Avoidable transfusions reported to SHOT 2015-2017: Evidence for poor decisions

Paula HB Bolton-Maggs¹, ², Debbi Poles¹, ²Serious Hazards of Transfusion (SHOT) Office, Manchester, ²University of Manchester, UK, on behalf of the SHOT Steering Group.

Introduction: Although blood transfusion may be life-saving there may be alternatives. SHOT collects data about avoidable transfusions, where the blood/blood component is suitable and compatible but where the decision leading to transfusion is flawed. This may be due to poor knowledge, communication failure, incorrect decision or poor prescribing.

Method: The SHOT database was reviewed for avoidable transfusions reported between January 2015 and December 2017.

Results: In this 3-year period 360 avoidable transfusions were reported. One patient in her 90s died after developing cardiac decompensation related to excessive transfusion of 2 units when 1 would have been sufficient.

Avoidable use of O D-negative units: in 54 cases emergency O D-negative units were given: crossmatched (18 cases) or group-compatible units (7 cases) were accessible in nearly half of these (Fig 1). Other reasons included failure to arrange blood for major surgery and mistakes such as labelling errors resulting in delayed provision of appropriate units. Group O D-negative blood may not be safe for patients with irregular antibodies such as anti-Jkα (one case) and is wrong for patients with anti-c (transfused to an infant with haemolytic disease of the newborn due to failure of communication).

Wrong results: In 95 cases patients were transfused as a result of erroneous blood results. Reasons included diluted samples taken from an arm with intravenous fluid running, transcription errors or results from the wrong patient or from the wrong date (including a previous year). Spurious low platelet counts due to clumping n=23

Wrong results from blood gas analysers or point of care devices n=9 (Fig 2)

Avoidable transfusions were given to 24 patients with iron deficiency and 5 with megaloblastic anaemia, one of whom developed transfusion-associated circulatory overload as a result. One patient with iron deficiency received 9 units without monitoring resulting in Hb increase to 171g/L. FFP was transfused to 6 patients for warfarin reversal instead of prothrombin complex concentrates and to one patient inappropriately as preoperative reversal for rivaroxaban. Five patients with religious objection to blood received red cell transfusions.

SHOT messages

- Patients have been harmed by unnecessary transfusion following careless and simple errors, and by transfusion of inappropriate quantities. Ensure you do your step in the process correctly and with care
- Transfusion should usually be avoidable in iron, B12 and folate deficiency. When oral iron cannot be tolerated, single dose IV iron is safe and very effective, and is now a recommended treatment for iron deficiency particularly before surgery
- Unexpected thrombocytopenia should prompt film examination and review of previous results. Results which may be inaccurate should not be issued from the laboratory. Clinical staff should always make a diagnosis before transfusing platelets