SHOT Bite No. 8:
Massive Haemorrhage Delays

SHOT Serious Hazards of Transfusion

July 2021

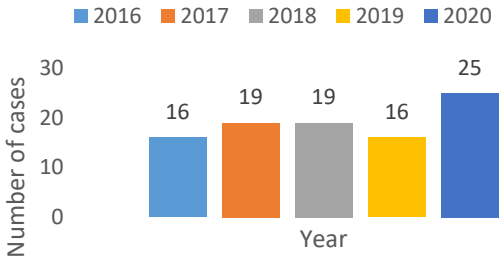
Background: The number of reports submitted to SHOT relating to transfusion delays, including instances of major haemorrhage resulting in patient harm, are increasing year on year. Poor communication, gaps in knowledge and failure to follow the major haemorrhage protocol (MHP) correctly are common themes. Serial delays at different transfusion steps are cumulative and can result in harm or death.

Number of MHP delays reported to SHOT 2016-2020

Figure 1 shows the number of MHP delays reported to SHOT 2016-2020 with patient death reported in 30 cases

Between 2016-2020, there were 20 obstetric and 7 paediatric MHP delays reported to SHOT

Fig 1. MHP delays 2016-2020



Factors contributing to MHP delays

A major cause of transfusion delays is poor communication. Other factors that contribute to transfusion delays are listed below.

Recognition and unfamiliarity: It is not always easy to detect major bleeding, particularly when concealed, as in gastrointestinal bleeding and leaking abdominal aortic aneurysm. Staff experience in managing major haemorrhage may be limited in hospital areas where it occurs only rarely, for example in paediatrics. Elderly patients are often on anticoagulants exacerbating the severity of bleeding. Obstetric haemorrhage can be rapid and massive

Activating the major haemorrhage protocol and accessing help from haematologists: Activation of the MHP requires contact with switchboard, however, bleep or telephone failure, and confusion between staff about who is responsible for alerting porters are all contributing factors in delays

Patient movement and location: Transfer of the patient between different clinical areas results in delays when there is poor communication between staff about the patient's location. This impacts on delivery of samples and components to and from the laboratory. Distance between patient and laboratory can also contribute to delays

Laboratory delays: The laboratory staff process the sample, check the blood group and antibody screen and as long as the correctly labelled samples have arrived in the lab they can release group-specific or crossmatched components for delivery to the clinical area, however, mislabelled samples can slow this process

Blood transfusion: Blood transfusion to the patient can be delayed by poor or absent venous access

Stand down: Poor communication between lab and clinical area about when the episode is over can delay other work which might have been put on hold

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Key factors that need to be in place to prevent transfusion delays in MHP:

Clear, effective and timely communication is essential: Good communication between clinical and laboratory staff is vital to ensure timely transfusions. A haematologist should be contacted at the earliest opportunity for advice about patients with irregular antibodies, and laboratories must have processes for concessionary release

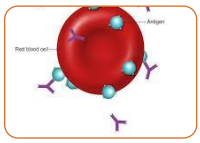
MHP need to be simple, easy to follow and accessible: All hospitals should regularly review their major haemorrhage protocols- they need to be simple, easy to follow and must be easily accessible and available to staff. Staff should be familiar with local protocols and escalation procedures

Drills and debriefs: Regular drills and exercises should be undertaken to ensure staff are familiar with local procedures and so that good communication is maintained within and between teams. MHP need to be practical and work efficiently. There should be a debrief after all cases of activation to learn from each event

Transfusion support: Major haemorrhage packs contain a fixed ratio of red cells to fresh frozen plasma. It is important to note that all the necessary components may not be available at the same time. Red cells should be quickly available but fresh frozen plasma and cryoprecipitate take time to thaw; platelets may have to be sourced off site. While investigations will help inform the transfusion support, transfusions must not be delayed whilst watiing for blood results.

Use of Group O red cells: Group O red cells are available for immediate use in emergencies – staff need to be aware of where to access these and be familiar with local processes. Group O D-positive red cells may be used in adult males and women >50 years old who are D-negative or whose D status is unknown in emergency situations as per local policies

Transfusion support- red cells: Availability of crossmatched blood may take 30-40 mins and group-specific red cells can be provided by the laboratory within 15 mins of receiving patient's sample. In critical situations, a patient may lose a significant amount of blood during this time. When clinical circumstances do not allow time for determination of the patient's ABO group, the safest course of action is to provide emergency group O RBCs. As soon as the patient's ABO/Rh is established, transfusion support can be with group-specific or crossmatched RBCs



Transfusion support in the presence of red cell antibodies: Where the antibody screen is positive or the patient has known antibodies for which compatible blood is not readily available, ABO/D, Rh & K matched red cells may be given. Approximately 80% of patient antibodies are to antigens in the Rh & Kell systems. Discuss with a clinical haematologist regarding the need for methylprednisolone +/or IVIg and monitoring (including urine output) for delayed haemolytic transfusion reactions, if incompatible blood is transfused

Transfusion support- platelets and plasma components: It is acceptable to use ABO incompatible platelets negative for high titre (HT) agglutinins in the management of patients with major haemorrhage. D negative platelets should be used for females <50 years of age with unknown blood group. It is acceptable to change from group AB FFP to HT negative group A FFP in unknown patients with major haemorrhage. Timely discussions with a haematologist as appropriate must be undertaken to avoid delays. This must be incorporated into laboratory protocols, according to local trust policy

Accurate documentation and traceability: Accurate documentation of all blood components given and the reason for transfusion is necessary in order to satisfy the legal requirement for full traceability

Avoiding patient identification errors: Correct patient identification is essential for safe transfusions. Staff must avoid sample labelling errors and follow local policies for correct patient identification. Extra care must be taken to avoid patient identification errors when patients are unconscious, confused or cannot communicate