REINFUSION OF CELL SALVAGED BLOOD

KEY MESSAGES

Reinfusion of cell salvaged blood should follow the practices employed for an allogeneic (donor) blood transfusion[1], as far as possible.

It is critical that cell salvaged blood should be labelled and kept with the patient it was recovered from at all times, as it presents significant risk of both acute haemolytic reaction and transmission of infection if it is given to the wrong patient.

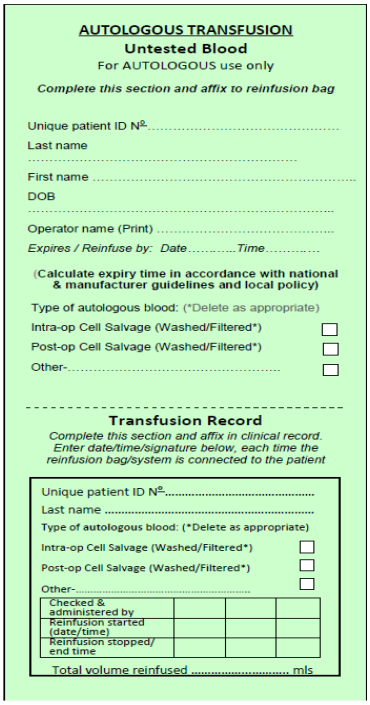
TARGET STAFF GROUP

All staff involved in the processing and/or reinfusion of cell salvaged blood.

PROCEDURE

Labelling

The bag of cell salvaged blood for reinfusion must be labelled with the patient's first name, last name, unique patient identification number, date of birth and the expiry time and date of the salvaged blood. These details must be handwritten, from the details on the patient's identification band, onto an autologous transfusion label (such as the one opposite) which should be attached to the reinfusion bag as soon as is practicably possible.



AUTOLOGOUS TRANSFUSION
Untested Blood
For AUTOLOGOUS use only
Complete this section and affix to reinfusion bag

Unique patient ID N°.....
Last name .....
First name .....
DOB .....
Operator name (Print) .....
Expires / Reinfuse by: Date.....Time.....

(**Calculate expiry time in accordance with national & manufacturer guidelines and local policy**)

Type of autologous blood: (*Delete as appropriate)
Intra-op Cell Salvage (Washed/Filtered*) ☐
Post-op Cell Salvage (Washed/Filtered*) ☐
Other-..... ☐

Transfusion Record
Complete this section and affix in clinical record. Enter date/time/signature below, each time the reinfusion bag/system is connected to the patient

Unique patient ID N°.....
Last name .....
Type of autologous blood: (*Delete as appropriate)
Intra-op Cell Salvage (Washed/Filtered*) ☐
Post-op Cell Salvage (Washed/Filtered*) ☐
Other-..... ☐

Checked & administered by			
Reinfusion started (date/time)			
Reinfusion stopped/ end time			

Total volume reinfused ..... mls

Storage and expiry

Cell salvaged blood should be kept with the patient at room temperature – it should not be stored in a refrigerator.

AoA guidance states that reinfusion of cell salvaged blood should be completed within 4 hours of completion of processing for intraoperative cell salvage and within 6 hours of the start of collection for postoperative cell salvage[2].
However, EDQM[3] state salvaged red cells should be transfused within 6 hours and AABB[4] state cell salvaged blood is expired after 8 hours. The timeframe for expiry of cell salvaged blood should be agreed locally and put into policy for use in practice*.

Consent

Informed and valid consent for autologous blood transfusion should have been obtained from the patient prior to the use of cell salvage whenever possible. This should include a discussion about the risks, benefits and alternatives, which should then be documented in the patient's clinical record along with the outcome of the discussion[5].

Authorisation

Reinfusion of cell salvaged blood should be authorised ('prescribed') for the patient as an allogeneic blood transfusion would be.

Administration equipment

Cell salvaged blood should be administered to the patient by gravity reinfusion using a CE marked blood administration set[1] (which will have an integral 200µm filter). Additional filters might be required in certain clinical situations – refer to the ICS technical factsheet on *Use of Filters*[6] for further information.

Do not reinfuse under pressure or force administration, i.e., do not use a blood pressure cuff or any other mechanical device on the reinfusion bag. Reinfusion under pressure could lead to air embolism, from the air in the reinfusion bag[7,8].

There are peristaltic volumetric infusion pumps validated for transfusion of red cells which have in-line air detection sensors – the use of these for administration of cell salvaged blood should be locally risk assessed and into written into policy.

Administration

This should be commenced as soon as possible, ideally within the operating theatre by the clinical staff who collected and processed the cell salvaged blood.

The Pre-transfusion checks must be completed at the patient's side immediately prior to commencing reinfusion, as would be performed for allogeneic blood transfusion[1]:

1. Check the patient's clinical record for evidence of consent for reinfusion of cell salvaged blood (if consent could not be obtained, e.g., in an emergency, information must be given to the patient retrospectively).

2. Identify the patient: confirm their first name, last name, date of birth and unique patient identification number on their identification band and on the instruction to transfuse using positive patient identification whenever possible.

3. Check the reinfusion bag has an Autologous Transfusion label which includes handwritten details (addressograph labels must not be used) of the patient's first name, last name, date of birth, unique patient identification number – check these match the details on the patient's identification band.

4. Check expiry time and date on the Autologous Transfusion label – do not reinfuse cell salvaged blood after this time. Discard any expired blood in accordance with local hazardous waste management procedures.

5. Check the reinfusion bag for any signs of leakage, clots or abnormal colour – do not reinfuse cell salvaged blood if there are any concerns about it being safe to give.

6. As a minimum, observations of temperature, pulse, blood pressure and respiratory rate (Temperature, Pulse, Blood Pressure, Respiratory Rate) should be performed and recorded within a maximum of 15 minutes before commencing reinfusion. Local policy may indicate other observations to be taken – refer to this as necessary.

7. Commence reinfusion of cell salvaged blood; further observations (of T, P, BP, RR) should be performed 15 minutes after commencing, and again within 60 minutes of completion of the reinfusion, as a minimum[1]. Additional observations are at the discretion of clinical staff based on individual patient assessment.

8. Document the reinfusion of cell salvaged blood in the patient's clinical record.

Adverse reaction

If at any point during reinfusion an adverse reaction to the cell salvaged blood is suspected, the reinfusion should be stopped, and a clinical review of the patient performed to determine if it is safe to continue with reinfusion or not.

Any adverse reaction or adverse event relating to the use of cell salvage should be reported by the clinical team on the local incident report system (LIRS), using agreed key words to alert the hospital transfusion team (HTT) to the incident.

The HTT can help to facilitate incident investigation, and external reporting to the SHOT haemovigilance scheme[9] if appropriate.

Data capture and audit

Data on the reinfusion of cell salvaged blood should be captured using an agreed mechanism that can be audited.

***** the 'start time' of collection of ICS salvaged blood in lengthy surgical procedures should be recognised and considered here, alongside any practices of replacing with fresh ICS sets part-way through.

REFERENCES

1. British Society for Haematology (BSH), 2017. The Administration of Blood Components: a British Society for Haematology guideline. https://b-s-h.org.uk/guidelines/guidelines/administration-of-blood-components

2. Association of Anaesthetists (AoA), 2018. Cell salvage for peri-operative blood conservation. https://anaesthetists.org/Home/Resources-publications/Guidelines/Cell-salvage-for-peri-operative-blood-conservation-2018

3. European Directorate for the Quality of Medicines and HealthCare (EDQM), 2023. Guide to the preparation, use and quality assurance of blood components (21st edition). https://www.edqm.eu/en/blood-guide

4. Association for the Advancement of Blood and Biotherapies (AABB), 2023. Standards for Perioperative Autologous Blood Collection and Administration (10th edition).

5. Guidelines from the expert advisory committee on the Safety of Blood, Tissues and Organs (SaBTO) on patient consent for blood transfusion. 2020. https://www.gov.uk/government/publications/blood-transfusion-patient-consent/guidelines-from-the-expert-advisory-committee-on-the-safety-of-blood-tissues-and-organs-sabto-on-patient-consent-for-blood-transfusion

6. UKCSAG. ICS Technical Factsheet – Use of Filters. https://www.transfusionguidelines.org/transfusion-practice/uk-cell-salvage-action-group/technical-factsheets-and-frequently-asked-questions-faq

7. Haemonetics Corporation, 2023. Cell Saver Elite+ User Manual. https://hospital.haemonetics.com/-/media/files/hospital/cell-saver/ie/cell-saver-elite-plus-user-manual-120859-ie-ab.pdf

8. Liva Nova. Sorin Xtra Operator's Manual: software version 2.0. 20070/021 GB.

9. Serious Hazards of Transfusion (SHOT). SHOT reporting definitions. https://www.shotuk.org/reporting/