

ANTICOAGULATION

AREA of APPLICATION

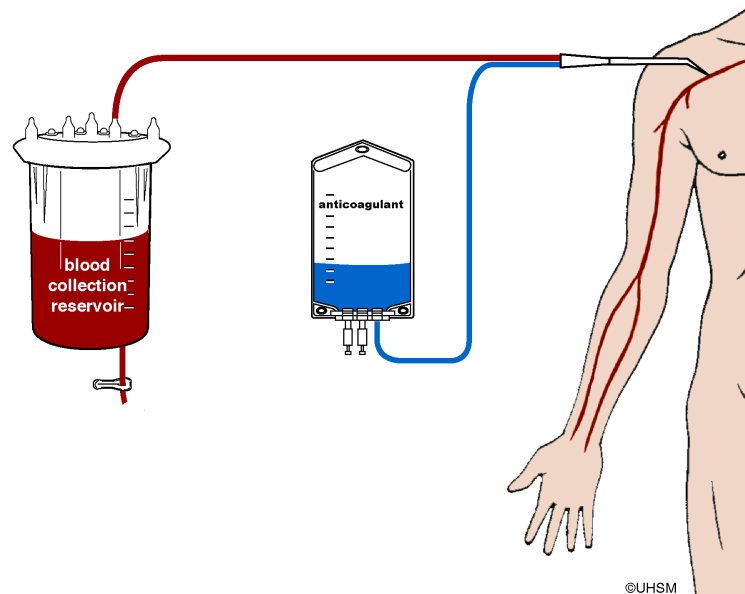
Blood lost at the operation site **must** be appropriately anticoagulated prior to aspiration into the blood collection reservoir. This is achieved via a dual-lumen Aspiration and Anticoagulation line that delivers anticoagulant to the tip of the line and aspirates the anticoagulant along with fluid from the sterile field into the collection reservoir. Insufficiently anticoagulated blood will clot and these clots can be transferred into the blood processing set and reinfusion bag. This may result in blockage in the system and could be potentially harmful to the patient if reinfused.

STAFF

All staff involved in the cell salvage process.

ANTICOAGULATION

Each organisation should determine and document within their policy which anticoagulant will be used for intraoperative cell salvage.



Heparin

Heparinised saline solution may be used for anticoagulation during blood collection. A solution of 25,000 - 30,000 IU of heparin per 1 litre of intravenous (IV) normal saline (0.9% NaCl) solution is recommended with a dosage of 20ml of solution per 100ml of collected blood. This type of solution is not available commercially and will need to be made up locally. It is imperative that the heparinised saline is labelled correctly and clearly to make it obviously distinguishable from saline wash solutions.

Acid Citrate-Dextrose Anticoagulant (ACD-A)

ACD-A can also be used for anticoagulation during blood collection. It is recommended to use a quantity of 15-20ml ACD-A per 100ml of collected blood. Pre-prepared ACD-A solutions are available commercially for this purpose.

*For either Heparin or ACD-A: The quantity of anticoagulant introduced into the blood collection system must be adapted to the volume of blood loss. A rate of 60 to 80 drops of anticoagulant per minute is typical in moderate blood loss but **should be monitored closely and adjusted accordingly** to avoid clotting in the reservoir.*

N.B. Anticoagulation when using ICS in Neurosurgical procedures.

Some manufacturers recommend 60,000 units of heparin in 1 litre of IV normal saline (0.9% NaCl) solution or, if using ACD-A, doubling of the flow rate when using ICS in Neurosurgery to compensate for the increased likelihood of clotting in blood salvaged from this type of surgical field. Please check with your manufacturer if using ICS in Neurosurgical procedures.

Points to note:

Heparin

1. Heparin is a prescription only medicine and consideration should be given to this when developing the organisation's cell salvage policy. A Patient Group Directive (PGD) for use of heparin as an anticoagulant in ICS may be considered appropriate.
2. The UK Cell Salvage Action group recommend:
 - a. To help reduce the risk of administration error written documentation of the heparin requirement should not be entered on the general prescription chart. An appropriate alternative for documenting the use of heparin for cell salvage, such as on the cell salvage audit form, should be identified in the local cell salvage policy.
 - b. The batch number and dosage of heparin used should be documented.

ACD-A

1. ACD-A is not a prescription medicine as it is not included in The British National Formulary
2. If ACD-A is quoted in the product specification (CE marking) for the cell salvage machine in use there is no requirement for ACD-A to be prescribed. However the batch number and dosage should be documented on the cell salvage audit form.

3. If it is not part of the product specification then the ACD-A used for cell salvage procedures should be documented and the following should apply:
 - a. To reduce the risk of administration errors, documentation for the use of ACD-A should not be entered on the general prescription chart but on the cell salvage chart/form to help ensure that the anticoagulant is used correctly.
 - b. The batch number and dosage of ACD-A used should be documented.

The information contained in this ICS Technical Factsheet has been sourced from members of the UK Cell Salvage Action Group (UKCSAG) and is generally agreed to be good practice. The UKCSAG does not accept any legal responsibility for errors or omission