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Major abdominal surgery in Jehovah's Witnesses

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ABSTRACT

INTRODUCTION Patients who are Jehovah's Witnesses pose difficult ethical and moral dilemmas for surgeons because of their refusal to receive blood and blood products. This article outlines the personal experiences of six Jehovah's Witnesses who underwent major abdominal surgery at a single institution and also summarises the literature on the perioperative care of these patients.

METHODS The patients recorded their thoughts and the dilemmas they faced during their surgical journey. We also reviewed the recent literature on the ethical principles involved in treating such patients and strategies recommended to make surgery safer.

RESULTS All patients were supported in their decision making by the clinical team and the Hospital Liaison Committee for Jehovah's Witnesses. The patients recognised the ethical and moral difficulties experienced by clinicians in this setting. However, they described taking strength from their belief in Jehovah. A multitude of techniques are available to minimise the risk associated with major surgery in Jehovah's Witness patients, many of which have been adopted to minimise unnecessary use of blood products in general. Nevertheless, the risks of catastrophic haemorrhage and consequent mortality remain an unresolved issue for the treating team.

CONCLUSIONS Respect for a patient's autonomy in this setting is the overriding ethical principle, with detailed discussion forming an important part of the preparation of a Jehovah's Witness for major abdominal surgery. Clinicians must be diligent in the documentation of the patient's wishes to ensure all members of the team can abide by these.

KEYWORDS

Jehovah's Witness – Abdominal surgery – Blood loss – Blood transfusion – Patient perspective

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Jehovah's Witness is a Christian movement started in 1872 by Charles Taze Russell with a global following of over 7.8 million. An integral tenet of the belief of Jehovah's Witnesses is their refusal to accept allogenic whole blood and its four main components: red and white blood cells, platelets and plasma. They believe that the storage, consumption or transfusion of blood and related products is prohibited by Biblical passages, which they feel clearly command abstinence from eating or consuming blood (Table 1). Consequently, Jehovah's Witnesses believe that avoiding blood transfusions represents not only obedience to God but also a mark of respect.¹

The medical and legal challenges facing clinicians treating Jehovah's Witnesses have been explored,^{2–4} and reports of successful blood conserving techniques in abdominal surgery have been published.^{5–8} However, neither the patients' own perspectives nor the spiritual, psychological and emotional dilemmas that they encounter have been documented. Six adult Jehovah's Witnesses who underwent major abdominal (pancreaticobiliary) surgery shared their thoughts and experiences through letters and personal communication. We also suggest strategies that could help make major elective surgery safe in such patients.

Ethical principles

There is a range of complex issues relating to the four main ethical principles⁹ involved when Jehovah's Witnesses refuse blood transfusion. The principle of autonomy should be respected in patients who can provide informed consent and do not wish to receive blood products,¹⁰ even if the clinician feels that this is an irrational decision¹¹ or that it may lead inevitably to the death of the patient, which can be incredibly difficult for a physician to accept.¹²

On the other hand, the principle of non-maleficence mandates that physicians should avoid harm for their patients and as such, the act of withholding blood products (albeit an act of omission) can cause internal conflict to physicians in this situation. In a similar concept, the principle of beneficence supports the physician in treating the patient to the maximum benefit, which may in some cases be by the transfusion of blood products.

However, when the patients' beliefs are taken into consideration (that should they receive blood products, this will be seriously damaging to their relationship with their god), it becomes more feasible to understand the counterargument.

Table 1 Biblical passages related to consumption of blood

Book, chapter and verse	Passage
Genesis 9:4	Only flesh with its life – its blood – you must not eat.
Leviticus 17:10	If any man of the house of Israel or any foreigner who is residing in your midst eats any sort of blood, I will certainly set my face against the one who is eating the blood, and I will cut him off from among his people.
Deuteronomy 12:23	Just be firmly resolved not to eat the blood, because the blood is the life, and you must not eat the life with the flesh.
Acts 15:28, 29	For the Holy Spirit and we ourselves have favoured adding no further burden to you except these necessary things: to keep abstaining from things sacrificed to idols, from blood, from what is strangled, and from sexual immorality. If you carefully keep yourselves from these things, you will prosper. Good health to you!
Leviticus 17:14	For the life of every sort of flesh is its blood, because the life is in it. Consequently, I said to the Israelites: 'You must not eat the blood of any sort of flesh because the life of every sort of flesh is its blood. Anyone eating it will be cut off.'

The final principle of justice supports honouring a competent patient's wishes. Consequently, withholding blood products is justifiable in this context.

Clinical considerations

The reluctance to use whole blood and its main fractions (both by Jehovah's Witnesses and on rare occasions when other individuals prefer to avoid blood transfusions) has

spurred the development of perioperative protocols to improve patients' haematological markers, including haemoglobin prior to surgery, and to conserve blood during surgery (Table 2).¹³⁻²⁵ There is variability in the products deemed unacceptable by Jehovah's Witnesses and the acceptability of products should be established prior to any intervention.⁴

Products that *are generally acceptable* include recombinant erythropoietin, recombinant factor VIIa and artificial

Table 2 Perioperative strategies for minimising risk in major surgery in Jehovah's witnesses (adapted from *Care Plan for Surgery in Jehovah's Witnesses*, available from <http://www.transfusionguidelines.org/document-library/documents/care-plan-for-surgery-in-jehovahs-witnesses-leaflet/>)

Preoperative	Intraoperative	Postoperative
<p><i>Correct anaemia</i></p> <ul style="list-style-type: none"> Oral or intravenous iron Folic acid Vitamin B₁₂ Minimise blood sampling Treat menorrhagia Erythropoietin stimulating agents¹³ <p><i>Correct clotting abnormalities</i></p> <ul style="list-style-type: none"> Review non-steroidal anti-inflammatory agents, warfarin, antibiotics Vitamin K¹⁴ Protamine Consider haemostatic agents Check coagulation profile 	<p><i>Techniques to minimise blood loss</i></p> <ul style="list-style-type: none"> Meticulous haemostasis Haemostatic dissecting devices Radiologically guided arterial occlusion¹⁵ Minimally invasive procedures Extended surgical team Surgical positioning¹⁶ Staging of complex procedures <p><i>Alternatives to blood transfusion</i></p> <ul style="list-style-type: none"> Intraoperative cell salvage*¹⁷ Artificial oxygen carriers (haemoglobin-based or perfluorocarbon-based)¹⁸ <p><i>Anaesthetic techniques</i></p> <ul style="list-style-type: none"> Hypotensive anaesthesia Normovolaemic / hypervolaemic haemodilution*¹⁹ Full patient monitoring (eg thromboelastography) Maintain normothermia²⁰ <p><i>Haemostatic agents</i></p> <ul style="list-style-type: none"> Topical (surgical adhesives, sealants)*²¹ Injectable (tranexamic acid, desmopressin, vitamin K)²¹ Other (cryoprecipitate, prothrombin complex, vasopressin)* 	<p><i>Cell salvage</i></p> <ul style="list-style-type: none"> Wound drainage and collection for retransfusion*²² <p><i>Anaemia</i></p> <ul style="list-style-type: none"> Oxygen support Erythropoietin stimulating agents Intravenous iron Folic acid Vitamin B₁₂ Minimise phlebotomy Hyperbaric oxygen²³ <p><i>For bleeding</i></p> <ul style="list-style-type: none"> Radiologically guided arterial occlusion Prompt reoperation Direct pressure Haemostatic agents Tourniquet Controlled hypotension <p><i>For shock</i></p> <ul style="list-style-type: none"> Trendelenburg position Medical antishock trousers <p><i>Monitoring and observation</i></p> <ul style="list-style-type: none"> Enhanced schedule for early detection of haemorrhage

*Dependent on patient preference

blood substitutes whereas those that *may be acceptable* include platelet fractions, albumin, immunoglobulins, cryoprecipitate, interferons and red cell fractions including human haemoglobin. Artificial blood substitutes work to mimic some of the biological functions of red blood cells (most notably that of oxygen and carbon dioxide), and are most commonly seen as haemoglobin-based oxygen carriers and perfluorocarbon-based oxygen carriers.¹⁸ However, these are not readily available for clinical use.

Preoperative optimisation of patients who are Jehovah's Witnesses (especially those with anaemia) may be achieved using intravenous iron infusions and erythropoietin stimulating agents to augment erythropoiesis.²⁴ This is a slow process and needs to be implemented several weeks before surgery to gain maximal benefit. Anaemia should be corrected, as far as possible, preoperatively as decreasing preoperative haemoglobin concentrations are associated with increased morbidity and mortality in such patients.^{25,26}

Intraoperative measures include cell salvage of blood loss and acute normovolaemic haemodilution to minimise red cell loss. Some patients will accept these techniques while others will refuse. All our patients were happy to accept cell salvaged blood, irrespective of the potential risk of retransfusing malignant cells.²⁷ Recent literature, however, suggests that the use of cell salvage does not increase the risk of cancer recurrence,^{28,29} which may further encourage patients to accept this strategy for perioperative blood management.

A number of anaesthetic and surgical strategies for the minimisation of blood loss⁴ have been identified previously. Anaesthetic strategies include ventilation designed to reduce venous preload and, therefore, any potential increase in bleeding, temperature regulation to ensure that patients do not develop hypothermia and resultant coagulopathy,¹⁹ and patient positioning (typically in the Trendelenburg position).¹⁶ Intraoperative surgical strategies include the use of electro-surgery devices to assist with meticulous haemostasis, direct compression to achieve haemostasis, the application of haemostatic agents such as fibrin glues, gelatine-based sealants and human fibrinogen packs, and the use of tourniquets in limb surgery.³⁰ The Association of Anaesthetists of Great Britain and Ireland³¹ and The Royal College of Surgeons of England³² have also published guidelines that outline measures to minimise risk in Jehovah's Witnesses who undergo major surgery.

Strategies to minimise postoperative blood loss include prompt assessment by a senior clinician if acute blood loss is suspected, the rationalisation of postoperative phlebotomy and use of paediatric tubes where available. In certain surgical specialties, postoperative wound drainage systems have been designed to allow the autotransfusion of drained blood, minimising any loss, although the evidence for this is contradictory.^{22,33} Other techniques for patients who have experienced severe intraoperative blood loss include hyperbaric²⁵ and extracorporeal oxygen therapy³⁴ but these are not in widespread use.

Extensive preoperative discussions involving the responsible anaesthetist, surgeon and all our patients were

undertaken to ensure a firm understanding of the diagnosis, prognosis, operative challenges and potential problems. The patients also received guidance from the Hospital Liaison Committee for Jehovah's Witnesses to help guide their decision making, including a suggested care plan and advance directives. This support network is available 24 hours a day generally via the local hospital switchboard. However, patient consent must be obtained prior to involving this body. Further information for both patients and clinicians is also available.³⁵

A thorough briefing with the entire theatre team before commencing the operation is essential. All operative strategies and any contingency plans necessary for the safe conduct of the operation should be clarified, and criteria for terminating the procedure in the event of intraoperative problems should be discussed at the briefing. A debrief should also be conducted with the team at the end of the operation and postoperative strategies should be documented clearly in the case notes. All personnel (including nursing and support staff) involved in the postoperative care of these patients should be made aware of the patient's wishes and the postoperative monitoring and treatment plan.

Our patients

The six patients in our series were aged between 25 and 77 years. All but one were female. Four patients underwent a pancreaticoduodenectomy for cancer, one underwent a hepaticojejunostomy for recurrent common bile duct stones related to cystic fibrosis, and one had biliary and gastric bypass surgery for locally advanced pancreatic cancer.

They were all given clear advice about the risk of undergoing major surgery without using blood transfusion as well as information regarding the alternatives available. Patients were also given the opportunity to review and discuss an advance directive (Fig 1), which stipulates which products they find acceptable for transfusion on an individual basis prior to surgery. The aim was to enable them to make an informed choice of whether to opt for surgery, bearing in mind the risks and potential problems.

Three patients had preoperative anaemia (haemoglobin 79–117g/l) and underwent optimisation prior to surgery using intravenous iron and/or erythropoietin stimulating agents (post-treatment haemoglobin 121–127g/l). All patients provided consent for intraoperative cell salvage but as the blood loss was <500ml in each case, the need for the transfusion of salvaged blood did not arise. The patients made uneventful recoveries and were discharged on postoperative days 5–13 on oral iron therapy.

Patients' perspectives

From the outset of their surgical journey, all our patients had refused transfusion of whole blood or its major fractions, regardless of the medical consequences. Accepting the diagnosis of a life threatening disease is difficult enough but for Jehovah's Witnesses, there are added

Advance Decision to Refuse Specified Medical Treatment

1. I, _____ (print or type full name), born _____ (date) complete this document to set forth my treatment instructions in case of my incapacity. **The refusal of specified treatment(s) contained herein continues to apply to that/those treatment(s) even if those medically responsible for my welfare and/or any other persons believe that my life is at risk.**

2. I am one of Jehovah's Witnesses with firm religious convictions. With full realization of the implications of this position I direct that **NO TRANSFUSIONS OF BLOOD or primary blood components (red cells, white cells, plasma or platelets)** be administered to me in any circumstances. I also refuse to predonate my blood for later infusion.

3. **Regarding minor fractions of blood** (for example: albumin, coagulation factors, immunoglobulins): [Initial **one** of the three choices below.]
 (a) _____ I refuse all
 (b) _____ I accept all
 (c) _____ I want to qualify either (3a) or (3b) above and my treatment choices are as follows:

4. **Regarding autologous procedures** (involving my own blood, for example: haemodilution, heart bypass, dialysis, intraoperative and postoperative blood salvage): [Initial **one** of the three choices below.]
 (a) _____ I refuse all such procedures or therapies
 (b) _____ I am prepared to accept any such procedure
 (c) _____ I want to qualify either (4a) or (4b) above and my treatment choices are as follows:

I am prepared to accept diagnostic procedures, such as blood samples for testing.

5. **Regarding other welfare instructions** (such as current medications, allergies, and medical problems):

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6. I consent to my relevant medical records and the details of my condition being shared with the Emergency Contact below and/or with member(s) of the Hospital Liaison Committee for Jehovah's Witnesses.

7. Signature _____ NHS No. _____ Date _____
 Address _____

8. **STATEMENT OF WITNESSES:** The person who signed this document did so in my presence. He or she appears to be of sound mind and free from duress, fraud, or undue influence. I am 18 years of age or older.



Signature of witness	Signature of witness
Name Occupation	Name Occupation
Address	Address
Telephone Mobile	Telephone Mobile

9. **EMERGENCY CONTACT:**

Name _____
 Address _____
 Telephone _____ Mobile _____

10. **GENERAL PRACTITIONER CONTACT DETAILS:** A copy of this document is lodged with the Registered General Medical Practitioner whose details appear below.

Name _____
 Address _____
 Telephone Number(s) _____


NO BLOOD
(signed document inside)
Advance Decision to Refuse Specified Medical Treatment
(signed document inside)
NO BLOOD


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Figure 1 Advance decision document for Jehovah's Witnesses (reproduced with permission of the Hospital Information Services for Jehovah's Witnesses, London)

concerns as the potential treatments offered may pose an even greater threat to their lives. One of the initial concerns that most patients recount is that their refusal to receive blood transfusion may exclude them from being offered potentially curative but extensive surgery. One patient wrote: *'Refusal to accept blood transfusions clashed with what doctors thought to be in the best interests. [...] I was not sure I would be offered an operation (Whipple's) [...] my only chance of cure [...] frightening [...] my refusal to accept blood transfusions meant [...] I could die.'*

Another patient reported: *'My first thought was that I can't change anything so I prayed hard [...] gave me the courage to cope with my situation.'* She felt that *'for me to go against God's guidance would render my 36 years as a Witness a lie'*.

All patients felt that their faith helped them and their families to make the decision to opt for surgical intervention, and also to cope if faced with a life threatening situation. They felt that their concerns were well understood and respected. This gave them confidence and made the decision making process easier. The Hospital Liaison Committee for Jehovah's Witnesses was another source of advice and guidance that patients found very useful. They were provided with up-to-date literature regarding alternatives to transfusion during the perioperative period, which helped them make appropriate choices that were in keeping with their religious beliefs.

The patients also appreciated the dilemma the clinicians had. One wrote: *'I know how difficult it would have been for yourself and your team if things went wrong and you were forced to allow me to die, when all your years of*

training has been to do all in your power to sustain life.' Another patient stated: *'My religious beliefs as a Jehovah's Witness are very sincere and I was aware due to my refusal to accept blood products that this may cause concern to those involved in the surgery.'*

One patient summarised the general feeling among all the patients in our series: *'People would perhaps ask the question "What if matters became critical and a blood transfusion was the only option?" However, if that were to be the case, along with my absolute faith that my integrity to my God Jehovah would be rewarded, I have to say that I had no major doubts due to the knowledge I had and also the expertise of the medical team conducting my operation. I feel a great debt to all of them and will do so for the rest of my life.'*

Clinicians' perspectives

The unpredictability of blood loss during the course of major surgery poses a daunting prospect to the clinicians involved in the care of patients who are Jehovah's Witnesses. Although preoperative anaemia can be corrected relatively easily nowadays and cell salvage is a useful adjunct, not all patients consent to cell salvage.⁵⁶ Excessive blood loss in the absence of the facility for cell salvage can be life threatening and most patients agree that in this situation, it would be prudent to truncate the operation rather than proceed to heroic resections that would result in a high risk of mortality.

In addition, the development of postoperative complications (especially haemorrhagic ones) could prove life

threatening and difficult to manage without the use of blood products. Patients with a postoperative haemoglobin concentration of <70g/l are known to have a progressive increase in overall mortality rates.⁵⁷ This should be avoided if at all possible and treated rapidly using established adjuncts when necessary.⁵⁸ Despite this, there are documented cases of patient survival without any significant sequelae even with extremely low postoperative haemoglobin levels.^{59,40}

The decision to offer Jehovah's Witnesses major surgery is potentially more difficult in those with benign disease than in those who have cancer as in the former group, the disease is unlikely to result in death while the operation may. However, patients usually accept the increased risks if they understand that they will be cared for by a team that is used to managing Jehovah's Witnesses. Nevertheless, it can prove a traumatic experience for the treating team⁴¹ to lose a patient because of haemorrhage that cannot be managed with the transfusion of blood and blood products.

Conclusions

The prospect of having to undergo major surgery can be challenging for Jehovah's Witnesses as well as for the clinicians treating them. However, the wishes of the patient are paramount in the clinical decision making processes. Clinicians must be diligent in the documentation of the patient's wishes to ensure all members of the team can abide by these. A multitude of techniques are available to reduce the risk associated with undertaking major surgery in patients who are Jehovah's Witnesses, many of which are becoming more widely adopted to minimise use of unnecessary blood products in general clinical care. Although major surgery can often be performed safely in these patients, the risks of catastrophic haemorrhage and consequent mortality remain an unresolved issue for the treating team.

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