.8%]of the interns stated comparingthe patients identification with patients hospital armband and compatibility report along with blood group is necessary before transfusion but10[7.2%]opted only for blood group and name.

135[99.3%]of the interns were aware of signs of acute transfusion reaction and only 1[0.7%] were unaware of signs of acute transfusion reaction.

DISCUSSION:

The role of blood transfusion is significantly effective but at the same time it could be a life-threatening risk. This study was conducted to know about the awareness of knowledge, attitude and practice of the blood transfusion procedures among the interns. It was conducted in a Tertiary care hospital by distributing online questionnaire to 150 interns.This study showed lower frequency of incidents in pre-analytic errors (mistakes in bedside transfusion and verification of blood) which was similar to theresults given by the article ***a survey of bloodtransfusion errors in aichi prefecture in japan*** published in the year ***2020*** by the author ***Masaki Ri***[4] . Generation of request by the resident doctors showed similar results to that of the article***knowledge, attitudes and practices of medical and paramedical staff in blood transfusion in the democratic republic of congo*** published in the year ***2014*** by the author ***Kabinda***[5] and results in labeling the test tube by both name and hospital registration number is same asthe article ***assessment of bedside transfusion practices at a tertiary care center*** published in the year ***2018*** by the author ***Khetan D***[11]. Results revealed in the compatibility error was unique as compared

to both the article ***transfusion errors: causes and effects*** published in the year ***1994*** by the author ***Linden***[20]and in the article ***errors in blood transfusion in britain: survey of hospital haematology departments*** published in the year ***1994*** by the author ***Mc Clelland***[2].

CONCLUSION:

In this study, low prevalence of pre-analytical errors was observed in all thestages. But those errors during patient identification and sample collection are correctable. Blood bank should record all the errors being committedmistakes and provide education and trainingwith appropriate transfusion procedures to prevent those errors and ensure safety of blood transfusion.

CONSENT:

Online consent form obtained.

ETHICAL APPROVAL:

Ethical approval obtained.

REFERENCES:

1. Linden, J., Paul, B. and Dressler, K. A report of 104 transfusion errors in New York State. Transfusion, 1992:32(7), pp.601-606
2. McClelland D, Phillips P. Errors in blood transfusion in Britain: survey of hospital haematology departments. BMJ. 1994;308(6938):1205-1206.
3. Murphy, W. and McClelland, D., 1989. Deceptively Low Morbidity from Failure to Practice Safe Blood Transfusion: An Analysis of Serious Blood Transfusion Errors. VoxSanguinis, 57(1), pp.59-62.

4. Ri, M., Kasai, M., Kohno, A., Kondo, M., Sawa, M., Kinoshita, T., Sugiura, I., Miura, Y., Yamamoto, K., Saito, T., Ozawa, Y., Matsushita, T. and Kato, H., 2020. A survey of blood transfusion errors in Aichi Prefecture in Japan: Identifying major lapses threatening the safety of transfusion recipients. Transfusion and Apheresis Science, 59(3), p.102735.
5. Kabinda, J., Miyanga, S., Donnen, P., Ende, J. and Dramaix, M., 2020. Knowledge, Attitudes And Practices Of Medical And Paramedical Staff In Blood Transfusion In The Democratic Republic Of Congo.
6. Wautier, J., 2020. Les Bases Scientifiques De La Formation EnMédecineTransfusionnelle.
7. Pillonel, J. and Laperche, S., 2020. RisqueRésiduel De Transmission Du VIH, Du VHC Et Du VHB Par Transfusion Sanguine Entre 1992 Et 2002 En France Et Impact Du DépistageGénomique Viral.
8. Letaief, M., Hassine, M., Bejia, I., Ben Romdhane, F., Ben Salem, K. and Soltani, M., 2020. Connaissances Et Pratiques Du Personnel SoignantEnMatière De SécuritéTransfusionnelle.
9. Mounic, V., Homs, J., Ledeon, V., Hamlin, P. and Loriferne, J., 2020. ProgrammeD'amélioration De La QualitéEnSécuritéTransfusionnelle.
10. Diakité, M., Diawara, S., TchiengouaTchogang, N., Fofana, D., Diakité, S., Doumbia, S., Traoré, K., Konaté, D., Doumbouya, M., Keita, A., Famanta, A., Baby, M., Doumbia, S., Traoré, S. and Tounkara, A., 2020. Connaissances Et Attitudes Du Personnel MédicalEnMatière De Transfusion Sanguine Au Mali.
11. Khetan, D., Katharia, R., Pandey, H., Chaudhary, R., Harsvardhan, R., Pandey, H. and Sonkar, A., 2020. Assessment Of Bedside Transfusion Practices At A Tertiary Care Center: A Step Closer To Controlling The Chaos.
12. Hergon, E., Moutel, G., Duchange, N., Bellier, L., Hervé, C. and Rouger, P., 2020. Le Principe De Précaution Appliqué À La Transfusion Sanguine : Quel Impact Sur Les Pratiques Et La Gestion Des Risques
13. Karni, K., 1991. Educating medical technologists to minimize errors in blood banking. Transfusion, 31(4), pp.290-292.
14. Mostert, J., 1968. Errors in Blood Transfusion. BMJ, 1(5587), pp.317-317.

15. Report shows rise in preventable errors during blood transfusion. BMJ. 2013;347(jul18 2):f4621-f4621.
16. Das S, Chakrabarty R, Zaman R. Monitoring errors in a blood bank immunohematology laboratory: Implementing strategies for safe blood transfusion. Global Journal of Transfusion Medicine. 2017;2(2):118.
17. Lippi G, Plebani M. Identification errors in the blood transfusion laboratory: A still relevant issue for patient safety. Transfusion and Apheresis Science. 2011;44(2):231-233.
18. Osborn, D., 1968. Errors in blood transfusion. BMJ, 1(5590), pp.515-515.
19. Healy P. Blood transfusion errors are still on the increase. Nursing Standard. 2001;15(31):6-6.
20. Linden J, Kaplan H. Transfusion Errors: Causes and Effects. Transfusion Medicine Reviews. 1994;8(3):169-183.