SHOT Bite No. 21:

Cell salvage- Insights from SHOT reports

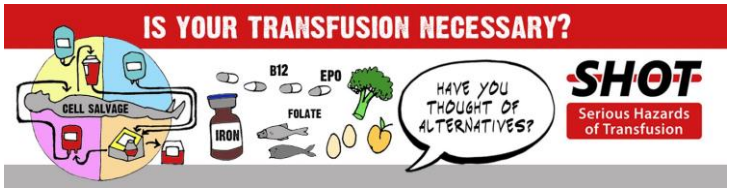
December 2021

Background: SHOT first began to collect reports on autologous transfusions in 2007 when a pilot reporting scheme was trialled in collaboration the UK Cell Salvage Action Group (UKCSAG). Prior to this, sporadically received reports were included within other categories. SHOT has collected stand-alone data on autologous transfusions since 2008.

Reporters are given guidance on what to report with reporting categories including incidents relating to human factors, device failures and clinical events. Incidents are then further defined as either adverse events (which may have been preventable) or adverse reactions or clinical events (which are largely unforeseeable).

Haemovigilance reporting in cell salvage provides learning and enables safer practices to be developed. The relatively low number of reported incidents suggests that cell salvage is inherently safe when performed correctly, however this needs to be tempered with the possibility of under-reporting and our inability to provide robust denominator data

The use of cell salvage is recommended when it can be expected to reduce the likelihood of allogeneic (donor) red cell transfusion and/or severe postoperative anaemia.



Cell salvage is a key part of patient blood management.

Reports submitted to SHOT relating to cell salvage

Data shown here cover reports submitted between 2010 – 2020. Although initially intended to capture incidents related to all autologous transfusion techniques, in practice most (if not all) incidents occur in cell salvage (figure 1), the most commonly used autologous transfusion technique, with intraoperative cell salvage (ICS) dominating since 2015. There are several stages in the ICS process where errors/incidents can occur (figure 2).

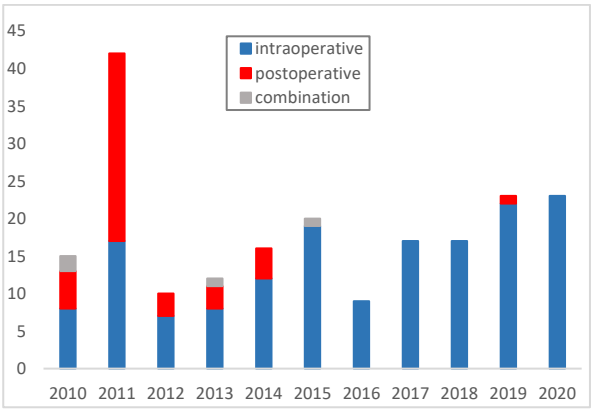


Figure 1. Cell salvage reports by cell salvage technique

- The majority of reports (n=142) relate to adverse events, with device/disposable failure being the biggest issue (figure 3)
- Adverse reactions (n=62) are most commonly seen in ICS (figure 4)
- There were 3 minor and 2 major morbidities attributable to adverse events
- Adverse reactions have more serious patient consequences, with 49 minor and 6 major morbidities
- No deaths have been directly attributable to cell salvage incidents

SHOT continues to collect and analyse reports related to cell salvage and has made several recommendations to improve the safety of this procedure. Collating and sharing this data helps identify common themes, emphasises the need for appropriate education, training and standardisation of protocols. It also stresses the importance of monitoring of patients being transfused even when it is their own blood.

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Further details about reports submitted to SHOT:

Figure 2: Intraoperative cell salvage stages where incidents can occur

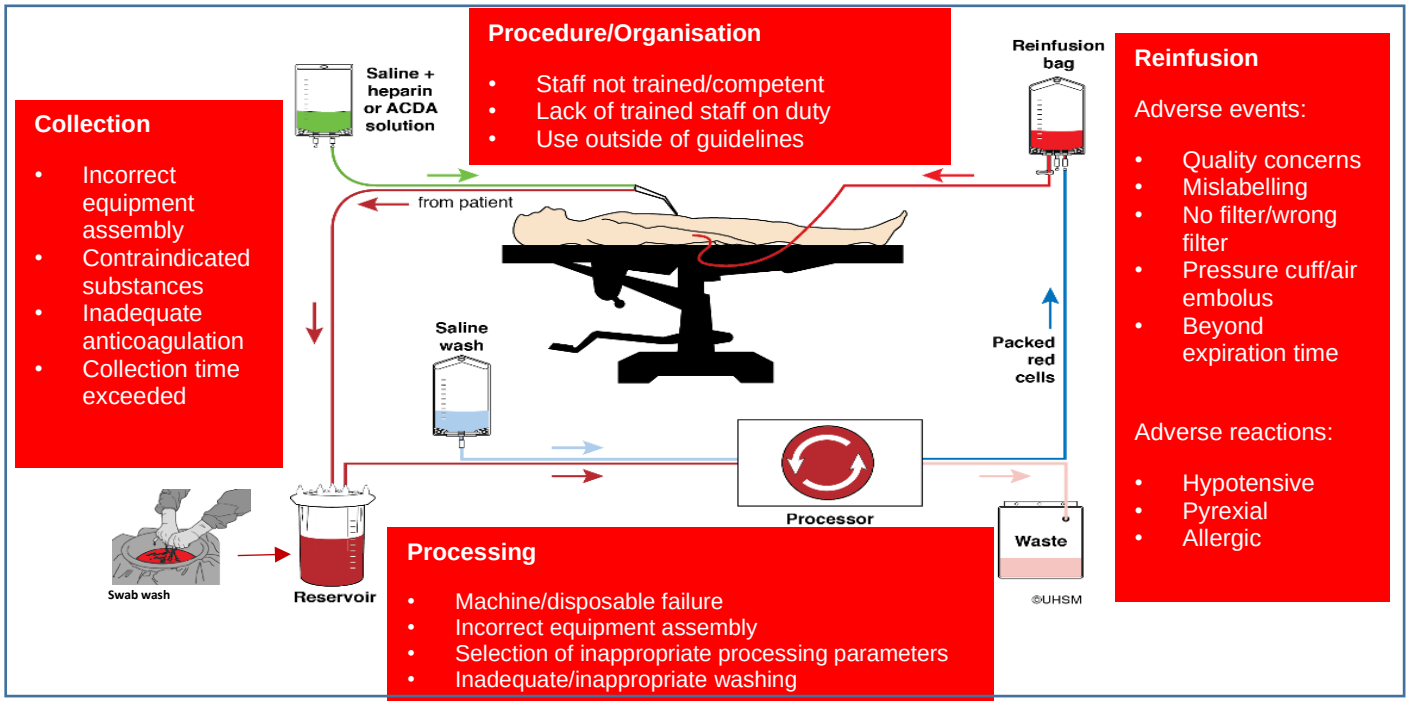


Figure 3. Cell salvage adverse event (n=142)

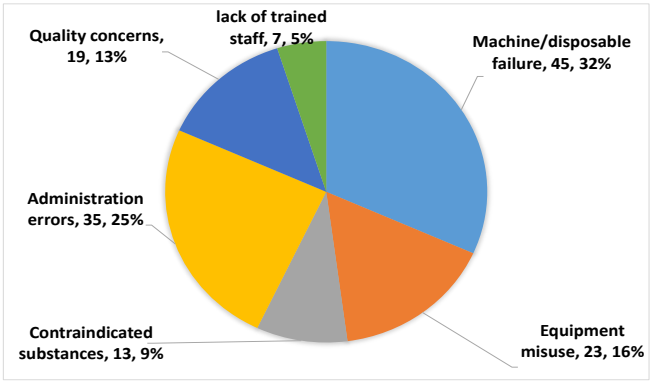
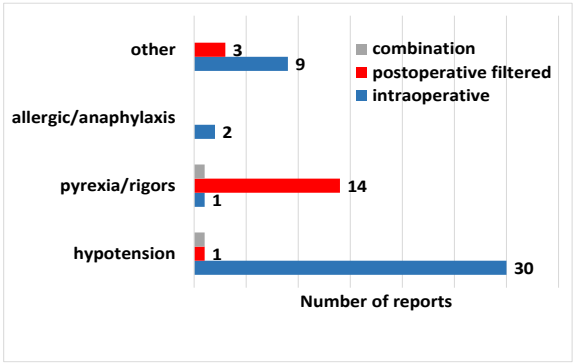


Figure 4. Cell salvage adverse reactions by technique (n=62)



Key messages

A
- Autologous red cell transfusion is not without risk. The transfusion should be prescribed, documented and the patient monitored in the same way as for any transfusion. Patients undergoing elective procedures where ICS may be used should give informed consent after provision of relevant information

U
- Understanding the principles and process of cell salvage, by all staff involved, improves safety

T
- Training and competency assessment is key and should be in place to support cell salvage operators. Additionally, all staff involved in the process, including anaesthetists, surgeons and scrub staff, should receive cell salvage education and training appropriate to their role

O
- Organisations should have robust policies and procedures in place for the provision of cell salvage, but also for reporting all adverse incidents/reactions during the use of cell salvage

All guidance documents and educational resources from the UK Cell Salvage Action Group can be accessed via this link: https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group.

Additional guidance can be found at AAGBI Cell salvage for peri-operative blood conservation 2018. https://onlinelibrary.wiley.com/doi/full/10.1111/anae.14331