A JEHOVAH’S WITNESS BLEEDS?

Atul B Lakha
Department of Internal Medicine
Division of Clinical Haematology
Chris Hani Baragwanath Academic Hospital
Physicians Update
Johannesburg
31 July 2015
It's okay if you disagree with me. I can't force you to be right.
Charles Taze Russell
**Genesis 9:4**
But flesh with its life, its blood, you shall not eat.

**Leviticus 17:14**
For as to the life of all flesh, its blood is with its life: therefore I said to the children of Israel, "You shall not eat the blood of any kind of flesh; for the life of all flesh is its blood. Whoever eats it shall be cut off."

**Acts 15:19-20**
"Therefore my judgment is that we don't trouble those from among the Gentiles who turn to God, but that we write to them that they abstain from the pollution of idols, from sexual immorality, from what is strangled, and from blood."
"Wrong is Wrong even if everyone is doing it. Right is Right even if no one is doing it."
• **Autonomy**

The right of **patients** to make decisions about their medical care without their health care provider trying to influence the decision. **Patient autonomy** does allow for health care providers to educate the **patient** but does not allow the health care provider to make the decision for the **patient**.

**Competency** - mental capacities to reason and deliberate, hold appropriate values and goals, appreciate one's circumstances, understand information one is given and communicate a choice.
• **Maintain patient rapport**

• **Informed discussion** –
  
  Diagnosis
  
  Prognosis
  
  Treatment options – risks / likely consequences

“**Informed consent-2008**” by Professor Ames Dhai:

“Informed consent is not merely a legalistic exercise, but must be seen as a process that empowers our patients to exercise their capacity to plan and execute their decisions regarding their health, taking into consideration their own values and beliefs.”
• Clarify Advanced Health Directives
UNACCEPTABLE

• Transfusion of Allogeneic Whole blood, Red blood cells, White blood cells, Platelets or Plasma
• Pre – operative Autologous Donation (PAD)

UpToDate – The approach to the patient who refuses blood transfusion – Kendall P Crookston
• Surgical / Anaesthesiological blood conservation methods
  (haemostatic agents, hypotensive anaesthesia, etc.)
• Most diagnostic & therapeutic procedures
  (phlebotomy, angiographic embolization)
• Non – blood volume expanders (Saline, Ringers lactate, HES)
• Haemostatic agents (tranexamic acid, DDAVP, etc)
• Haematinics
• Recombinant products (Albumin free -EPO, coagulation factors)
• Synthetic oxygen carriers (PFC)

UpToDate – The approach to the patient who refuses blood transfusion – Kendall P Crookston
PERSONAL DECISION

• Blood cell salvage *
• Acute Normovolaemic Haemodilution (ANH) *
• Cardiopulmonary bypass •
• Apheresis •
• Haemodialysis •
• Plasma derived fractions (IVIG, vaccines, albumin, coagulation factors, fibrin glue, thrombin sealants, cryoprecipitate)
• Products containing plasma-derived blood fractions such as human albumin (streptokinase)
• Oxygen therapeutics (human or animal derived)
• Epidural blood patch
• Transplants (organ, SCT)

UpToDate – The approach to the patient who refuses blood transfusion – Kendall P Crookston
• Assure Confidentiality

• Clear Documentation

• Release form/document

• Psychological support

Trust Me, I’m a Doctor
Adult patient who is COMPETENT to consent to / refuse treatment

- The SA constitution protects a patient's right to **BODILY INTEGRITY** and **AUTONOMY**
- **COMPETENT** adult Jehovah’s Witness (JW) is entitled to **REFUSE** a lifesaving transfusion

- **Non-emergency/elective cases**, if the clinician does not wish to risk treating or operating on a JW patient if he has not been authorised to administer blood products, then:
  1. Explain to the patient why treatment or surgery is being refused
  2. Explain the risks and consequences if blood products are not administered
  3. Other treatment options and their likely consequences
  4. Refer to a colleague if the patient still wishes to undergo such treatment/surgery despite being aware of the compromised outcome

- If the clinician agrees to refrain from administering blood products whilst treating/performing surgery, the patient should be fully counselled regarding the likely consequences and be requested to sign a release form, absolving the clinician from liability resulting from failure to administer blood products.

- **Emergency** - clinician **may not refuse to treat** a patient who refuses blood products and the patient should accordingly be treated **without** administering blood. If possible, the likely consequences should still be explained to the pt.

**NB: Carefully documentation of ALL discussions in notes**

*Nicola Caine and Karin Zybrands, MPS casebook May 2014*
Adult patient who is UNABLE to consent to / refuse treatment – not competent / unconscious

National Health Act-
• A person mandated by the patient, in writing, may consent/refuse the blood transfusion on behalf of the patient

• If no one mandated – proxy consent/refusal should be obtained from:
  1. patients spouse/partner
  2. a parent
  3. a grandparent
  4. an adult child
  5. brother /sister

• If an advance directive stating that the patient would not accept blood products, even with life threatening bleeding, is present, such refusal should be respected – PROVIDED that the decision in the directive is CLEARLY APPLICABLE to the PRESENT CIRCUMSTANCES and there is NO REASON to believe that the patient has CHANGED THEIR MIND.

• In the absence of an advance directive in an emergency situation, the doctor should act in a manner that’s in the patient’s best interest, with or without the use of blood.

Nicola Caine and Karin Zybrands, MPS casebook May 2014
WHAT IF....
A JEHOVAH’S
WITNESS BLEEDS?

PRINCIPLES OF MANAGEMENT

1. Resuscitation
2. Rapid diagnosis
3. Prompt arrest of bleeding
4. Specific therapy – Underlying cause
5. Close monitoring
6. Minimize further/iatrogenic blood loss
7. Optimize oxygen delivery and minimize oxygen consumption
8. EARLY Management of cytopenias
9. EARLY management of sepsis
10. Multidisciplinary approach
11. Involve JW hospital liaison
12. Early transfer
1. ABCDE

- AIRWAY
- BREATHING
- CIRCULATION
- DISABILITY
- EXPOSURE
2. RAPID DIAGNOSIS

EARLY and AGGRESSIVE approach to localize source of bleeding:

- Thorough history & physical examination
- Preliminary investigations (FBC/Diff/Smear, U&E, INR-PTT)

a. Localized vs Generalized
b. Inherited / Congenital vs Acquired
c. Surgical vs Medical
<table>
<thead>
<tr>
<th>PLATELET ABNORMALITIES</th>
<th>VESSEL WALL ABNORMALITIES</th>
<th>COAGULATION ABNORMALITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>QUANTITATIVE</strong></td>
<td><strong>INHERITED/CONGENITAL</strong></td>
<td><strong>INHERITED</strong></td>
</tr>
<tr>
<td>Production failure</td>
<td>Kasabach-Merritt Sx</td>
<td>Von Willebrand’s Ds</td>
</tr>
<tr>
<td>• ↓ Mega’s - Infiltration</td>
<td>HHT</td>
<td>Haemophilia A, B</td>
</tr>
<tr>
<td></td>
<td>• Aplasia</td>
<td>Other - rare</td>
</tr>
<tr>
<td></td>
<td>• Congenital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ineffective Mega’s</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Megaloblastic</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Ethanol / MDS</td>
<td></td>
</tr>
<tr>
<td>Peripheral Destruction</td>
<td>Marfans Sx</td>
<td></td>
</tr>
<tr>
<td>• Immune – ITP / HIT</td>
<td>Ehlers-Danlos Sx</td>
<td></td>
</tr>
<tr>
<td>• Consumption – DIC / TTP</td>
<td>Pseudoxanthoma</td>
<td></td>
</tr>
<tr>
<td>Sequestration</td>
<td>Elasticum</td>
<td></td>
</tr>
<tr>
<td>• Splenic / Haemangioma</td>
<td>• Osteogenesis Imperfecta</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Dilution / Pregnancy</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>QUALITATIVE</strong></td>
<td><strong>ACQUIRED</strong></td>
<td><strong>ACQUIRED</strong></td>
</tr>
<tr>
<td>Inherited</td>
<td>Henoch-Schönlein Purpura</td>
<td>Drugs</td>
</tr>
<tr>
<td>• Bernard Soulier</td>
<td>Drugs-Penicillin/Sulfa/Aspirin</td>
<td>Liver disease</td>
</tr>
<tr>
<td>• Glanzmann’s Thrombasthenia</td>
<td>Infections – Meningococcals/Diptheria,etc</td>
<td>Vitamin K def /antagonism</td>
</tr>
<tr>
<td>• Storage Pool Disorders</td>
<td>Scurvy</td>
<td>• DIC</td>
</tr>
<tr>
<td>Acquired</td>
<td>Senile Purpura</td>
<td>• Acquired Haemophilia</td>
</tr>
<tr>
<td>• Drugs / Paraproteinemia /</td>
<td>Amyloidosis</td>
<td></td>
</tr>
<tr>
<td>MPN / MDS / Uraemia /</td>
<td>• Steroid purpura</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LOW THRESHOLD for EARLY investigations –

- Endoscopy
- Radiological Ix (Sonar, CT, angiography, MRI)
- Radionuclide imaging (Red cell scans)
- DPL
- Exploratory surgery (laparotomy)

that will yield results rapidly
3. PROMPT ARREST OF BLEEDING

- Direct pressure
- Surgical
- **Endoscopic** – Thermal/ electrocoagulation methods
  - Sclerotherapy
  - Mechanical occlusion – banding, balloon tamponade
- **Radiological** (angiographic embolization)
3. PROMPT ARREST OF BLEEDING

- Pharmacological
  - DDAVP
  - Antifibrinolytic agents (aminocaproic acid, tranexamic acid)
  - Topicals – fibrin glue, gelatin sponges, oxidized cellulose
  - Conjugated oestrogens (Premarin)
  - Vitamin K
  - Protamine sulfate
  - Prothrombin Complex Concentrates (PCC)
  - Recombinant coagulation factors
  - Recombinant factor VIIa (Novo 7)
  - Cryoprecipitate
  - Octreotide
  - Recombinant human IL-11 (Neumega)*
4. INITIATE SPECIFIC THERAPY – UNDERLYING CAUSE
5. CLOSE MONITORING

6. MINIMIZE FURTHER BLOOD LOSS

• Minimize phlebotomy
• Minimize use of anti-platelet agents (aspirin, NSAIDs) and anticoagulants (therapeutic and prophylactic)
• Side effects of medication
• GIT acid suppression
6. MINIMIZE FURTHER BLOOD LOSS

- **Surgical methods**
  - Minimally invasive surgery
  - Laparoscopic > open surgery
  - Tourniquets
  - Intra operative positioning of patient
  - Meticulous attention to haemostasis

- **Anaesthetic measures**
  - Regional anaesthesia
  - Hypotensive anaesthesia
  - Maintenance of normothermia
  - Plasma volume expanders
  - Acute Normovolaemic Haemodilution (ANH)
  - Cell Saver Technique
7. OPTIMIZE O₂ DELIVERY / MINIMIZE O₂ CONSUMPTION

• Supplemental O₂
• Paralysis and Mechanical ventilation
• Appropriate analgesia and sedation
• Hyperbaric O₂
8. EARLY MANAGEMENT OF CYTOPENIAS

• Exclude other possible causes for cytopenias
• Use of recombinant growth factors – ESA’s; Thrombopoietin and thrombopoietin mimetics
8. EARLY MANAGEMENT OF CYTOPENIAS

- Erythropoiesis Stimulating Agents (ESA’s) – rHuEPO
  - 1st generation – EPO α (EPREX)
  - 2nd generation – Darbepoietin α (ARANESP)
  - 3rd generation – CERA (Continuous Erythropoietin Receptor Activator) – pegylated epoetin β (MIRCERA)
8. EARLY MANAGEMENT OF CYTOPENIAS

- EPO α/β doses ranging from 150-600 iu/kg/day (≈150-300 iu/kg/day) in the setting of ACUTE anaemia
- Daily dosing > larger once weekly doses
- Initial IV dose → SC
- Slower response than blood transfusion, therefore earlier initiation is advised.
- Response is dependent on:
  - Dosage
  - BM status
  - Nutritional status
  - Sepsis/inflammation
  - Cause of the anaemia has been addressed
- Haematinic support – IV Fe > oral Fe
- Nutritional support – early enteral feeding
8. EARLY MANAGEMENT OF CYTOPENIAS

- Thrombopoietin and thrombopoietin mimetics –
  - rHuTPO 😞
  - TPO receptor agonists – Eltrombopag (oral); Romiplostim (SC)
  - rHu –IL 11 – Oprelvekin (Neumega)
9. EARLY MANAGEMENT OF SEPSIS

10. MULTIDISCIPLINARY APPROACH

11. JW Hospital Liaison Committee

Jehovah’s Witness Hospital Liaison Committee:
24 hr service: (011) 761 – 1000
cell: 083 226 5959
email: his@jw.org.za

12. EARLY TRANSFER
OXYGEN CARRIERS

- Haemoglobin – Based Oxygen Carriers (HBOC’s)

- Perfluorocarbons (PFC’s)
Hb – BASED O₂ CARRIERS (HBOC’s)

- Chemically modified Hb
- Mammalian sources – Animal (Bovine) - Hemopure® 😞
  – Human - Polyheme ® 😞
- Liposome Encapsulated Hb (LEH) 😞
- Recombinant Hb 😞
PERFLUOROCARBONS (PFC’S)

• Excellent solvents
• Unlimited ability to dissolve gases
• Long shelf-life
• Smaller than Hb molecule, but deliver O₂ at twice the rate
• O₂ carrying capacity depends on amount of O₂ inhaled
ADVANTAGES OF O₂ CARRIERS:

• Immediate and efficient delivery of oxygen to tissues
• Stable at room temperature – no warming, refrigeration or re-constitution
• Long shelf life (36 months vs. 4-6 wks RBC’s)
• Ultra purified – inactivate contaminants including infectious agents
• Compatible with all blood types – no typing or cross matching
• May deliver oxygen to areas with reduced perfusion (due to the small structure of the compounds compared to RBC’s)
DISADVANTAGES:

- Short half-life (temporary bridge)
- Cost
- SERIOUS ADVERSE EVENTS
• ESA’s
  – Erythropoietin Mimetic Peptides
  – HIF stabilizers
  – Hepcidin Modulation
  – GATA-2 Inhibitors
  – Erythropoietin Gene Therapy

• 2nd generation “safer” HBOC’s and PFC’s
• Hyper-branched polymer-protected porphyrins
• Cord blood Stem Cell blood pharming
CONCLUSION

• Jehovah’s Witnesses are not anti-medicine

• Legal aspects / ethical responsibility –
  • Informed, independent decision
  • Clarify practices
  • Clear documentation

• EARLY and AGGRESSIVE approach to determine the cause of bleeding → PROMPT arrest of bleeding

• Minimize further blood loss (iatrogenic)

• EARLY utilization of NON-BLOOD alternative methods / agents

The highest form of ignorance is when you reject something you don’t know anything about. — Wayne Dyer
You don’t have to be a doctor to save lives.

Just Donate Blood.
It’s safe. It’s simple. And it saves lives.
Thank You !
REFERENCES

The approach to the patient who refuses blood transfusion - Kendall P Crookston, Arthur J Silvergleid, Steven Kleinman, Jennifer S Tirnauer
Up To Date 2015

The challenges of treating Jehovah’s Witnesses - Nicola Caine, Karin Zybrands
MPS Casebook, May 2014

Article – It’s my life- The Jehovah’s Witness perspective - Mike Summerton
Transactions, Vol 49, No.2, Jul-Dec 2005

Ethical perspectives on Jehovah’s Witnesses refusal of blood - Martin L Smith
Cleveland Clinic Journal of Medicine, Vol 64 No.9, Oct 1997

Clinical strategies for avoiding and controlling hemorrhage and anemia without blood transfusion in surgical patients
Clinical strategies for managing hemorrhage and anemia without blood transfusion in critically ill patients
Clinical strategies for managing acute gastrointestinal hemorrhage and anemia without blood transfusion
Jehovah’s Witnesses – Hospital Information Services

How to approach major surgery where patients refuse blood transfusion (including Jehovah’s Witnesses) - MS Gohel, RA Bulbulia, FJ Slim, KR Poskitt, MR Whyman
Ann R Coll Surg Engl 2005; 87: 3-14

Introduction to recombinant hemopoietic growth factors - Colin A Sieff, Robert S Negrin, Jennifer S Tirnauer
Up To Date 2015

Therapeutic uses of recombinant coagulation factor VIIa in non-haemophiliacs - Maureane Hoffman, Lawrence LK Leung, Jennifer S Tirnauer
Up To Date 2015

Oxygen carriers as alternatives to red cell transfusion - Joy L Fridey, Arthur J Silvergleid, Jennifer S Tirnauer
Up To Date 2015

Clinical guidelines for the use of blood products in South Africa (SANBS)
5th Edition 2014

New Anemia Therapies - Translating Novel Strategies From Bench to Bedside - Iain C. Macdougall, BSc, MD, FRCP