Blood Conservation and the Hospital Liaison Committee for Jehovah’s Witnesses

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www.jw.org
“Many of the techniques developed for use in Jehovah’s Witness patients will become standard practice in years to come in an effort to conserve blood stocks and reduce the need for transfusion”.

- Royal College of Anaesthetist’s Continuing Medical Education Journal

Points of Discussion

- The Jehovah’s Witness Patient
- History on Bloodless Surgery
- HLC as a Resource –
  - Patient Blood Management Document
  - Clinical Strategies Booklets
- In Practice
- Questions
The Jehovah’s Witness Patient

- Whole blood
- Packed Red cells
- White blood cells
- Platelets
- Plasma – FFP
- Blood Storage [PAD]
History on Bloodless Surgery

- Early data available on bloodless surgery was collected from Jehovah’s Witness patients who refused transfusion.

- Dr Denton Cooley of Texas USA, known for performing the first implantation of an artificial heart into a person, performed the first bloodless open heart surgery on a JW patient in 1962.

- Fifteen years later he released a report of more than 500 cardiac surgeries that had been safely performed without blood transfusion.

- Since then Jehovah’s Witnesses collaborated with some of the leading healthcare institutions in the US, like Englewood Hospital in NJ, who, in 1994, established bloodless medicine and surgery programs and protocols. This early work laid the foundation for the mainstreaming and acceptance of bloodless programs.

- In 2013 it was reported that there were over 150 bloodless medicine surgery centres in the US alone with many more in development.
History on Bloodless Surgery

• In the UK, the Better Blood Transfusion initiative was started in 1998. Over three editions direction was given to make use of techniques used in bloodless surgery, to reduce transfusions and subsequent morbidity and mortality, as documented by SHOT.

• “Ensure that mechanisms are in place for the pre-operative assessment of patients for planned surgical procedures to allow the identification, investigation and treatment of anemia and the optimisation of haemostasis.” BBT3 Page 8

• In 2012 BBT was superseded by Patient Blood Management.
A Patient Blood Management document

HLC a resource

Planning Surgery
- Review of the range of individual choice displayed by patients who are Jehovah’s Witnesses. It is essential to establish ahead of time their personal views regarding the use of blood, blood products, and autologous procedures. For any of these that might not be applicable in their treatment, surgery. (Better Blood Transfusion Toolkit, Appropriate Use of Blood: www.transfusionguidelines.org.uk)

Correct anaemia
- intravenous
- Oral iron
- Vitamin 
- Methyl blood sampling
- Transfusion therapy
- Encephalopathy

Correct clotting abnormalities
- Review INR, PT, aPTT, and fibrinogen levels.
- When appropriate, initiate the appropriate treatment(s) for diagnosis without anticoagulant effects, or with a shorter half-life, such as low-molecular-weight heparin. (Intraoperative Management)

Vitamin K
- Intravenous
- Oral
- Consider coagulation tests and check Coagulation Profile

Patient’s Medical History
- Examine patient’s notes
- Ask patient about bleeding abnormalities
- Ask patient about circulatory problems

During Surgery
- Not all of these options may be available, or acceptable to the patient. However, the treating team should be satisfied before agreeing to perform an elective procedure, that they can handle predictable blood loss, or that should be in a more specialized center. (7 per guidelines of Royal College of Surgeons, points 8 and 17, and Association of Anaesthetists, points 41.2 and 41.15).

Techniques to minimize blood loss
- Meticulous hemostasis
- Hemostatic dressing devices (such as sponges, absorbent, tamponade, fibrin sealant, etc.)
- Radial artery and central occlusion (partial or complete)
- Minimally invasive procedures
- Stereotactic radiosurgery
- Intensive surgery team—shorter operation duration
- Intraoperative blood salvage

Stage of complex procedures

Anoesthetic
- Hypersensitive anesthesia
- Normalized or hyperanesthesia, hemodilution
- Full neuromonitoring (TEG, HemoCue)
- Artificial ventilation
- Tolerance of anaesthesia
- Maintain normothermia

Hemostatic agents
- Topical: - topical anesthetics, tissue sealant
- Hemostatic: - thrombin, platelet-rich fibrin, vitamin K
- Other: - conjugated estrogens, tranexamic acid, albumin, cryoprecipitate
- Prophylactic use: - topical anesthetics, recombinant tissue plasminogen activator (tPA, tPA)

Blood salvage
- Wound damage and minimization after incision

Anaemia
- Oxygen support
- Enzyme-stimulating agents (ESAs)
- Ferie
- Folic acid
- Vitamin B12
- Prophylaxis of infection
- Rhesus sensitization
- Multiple drug-induced, sample multi-testing
- Hypoal lost oxygen

For bleeding
- Radicidal arterial occlusion
- Platelet re-omination surgery
- Direct pressure
- Occlusion of external carotid artery at level of sternum
- Hemostatic agents
- Iodine
- Corticosteroids
- Prophylaxis

For shock
- Trendelenburg shock position (patient supineber with head lower than legs)
- Medical treatment (IV fluids, Foley catheter)
- Oxygen (100%)
- Appropriate volume replacement after bleeding controlled

Monitoring and Observation
- Enhanced schedule to detect hemorrhage quickly

- Check on accessibility with patient (less or none)
- Directives from National Patient Safety Agency
Patient Blood Management
Pre-operative planning

- Correct Anaemia – by means of Oral or IV Iron and ESAs.
- Check Ferritin levels
- EPO
- Correct Clotting Abnormalities
- Minimize Blood Sampling
Patient Blood Management
After Surgery

- Blood Salvage
- ESAs and IV Iron
- Oxygen Support
- Minimise Blood Tests
- Hyperbaric Chamber

**Blood Salvage**
Wound drainage and reinfusion after filtration

**Anaemia**
- Oxygen support
- Erythropoiesis Stimulating Agents (ESAs)
- IV iron
- Folic acid
- Vitamin B₁₂
- Prophylaxis of infection
- Minimize phlebotomy – microsampling, sample multi-testing
- Hyperbaric oxygen

**For Bleeding**
- Radiology guided arterial occlusion
- Prompt re-operative surgery
- Direct pressure
- Elevate body part above level of heart
- Haemostatic agents
- Tourniquet
- Controlled hypotension

**For Shock**
- Trendelenburg/shock position (patient supine with head lower than legs)
- Medical antishock trousers (M.A.S.T.)
- Appropriate volume replacement after bleeding controlled

**Monitoring and Observation**
- Enhanced schedule to detect haemorrhage quickly

*Check on acceptability with patient (see over)
*Directive from National Patient Safety Agency
B. Iron Replacement and Haematinic Support

1. Iron replacement
   a. Functional or absolute iron deficiency is a common cause of limited response to erythropoetin
   b. Virtually all patients will require supplementary iron therapy to maximize response to multiple-dose erythropoiesis stimulant therapy. Parenteral iron should be considered if oral iron fails to support accelerated erythropoiesis.

Notes:
1. There is evidence to suggest that iron may be safely administered to critically ill patients receiving erythropoietic agents to support erythropoiesis. Patients at high risk of bacterial infection should
Blood Conservation – In Practice

- Phone call for HLC assistance at 1.30am 17/10, 29yr old Male involved in a Motorbike RTA.

- Over the course of 4 surgeries, he endured a fall in hb to 3.5, had a number of kidney dialysis sessions, a lower leg amputation, ileostomy and laparotomy

- First surgery involved cell salvage which enabled him to have a second surgery a day and half later.

- EPO and IV Iron were prescribed as per the hospital protocol and the patient was kept sedated and stable for a just under 2 weeks.
Blood Conservation – In Practice

“Bloodless surgery has come to represent good practice, and in the future, it may well be the accepted standard of care.”

-American Journal of Otolaryngology -
Adelola et al, Limerick Ireland 2008

Patient blood management (PBM) has recently been described as a concept pre-empting and significantly reducing the resort to transfusions by addressing anaemia, blood loss, and hypoxia as modifiable risk factors that may result in transfusion long before transfusion may even be considered.

Spahn: PBM is a Win-Win  BJA 108(6), 889-92 (2012)
HOSPITAL LIAISON COMMITTEE

for

Jehovah’s Witnesses

Thank you

Questions are welcome