



Autotransfusion

Autotransfusion is a term that is loosely used to describe the use or transfusion of any autologous blood product. However, traditionally, the term “autotransfusion” is an autologous blood conservation technique involving the collection of blood from an active bleeding site and reinfusion of that blood into the same patient for the maintenance of blood volume thus minimising blood loss in the surgical setting.

Autotransfusion is also known as intraoperative blood salvage or cell salvage.

In the autotransfusion process, shed blood is aspirated from the surgical field, mixed with an anticoagulant, centrifuged, washed and filtered to remove debris and contaminants, and then reinfused into the patient. The blood which is reinfused has a haematocrit of 50-80% due to the centrifugation, and so is hugely beneficial for the patient.

Image 1: Autologous red blood cell transfusion (autotransfusion). Image courtesy of the National Blood Authority <https://www.blood.gov.au/ics#ics-guidance>

The procedure involves specialised autotransfusion devices (aka cell savers) common to large hospitals.



Fresenius Kabi C.A.T.S.[®] plus Continuous AutoTransfusion System



Haemonetics Cell Saver[®] 5+ Autologous Blood Recovery System



Liva Nova Xtra ATS System

Autotransfusion, when used effectively, has been shown to statistically significantly reduce the number and volume of allogeneic blood transfusions, subsequently reducing transfusion related reactions and improving patient outcomes. In addition, the technique has helped ease the pressure on blood banks while demonstrating cost effectiveness.

Autotransfusion is indicated for patients who are at risk of bleeding (for example, due to clotting disorders), who are at risk of losing large volumes of blood during surgery and where blood product transfusions are to be avoided.

Examples are:

- During Cardiac Surgery
- Surgery following trauma
- Orthopaedic Surgery
- Spinal Surgery
- Obstetrics
- Jehovah's Witness patients
- Anaemic patients
- Paediatric patients

The Australasian Board of Cardiovascular Perfusion (ABCP) offers a 10 week online lecture-based course. Topics covered include:

- Basic principles of Haematology
- Coagulation
- Principles of blood conservation / perioperative blood management
- Principles of haemo-vigilance
- Blood collection / cell salvage
- Different autotransfusion and cell salvage devices and how they work
- Autologous Platelet therapy

Our course is available to anyone who would like to learn about the principles of autotransfusion and is especially recommended for staff operating cell salvage devices in the clinical setting. The principles of patient selection, contraindications, surgical requirements and troubleshooting are described in the course with the objective of providing a comprehensive education in safe and effective autotransfusion techniques.

Perioperative Blood Management and National Blood Authority strongly recommend training for all operating room staff involved in autotransfusion.. Patient Blood Management Guidelines: Module 2 - Perioperative. 2012 <https://www.blood.gov.au/pbm-module-2>

The course provides comprehensive autotransfusion theory. There are no practical activities as part of the remotely run course. Practical is almost always carried out by the team in their hospital. The course is run over 10 weeks and at the conclusion of the course there is a short answer and MCQ exam.

Past students have included anaesthetists, perfusionists, anaesthetic nurses/technicians, perioperative nurses, theatre technicians, nurse educators and other medical professionals. We welcome enquiries from anyone wanting to expand their autotransfusion knowledge.

Please contact Jessica Ozdirik for more course information such as term dates and registration details (Jessica.ozdirik@health.nsw.gov.au)

See also:

<https://en.wikipedia.org/wiki/Autotransfusion>

<https://www.sabm.org/glossary>

<https://www.blood.gov.au/ics#ics-guidance>

Carless PA, Henry DA, Moxey AJ, O'Connell D, Brown T, Fergusson DA. Cell salvage for minimising perioperative allogeneic blood transfusion. Cochrane database of systematic reviews (Online) [Internet]. 2010; (4):CD001888.

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