Perioperative Management of the Jehovah’s Witness Patient

Jonathan Parks, MD (feat. Michael Klein, MD)
Brooklyn VA Hospital
October 15th, 2015
Case Presentation

Morbidly obese 45F in cardiac arrest

No known PMHx, recently healed midline incision

ACLS, ROSC in 3 minutes

Hemoglobin 4.8

Transfused 1u RBC

Surgery consult

CT Abd/pel negative for intraabdominal bleeding/collection
History

Schizoaffective disorder, treated w/ haloperidol IM

2.5 weeks s/p Robot-assisted laparoscopic hysterectomy for uterine cancer

   Injury to pelvic blood vessel

   Converted to open

   > 1L blood loss

Jehovah’s Witness
More History

Preoperatively...

Hemoglobin 8.0 per NYU

11.5 per VA’s EMR, Rx with oral iron supplement

No events postoperatively, discharged home in under 1 week.

Hemoglobin at discharge 5.3

Dx - Cardiogenic shock
Case 2
Case 2

66M, Jehovah’s Witness

30-year history of achalasia

Refractory to esophageal dilatation and POEM

Dysphagia, 40-lb weight loss over 2 months

EGD - severely dilated and macerated esophagus with solid food particles
Operative Procedure

laparoscopic-converted-to-open McKeown esophagectomy, feeding jejunostomy

3000 EBL, mostly from thorax

1 L cell saver

11 L crystalloid
Postoperative Course

Postoperative Hgb: 3.9

Routine labs deferred

Prolonged respiratory failure, s/p tracheostomy POD #38

Candidemia secondary to TPN CLABSI

Esophagram negative, passed S+S, started diet POD #54
“Bloodless” Surgery
Jehovah’s Witnesses

over 8.2 Million Jehovah’s Witnesses worldwide

World Headquarters in Brooklyn, NY

Refusal of blood products is a core value

Transfusion without consent violates autonomy

“Only flesh with its life - its blood - you must not eat.”
- Genesis 9:4

“For the life of every sort of flesh is its blood, because the life is in it.”
- Leviticus 17:14

“...but to write them to abstain ... from blood.”
- Acts 15:20

This constraint has lead to development of “Bloodless” Medicine and Surgery Centers

www.downstatesurgery.org
NO BLOOD TRANSFUSION!

As a God-fearing Christian and a believer of Jehovah's word, the Bible, I hereby demand that blood, in any way, shape or form, is NOT to be fed into my body; however, blood substitutes may be used in case of extreme loss of blood.

'YOU MUST NOT EAT THE BLOOD OF ANY SORT OF FLESH'

LEVITICUS 17:14 NW

Signature ____________________________

Witness ____________________________ (Over)
Bloodless Surgery

AKA “Patient Blood Management”

Strategy for medical and surgical care that seeks to improve outcomes without the use of allogenic blood transfusions

Appropriate for all patients, regardless of religion
Patient Blood Management

1st Pillar: Optimize hematopoiesis

2nd Pillar: Minimize blood loss & bleeding

3rd Pillar: Harness & optimize physiological tolerance of anemia

Multidisciplinary team approach
<table>
<thead>
<tr>
<th>1st Pillar</th>
<th>2nd Pillar</th>
<th>3rd Pillar</th>
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<tbody>
<tr>
<td>Preoperative</td>
<td>Intraoperative</td>
<td>Postoperative</td>
</tr>
<tr>
<td>Optimize hematopoiesis</td>
<td>Minimize blood loss &amp; bleeding</td>
<td>Harness &amp; optimize tolerance of anemia</td>
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<tr>
<td>- Screen for &amp; manage anemia</td>
<td>- Identify &amp; manage bleeding risk</td>
<td>- Assess/optimize physiological reserve &amp; risk factors</td>
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<td>- Manage underlying disorder(s)</td>
<td>- Minimize iatrogenic blood loss</td>
<td>- Consider patient’s estimated blood loss versus tolerable blood loss</td>
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<td>- Refer for further evaluation if necessary</td>
<td>- Procedure planning &amp; rehearsal</td>
<td>- Restrictive, evidence-based transfusion strategies</td>
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<td>- Consider anemia as a contraindication for elective surgery</td>
<td>- Consider preoperative autologous blood donation</td>
<td>- Optimize cardiac output</td>
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<td></td>
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<td>- Optimize ventilation &amp; oxygenation</td>
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<td>- Restrictive, evidence-based transfusion strategies</td>
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<tr>
<td></td>
<td></td>
<td>- Monitor &amp; manage postoperative bleeding/secondary hemorrhage/infections</td>
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<td></td>
<td></td>
<td>- Maintain normothermia</td>
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<tr>
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<td></td>
<td>- Autologous blood salvage</td>
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<td></td>
<td>- Minimize iatrogenic blood loss</td>
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<tr>
<td></td>
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<td>- Manage anticoagulation</td>
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<td>- Prophylaxis of upper GI hemorrhage</td>
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<td>- Be aware of adverse effects of medications</td>
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<td>- Optimise tolerance of anemia</td>
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<td>- Maximize oxygen delivery</td>
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<td></td>
<td>- Minimize oxygen consumption</td>
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<tr>
<td></td>
<td></td>
<td>- Avoid/treat infections promptly</td>
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</table>
Preoperative → Intraoperative → Postoperative

- IAD
  - ANH
  - Divert blood prior to onset of CPB

- Autotransfusion
  - Cell saver
  - Coronary suckers

- Pharmacotherapy
  - HemostaticRx
  - Antifibrinolytics
  - DDAVP

- CPB
  - Smaller prime volume
  - Smaller circuits
  - Re-infuse as much blood as possible
  - Hemofiltration/diuresis

- Tolerance of anemia
- Euvolemia

- Surgical
  - Technique
  - Hemostasis

Lab-guided transfusion therapy →
Pre-Op

- rHuEpo + Fe
- Avoid drugs affecting coagulation
- Minimize blood draws
- ± PAD + rHuEpo + Fe
Preoperative Techniques

Preoperative Autologous Donation

Erythropoietic agents, iron, folate, and B12

Reduction of transfusion triggers

Tolerance of anemia

Avoidance/reversal of drugs that affect coagulation

Preoperative ‘rehersals’
Preoperative Autologous Donation

Most popular 25 years ago - HIV, HCV

Limited to elective procedures

4 units over 4 weeks

NOT acceptable to Jehovah’s Witnesses

Limited lifespan

Chronic hemodilution!

More transfusions, more storage, more money, more mistakes
Erythropoiesis

Recombinant human erythropoetin

Given with Iron, Folate and B12

Increases hemoglobin levels

Reduces need for transfusions

No demonstrated effect on mortality

Side effects - thrombosis in CKD? considered safe and cost effective

* Contains albumin (a blood product!) - most JWs accept this
Transfusion thresholds

Cochrane Review - 19 trials, 6264 patients

Restrictive (HGB < 7-8) vs liberal (<10) - CAD pts not included

Restrictive group received less transfusions (RR 0.61), and less blood (1.2 units)

   No impact on adverse events, functional recovery, ICU stay

   Reduction in hospital mortality, not in 30d mortality

_Treat patients, not labs_
Intra-Op

- IAD
- ANH
  - Divert blood prior to onset of CPB

- Autotransfusion
  - Cell saver
  - Coronary suckers

- Pharmacotherapy
  - Hemostatic Rx
    - Antifibrinolytics
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- Surgical
  - Technique
  - Hemostasis
Intraoperative Techniques

“Meticulous” Hemostasis

Acute normovolemic hemodilution

Cell salvage

Pharmacologic hemostatic measures
Hemostasis

Electrocautery, Harmonic scalpel, Argon Beam, etc.

Fibrin glue, Floseal, Surgicel, Nu-Knit, fibrillar, etc.

Patient positioning, tourniquets

Local vasoconstriction with epinephrine

Avoidance of hypothermia

Off-pump CABG

Controlled hypotensive anesthesia
Acute Normovolemic Hemodilution

From 1970s

remove blood immediately before incision, replace with equal volume of colloid

Goal - decrease RBC mass shed

Reduction in transfusions 10% (1-2 units) in RCT

Questionable results in metaanalyses


Cell Salvage

Suction system that collects, washes, and reinfuses blood intraoperatively

reduces allogeneic transfusion
Pharmacologic Measures

Antifibrinolytics - DDAVP, Trasexamic acid, Vit K, aprotinin
recombinant Factor VIIa
Post-Op

- rHuEpo + Fe
- Tolerance of anemia
- Euvolemia
- Minimize blood draws
- Autotransfusion
- Re-exploration
  - Low threshold
Postoperative Techniques

Erythropoietic agents, iron folate, and B12 - again minimize blood draws

Autotransfusion

Low re-exploration threshold
Outcomes

Does Bloodless Surgery work?

Numerous reports on outcomes for patients who do not accept Blood transfusion

However…

No controls

No risk adjustments

Focus on cardiac surgery
Risk-adjusted clinical outcomes in patients enrolled in a bloodless program

Results of first year of the Bloodless Medicine and Surgery Program at Johns Hopkins

- Description of care
- Risk-adjusted
- Variety of clinical outcomes not previously compared
Risk-adjusted clinical outcomes in patients enrolled in a bloodless program

Outcomes for bloodless patients were similar or better than patients who accepted ABT

- Similar hemoglobin concentrations
- Same length of stay
- Cost up to 20% less

In-hospital death was less frequent in bloodless group
Summary

- Detailed History and Physical in addition to thorough discussion about blood products is essential to care of Jehovah’s Witness Patients.

- Blood transfusions are not benign!

- Bloodless Surgery with the goal of reduction of blood transfusions is appropriate for all patients.
SPECIAL GRAND ROUND:
BLOOD TRANSFUSION & FAITH

DATE: FRIDAY, OCTOBER 14, 2016
LOCATION: T-BUILDING, AUDITORIUM
TIME: 12:00 PM - 1:00 PM

Come join us to hear perspectives on Transfusion & Cell Sparing Practices from Jehovah’s Witnesses and the Blood Bank Director.

All Medical and Nursing Staff, Residents, Hospital Clergy, Social Workers & Patient-Guest Relations staff are invited.

LUNCH WILL BE SERVED!!!