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Near-Miss events in Blood Centre at a tertiary care Hospital, North India : "Near Hit or Narrow Escape"

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Abstract

Introduction : A near miss event in transfusion practice is defined as a deviation from standard procedures discovered before transfusion that could have lead to a transfusion error but did not.

Case report : Two cases were reported. One was of the missampling and mislabelling and another was of the mishandling of the blood which if transfused could have endangered the life of the patient.

Conclusion : A joint effort involving both the clinical and blood centre are necessary to improve transfusion safety. Information on near-miss events provides pivotal data on areas of improvement to prevent actual errors in the future.

Keywords : Near miss, endangered, mislabelling, mishandling, missampling

Introduction

Blood transfusion is a cornerstone of modern medical practice essential in almost every field of clinical practice, it is the necessary adjunct to modern and emerging Medicare.[1,2,3] The transfusion of blood or blood components must be ordered and administered safely and appropriately. Transfusion is more than a single discrete event—it is a process.[4] The transfusion chain begins with donor considerations. Once blood is collected, the safety of the blood product is a focus of activity. The end-point of the transfusion process involves recipient considerations (proper identification of the unit and the patient, appropriateness of blood as the best treatment modality, administration of the unit and evaluation of the recipient).[4]

A Near-Miss event is defined as any error that has occurred but did not cause any adverse event as it was detected prior to blood transfusion. Although near-miss events are not actual errors of transfusion, reporting and investigation of near-miss events are vital in detecting steps and factors that have high chances of causing actual transfusion errors.[5] Doctors and paramedical staffs were among the most common professionals associated with near-miss incidents in transfusion medicine in several international studies.[6] Analyzing and identifying other possible factors associated with near-miss events amongst doctors and staff nurses can further improve blood transfusion practice safety. Information on which step of the transfusion process that errors frequently occur and the typical location for potential errors can be obtained. Common risk factors or causes of near misses will help to determine appropriate corrective and preventive actions to ensure transfusion safety.[7]

Here we report the cases of Near -miss events in transfusion practice in Department of Immuonhematology and blood transfusion (Blood Centre) at Tertiary Care Hospital, Patiala. This information can help us to plan for future interventions and implement proper corrective action with the main objective of having zero transfusion error in our hospital.

Case Report :

Case 1 : Received a request of blood from patient with Osteoarthritis of bilateral knee admitted at Mata Kaushalya Hospital (MKH) Patiala on 2-5-2023 at 5.00 pm for preoperative blood transfusion. After

blood grouping and compatibility tests at blood centre, Rajindra Hospital Patiala, the patient was issued blood with DP No. 4236, B positive at 6.10 pm. After 1 hr, the blood bag with DP No. C-4017, O positive along with cross match slip showing DP No. 4236, B positive was returned back with allegation on the blood center that mismatch/wrong blood had been issued.

After surveillance of all the numbering and issue register of the serology lab and blood store, it was found that blood bag with DP No. C-4017, O positive was issued to blood storage centre of MKH 10 days back. It was further found that blood bag with DP No. C-4017 was issued to Obs/Gynae patient at MKH 3 days back by the storage centre of MKH but blood was not transfused to the patient.

On further enquiry, it was found that unused blood bag was not returned back to storage centre of MKH but was kept in the refrigerator of emergency ward. The emergency staff on duty exchanged the bags of two patients kept in the refrigerator and returned the wrong blood bag to the blood centre. So, it was concluded that due to the mishandling of blood bags by doctor and nursing staff in emergency ward, wrong/mismatched blood could have been transfused to the patient which would have been life threatening.

Case 2 : Received 2 ml of blood sample in EDTA vacutainer named Lal Singh without CR No. along with requisition form of patient named Ranjit Kaur, CR No. 109364. Junior resident of Medicine Department was asked to check and correct the name and CR No. on the vacutainer as well as requisition form by doctor on duty in blood centre. Resident doctor of Medicine Department cut the name Lal Singh on blood sample and wrote Ranjit Kaur with CR No. 109634 on the same vacutainer with same requisition form.

Patient's attendant told the doctor on duty in blood centre that he himself was Lal Singh and blood sample in vacutainer was of him not of Ranjit Kaur who was the patient. So there was discrepancy of blood sample and request form for blood transfusion. On further investigation, it was found that due to hectic duty in emergency medicine ward, resident doctor told intern on duty to send the request of blood to blood centre and intern filled the request form and ordered staff nurse to take blood sample. So, Staff nurse did the sampling of attendant and wrote the name of the attendant. So it was concluded that due to the negligence of resident doctor, intern and staff nurse on duty, wrong/ mismatched blood would have been transfused to the patient endangering the life of the patient, if timely intervention by doctor on duty in blood centre had not been done.

Discussion :

The clerical errors are the main reason of mismatched blood transfusion that often result in adverse transfusion reaction and fatalities. Blood transfusion errors include: mislabeled blood sample; wrong patient receiving a blood transfusion and patient receiving the wrong blood type.

Most clinical near miss events in our cases were of unclassifiable causes because there was no explanation letter from the personnel involved, which reflected inadequate documentation of near miss events reporting. Poor documentation of reporting may complicate hemovigilance efforts as the possible weak links were not being addressed. In general, proper reporting of any type of error may reduce the error from recurring in the future as it is an aspect of quality assurance of a healthcare system.[8,9] These findings were in accordance with the study done by Noor et al.[10]

The result of our study has shown that the leading cause of near miss events was mislabelling, miscollection and mishandling. Some of the reasons given by the resident doctor on duty were that sample tubes were labeled before sample collection, and labelling and collection were by two different doctors or staff on duty. Some were attributed to the chaotic working condition of wards. This case of mislabeling also occurred due to taking blood samples from several patients at the same time. Labeling away from the patient's bedside was one of the major factors. Khetan et al, reported that more than half of their staff had labeled the tube at the counter and then collected blood from the intended patient, highlighting that incorrect practice was common in some centers.[11] Another contributory cause of near miss event was incorrect specimen handling in the wards. Most occurred because the staff on duty is overworked due to constrained manpower. Mostly these near-miss

events in our hospital involved resident doctors and paramedical staffs. This is because most blood-sampling activity is performed by the resident doctors and staff nurses. Karim et al had a similar finding whereby interns and postgraduate trainees were mainly involved.[12] Similarly, in Austria and Germany, most blood sample collection was also performed by junior doctors. This exposed junior doctors to more chances of having a near miss event if they did not follow proper precautionary steps in blood sample collection. Although there are specified procedures in each center, the actual practice of blood sampling is cultivated on an individual basis.[13,14]

Conclusion :

Blood transfusion is predominantly a hospital-based practice and in many resource constrained economies like India, wherein the sourcing, storage, processing and clinical use of blood and blood products resides in the often financial and manpower constrained hospitals which is the main cause of error in the transfusion practice. So, proper reporting of these near miss events is vital and events should be scrutinized to determine any corrective and preventive action. A joint effort involving both the clinical departments and blood centre are necessary to improve transfusion safety. Additionally, encouraging healthcare staff compliance to guidelines is a must.

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