

Blood Transfusions and the Jehovah's Witnesses Patient: Clinical and Ethical Perspectives

D. John Doyle MD PhD

Department of General Anesthesiology

Cleveland Clinic Foundation

Cleveland, Ohio

doylej@ccf.org

2011 Revision

Abbreviations used:

- JW=Jehovah's Witness
- WTS=Watchtower Bible and Tract Society
- HIS=Hospital Information Service
- HLC=Hospital Liaison Committee
- AJWRB=Associated Jehovah's Witnesses for Reform on Blood

A woman is unconscious as a result of hypovolemic shock following a motor vehicle accident. The patient has a signed (but undated and unwitnessed) wallet card indicating that she is a Jehovah's Witness and does not want to receive blood transfusions under any circumstances. However, without blood she will almost certainly die. Given that the wallet card is incompletely filled out, what should be done? (Answer: Withhold the transfusion anyway.)

Two Jehovah's Witness parents adamantly refuse to permit a blood transfusion for their severely anemic 1-year-old daughter. She is so anemic that she is at risk of developing congestive heart failure. What should be done? (Answer: Initiate legal proceedings via the hospital administrator on call so as to allow the transfusion.)

A 27 year old parturient is bleeding heavily following delivery of a healthy boy. The patient's obstetrician performs a dilation and curettage to remove any retained placenta. Despite this, the bleeding continues. It is recommended she get blood, but the patient, a Jehovah's Witness, refuses a transfusion on religious grounds. The patient's condition continues to deteriorate, and she is taken to the intensive care unit where she is intubated and mechanically ventilated. The clinical team wants to administer blood, but the patient's husband refuses on her behalf. What should be done? (Answer: Withhold the transfusion.)

A drunken driver runs his pickup truck into a stationary car, injuring a 55 year old Jehovah's Witness. She refuses a clinically necessary blood transfusion, and consequently dies in hospital. Prosecutors argue that the driver was responsible for the death because he caused the injuries. His lawyers argued that the immediate cause of the woman's death was her refusal of a blood transfusion, since she very likely would have lived had a blood transfusion been carried out. What do you think? (Outcome: The jury convicted the driver of manslaughter.)

Purpose of This Learning Module

The purpose of this learning module is to bring readers up to date with new developments in the care of the Jehovah's Witnesses patient from clinical, ethical and legal perspectives.

Specific Learning Objectives

The specific learning objectives for this module are as follows: (1) to understand the history of the Jehovah's Witness faith and the biblical justification for their refusal of blood transfusions, (2) to consider which ethical principles may lead to potential conflicts between health care workers and Jehovah's Witnesses patients, (3) to examine several significant legal rulings in Canada and the USA that caregivers should be aware of, (4) to understand what blood products are and are not currently acceptable to the Jehovah's Witness patient, and (5) to understand the impact of the Jehovah's Witness "reform movement" and the nature of recent "doctrinal shifts" in the Jehovah's Witness faith on the matter of blood transfusions.

ADVANCE MEDICAL DIRECTIVE/RELEASE

I, PENNY Whetzer, make this advance directive as a formal statement of my wishes. These instructions reflect my resolute and informed decision.

I direct that ***no blood transfusions*** (whole blood, red cells, white cells, platelets, or blood plasma) be given to me under any circumstances, even if physicians deem such necessary to preserve my life or health. I will accept nonblood volume expanders (such as dextran, saline or Ringer's solution, or hetastarch) and other nonblood management.

This legal directive is an exercise of my right to accept or to refuse medical treatment in accord with my deeply held values and convictions. I am one of Jehovah's Witnesses, and I make this directive out of obedience to commands in the Bible, such as: "Keep abstaining . . . from blood." (Acts 15:28, 29) This is, and has been, my unwavering religious stand for _____ years. I am 43 years old.

I also know that there are various dangers associated with blood transfusions. So I have decided to avoid such dangers and, instead, to

accept whatever risks may seem to be involved in my choice of alternative nonblood management.

I release physicians, anesthesiologists, and hospitals and their personnel from liability for any damages that might be caused by my refusal of blood, despite their otherwise competent care.

I authorize the person(s) named on the reverse to see that my instructions set forth in this directive are upheld and to answer any questions about my absolute refusal of blood.

Penny Whetzer
Signature

8711 AISOPTOWN RD
Address

1/13/03
Date

SPOTS-VA-22553
Address

540-582-7420
Telephone

Bobby Miller minister
Witness

540 786 6479
Telephone

Armed L Miller
Witness

Image Source: http://www.sohmer.net/media/jw_blood_card_2.jpg

Introduction

There are about six million Jehovah's Witnesses world-wide, with approximately one million in the USA and about one 148,000 in Canada. Traditionally, orthodox Jehovah's Witnesses will not accept homologous or autologous whole blood, packed red blood cells, plasma, platelets and white blood cells, even when "clinically necessary" [1-4]. This can result in a challenging dilemma for physicians because a routine, safe, and potentially life-saving medical intervention is unacceptable to the patient [5-11].

Anesthesiologists are particularly affected because they are almost always responsible for intraoperative transfusion management. This sometimes puts anesthesiologists and other clinicians in highly unusual clinical situations [12-15]. For example, the treatment of cancer with chemotherapy often requires the transfusion of blood components. The availability of platelet and leukocyte concentrates starting in the late 1960s dramatically improved the care of oncology patients by permitting higher doses of chemotherapeutic agents to be used. This, in turn, presented special challenges in the management of cancer patients who were practicing Jehovah's Witnesses.

Jehovah's Witnesses

The Jehovah's Witnesses are a Christian religion whose followers believe the Bible to be the true and literal word of God. The faith began in the late 1870's as a bible study group led by the American Charles T. Russell. Russell's teachings were subsequently spread through the group's official doctrinal journal, now known as the Watch Tower, which he started in 1879. In 1881 the Watch Tower Bible and Tract Society was formed as the

central organization for the Jehovah's Witness faith. Witnesses view Jehovah as the ultimate moral authority and do not salute flags, join service organizations, enlist in the military, vote in public elections, or take an interest in civil government. In sharp contrast to most other Christian religions, they also do not believe in the concept of the trinity or the usual Christian concept of heaven and hell [16-18].

Jehovah's Witnesses base their religious beliefs on a strict literal interpretation of the Bible and hold that eternal life may be forfeited if they do not exactly follow biblical commands. The determination that blood transfusions were a violation of God's law was made in 1945 and is primarily based on the following three biblical passages [19]:

"Every moving animal that is alive may serve as food for you. As in the case of green vegetation, I do give it all to you. Only flesh with its soul -- its blood -- you must not eat." (Genesis 9:3, 4)

"As for any man of the house of Israel or some alien resident who is residing as an alien in their midst who eats any sort of blood, I shall certainly set my face against the soul that is eating the blood and I shall indeed cut him off from his people."
(Leviticus 17:10-16)

"The Holy Spirit and we ourselves have favored adding no further burden to you, except these necessary things, to keep abstaining from things sacrificed to idols

and from blood and from things strangled and from fornication. If you keep yourselves from these things you will prosper." (Acts 15:28, 29)

Thus Jehovah's Witnesses believe that the biblical injunctions cited above concerning blood include both animal and human blood, and that the transfusion of blood is tantamount to "eating" blood. Even the use of autologous blood predonated in preparation for surgery is prohibited, as are transfusion of any of the "primary" blood components (red cells, white cells, platelets and plasma), regardless of their source. [1-4, 20]. Table 1 indicates those blood components and procedures usually accepted and usually refused by Jehovah's Witness patients. Table 2 lists some of the clinical techniques that are frequently useful in the management of Jehovah's Witness patients.

Note that despite their refusal to accept transfusions, contemporary Jehovah's Witnesses are not against modern medical care, although this was not always true. At various times throughout history, vaccinations and organ transplants have been outlawed by the church [21]). However, for the most part, Jehovah's Witnesses are informed health care consumers whose only "anomaly" in their care plan is their refusal to receive blood or blood products. As such, they seek out competent health care providers who will zealously respect their wishes.

In order to facilitate understanding and communication with the medical community, the Jehovah's Witnesses have established "Hospital Liaison Committees" in most major cities. Consisting of specially trained members who provide educational programs and work with physicians on individual cases, their goal is to assist in providing care to their brethren within the strict limitations of their religious beliefs. Hospital Liaison Committee members can provide a vast array of useful information on alternatives to blood transfusion therapy and maintain a comprehensive file of up-to-date clinical articles gathered from the peer-reviewed medical literature. They will gladly furnish this material at no cost to any interested health care professional.

In some cases Hospital Liaison Committee (HLC) members also help by assisting in the cultivation of a network of surgeons, anesthesiologists and other physicians who agree in advance to treat Jehovah's Witness patients without blood. Many hospitals worldwide, especially in the United States and Canada, have developed "bloodless" medicine and surgery programs. Thousands of physicians participate in these programs and have specifically agreed to treat Jehovah's Witness patients in strict accordance with their wishes.

All hospitals should have protocols to deal with issues related to the refusal of blood transfusion. Such protocols should accomplish the following:

- Provide for informed consent concerning the benefits and risks of receiving or refusing transfusions in the particular clinical setting which the patient faces.

- Outline alternatives to transfusions, including the possibility of transferring the patient to the care of another physician or facility or using artificial blood (*vide infra*).
- Explain the role of the local HLC if the patient is a Jehovah's Witness, especially if he or she is not fully apprised of the rules regarding the transfusion of primary and secondary blood components.
- Identify the actions to be taken if it is determined that court intervention is necessary, as may sometimes occur in the case of pediatric patients or patients who are incompetent by virtue of coma, dementia or other reasons.

Many hospitals have special consent forms that are used to assist in this process.

Legal Issues

Legal issues concerning the medical care of Jehovah's Witnesses often center on patient consent. In many Western countries such as in Canada and the USA, a patient's legal right to refuse or consent to treatment is based on common law and, as such, is in a state of continuous evolution as new cases are decided.

In Canada, the landmark legal case regarding the clinical care of Jehovah's Witness patients was the case of *Malette v. Shulman* [22]. This case centered on the matter of patient autonomy. The courts established that clinicians should not administer emergency treatment without consent if they have reason to believe that the patient would refuse such treatment if he or she were capable. In this 1979 case, Dr. Shulman administered a

blood transfusion to a patient who was unconscious as a result of hypovolemic shock. The patient carried a signed (but undated and unwitnessed) wallet card indicating that she was a Jehovah's Witness and did not want to receive blood transfusions under any circumstances. Despite this, blood was transfused out of clinical necessity. Although the transfusions were almost certainly responsible for saving the patient's life, the court found the clinician liable for battery. The judge stated: "To transfuse a Jehovah's Witness in the face of her explicit instructions to the contrary would, in my opinion, violate her right to control her own body and show disrespect for the religious values by which she has chosen to live her life."

In a more recent (1995) Canadian case, *B(R) v. Children's Aid Society of Metropolitan Toronto* [23], Jehovah's Witness parents refused a blood transfusion for their severely anemic 1-year-old daughter who was at risk of congestive heart failure. The baby was made a ward of the court in order to administer clinically necessary blood transfusions. The Supreme Court of Canada ultimately ruled that this state intervention was a legitimate limitation on religious freedom. In their ruling the Court considered Canada's Charter of Rights (section 2 (a) - right to freedom of conscience and religion) versus the Ontario province's obligation to a "child in need of protection" under the Ontario Child Welfare Act.

In the USA, the case that established the competent adult's right to refuse treatment occurred in 1914 in *Schloendorff vs. Society of New York Hospital* [19]. (*Schloendorff vs Society of New York Hospital*, 105 N.E. 92, (1914).) A woman agreed to an

examination under anesthesia but refused consent for surgery. Despite this, surgery was performed, and serious unexpected complications followed. A lawsuit was launched and resolved in favor of the plaintiff. The presiding judge stated that "Every human being of adult years and sound mind has a right to determine what shall be done with his own body". Despite this ruling, the patient lost her case because the hospital was a charitable institution and was consequently immune from liability. Still, the case established the notion of informed consent and of the right of a competent adult patient to choose or refuse treatment.

Since the time of the Schloendorff case, a large number of American legal decisions have reinforced the right of a competent adult to choose his or her treatment, even when the decision is not medically sound. The reader is referred to an excellent review by Harris and Engel [19] for a more detailed commentary on subsequent American legal decisions that have reinforced the right of a competent adult patient to refuse medical care. Harris and Engel also discuss several restrictions to this notion that exist for patients who are minors or who are pregnant. (In the case of minors, courts have sometimes ordered transfusions despite parental objections, arguing that the principle of "parens patriae" requires the state to take an overriding interest in the health and welfare of its citizens. Using similar reasoning, courts have sometimes ordered a transfusion in a pregnant woman to save the life of the fetus [19].)

A particularly unusual legal case occurred in Pomona, California where a drunken driver rammed his pickup truck into a stationary car, injuring a 55 year old Jehovah's Witness

woman standing by the side of the road [24]. She refused a clinically necessary blood transfusion, and consequently died in hospital. Prosecutors said the driver was responsible for the death because he caused the injuries and he was convicted of manslaughter. His lawyers argued that the immediate cause of the woman's death was her refusal of a blood transfusion, since she very likely would have lived had a blood transfusion been carried out.

Clinical Management

Patients who refuse to provide consent for the “clinically necessary” transfusion of blood products based on religious beliefs are usually managed in one of two ways, depending on their age and their ability to provide legally valid consent.

Competent adults are first reminded of the clinical risks associated with their refusal, especially in instances where the surgical blood loss is expected to be considerable. They are also asked to indicate what specific blood products and procedures (such as acute normovolemic hemodilution or blood salvage techniques) they will accept or refuse.

Complicating this matter is the fact that some JW patients are from lower socioeconomic strata and may not be well educated. Consequently, it is sometimes necessary to explain some of the more complicated medico-religious issues to the Witness patient – such as the fact that not all blood products are specifically forbidden by the Watchtower and Bible Tract Society. In fact, only the “primary” blood components are specifically banned [20], and some blood components such as albumin, cryoprecipitate or clotting factors, are allowed as “conscience” items (that is, the individual Witness can decide on the matter

for himself or herself based on a review of their conscience, and possibly aided by a period of bible study).

In any event, the discussion between the anesthesiologist and the JW patient should ideally be summarized in a detailed note, which may sometimes be co-signed by the patient. Many hospitals have a specific consent form that is also used. In addition, the surgeon should specifically be notified and the fact that the patient refuses transfusion of blood products should be noted prominently on all appropriate patient documents. It would also be wise to alert the “anesthesia coordinator” working on the OR schedule, so they can arrange for alternate personnel in the event that some individuals would prefer not to participate in the care of JW patients. Physicians sometimes refuse to accept such cases because of a fear of being involved in a legal action should the JW patient die as a result of not providing a “clinically necessary” transfusion. In such cases the suit is usually initiated by a family member who is not a JW. While the chance of the plaintiff winning such a suit is small if the appropriate issues have been dealt with, such a suit can still be quite devastating.

Children under age 18 (or other legally mandated age), or others incompetent to make this decision, usually fall under the provisions of state or provincial regulations that often necessitate involving the hospital’s legal and risk management services. Sometimes a court order to allow a transfusion may be required, resulting in delays in elective surgery. Frequently, the child’s parents or guardians will allow the surgery to proceed either

because the need for a transfusion is quite unlikely or because they are glad to have the decision “taken out of their hands”. Some may decide to seek care elsewhere, sometimes to the relief of medical staff who only deal with the occasional JW patient.

As noted above, clinicians caring for JW patients have access to many information resources that are designed to make the decision making process clearer. For example, Spence [25] has made some useful suggestions in dealing with Witness patients. Some of the more important of these suggestions are summarized in Table 3.

Distinction between acceptable and unacceptable treatments

Many physicians are surprised by the complexities involved in distinguishing between acceptable and unacceptable treatments for JW patients. Muramoto notes [26]:

“For physicians who treat JWs, one of the most puzzling aspects is that they are, in fact, accepting many blood-based treatments despite their belief in absolute abstinence from blood. Since this biblical law is said to be absolute, it is unclear why the WTS does not teach its members to simply refuse all medical use of blood. On one hand, they teach that God prohibits any intake of blood into the body regardless of the methods, whether eating it in the biblical era, or infusing it in modern medicine. On the other hand, they have meticulously sorted out various methods of blood intake in medical settings, and classified them either as

acceptable or unacceptable, depending on the method. As new blood-based treatments become available, such classification has become a daunting task.”

Tables 4 and 5 below from Muramoto [26] summarizes the current policy and practice of prohibited and acceptable treatments. Information in these tables provided by Muramoto is a composite from WTS publications, including their advance directive form, as well as articles by JW physicians. Since some JWs may not understand or remember such complicated regulations, the WTS has formed the "Hospital Information Service" (HIS), a public relations office for the blood policy. The HIS serves many functions. Muramoto [26] notes:

“It answers inquiries regarding "no-blood" treatment, and interprets the rules and conditions for patients and doctors. The HIS researches medical literature, recommends various no-blood treatments, and provides references to cooperative physicians. In addition, more than 1200 "Hospital Liaison Committees"(HLCs), which consist of selected elders who received special training from HIS, are established worldwide. Its members visit hospitals to present the policy. They provide the same service as HIS locally, and can intervene between JW patients and physicians as needed.”

It is possible that the consequence of refusing blood transfusions has not been as perilous as many clinicians anticipated. In a review by Kitchens [27] of 16 series of Jehovah's Witness patients who underwent 1404 surgical procedures that normally required blood

transfusion, the data indicated that only 0.5% to 1.5% of such operations were complicated by anemia leading to death. Spence et al. [28] concluded that elective cardiovascular surgery can usually be performed safely without the use of either allogeneic blood or predeposited autologous blood and noted that intraoperative blood salvage alone was usually sufficient to eliminate the need for transfusions during these procedures. Experience with managing Jehovah's Witnesses patients has challenged earlier conventional wisdom regarding transfusion therapy. While many clinicians would still consider red blood cell transfusions for patients with a hemoglobin level of less than 80 or 90 g/L, it now appears that acute morbidity and mortality generally does not occur in this patient population until the hemoglobin drops below 50 or 60 g/L [29, 30]. Of interest, one Witness patient survived despite a hemoglobin level that went as low as 14 g/L.[29].

It is important to remember that such dramatic clinical outcomes may sometimes come at a very high financial cost. Consider for instance the case of a 67 year old Jehovah's Witness who survived emergency surgery for a leaking abdominal aortic aneurysm, despite having a postoperative hemoglobin concentration of only 30 g/l [31]. During his 14 weeks of intensive care in hospital he was given total parenteral nutrition, intravenous iron, folic acid, and subcutaneous epoetin alfa to aid hemoglobin production. Such an extravagant expenditure of resources to avoid a blood transfusion prompted one physician working in Africa to make the following comments [32]:

“Such a stay must easily have cost a six figure sum. Here in Uganda for £250 000

a year we can treat 25 000 outpatients and 7000 inpatients, conduct over 1000 deliveries, and perform 1500 operations. We run a community health programme for 500 000 people. The costs incurred by this one patient might run our unit for a whole year. Will the time come when a religious group will be charged the costs of keeping its members alive? Ethically one may feel that one should do everything, whatever the cost; at the end of the financial year, however, elective surgery that could be life improving has to be cancelled. The choice is easy here in Uganda. When a child who has severe anaemia from malaria with hookworm infestation and undernutrition comes in the choice is simple: he or she has a transfusion or dies.”

The JW “Reform movement”

Since 1996, a number of JWs have anonymously expressed their dissent to the WTS blood policy and formed a group called the Associated Jehovah's Witnesses for Reform on Blood (AJWRB). Their Web site can be accessed at www.ajwrp.org. Their goal is for a “reformation” of the WTS blood policy, which they see as a “complicated web of contradictory rules and conditions strictly enforced without biblical basis”. Their actions are for the most part conducted anonymously, since experience has shown that to express any criticism of the WTS by a member often results in expulsion from the church (ecclesiastical disfellowshipping). The importance of this movement has been noted by Muramoto [26]: “The significance of this reform movement for physicians is awareness of a growing diversity of values and beliefs among individual JWs, who have long been viewed as a uniform religious group. Such diversity requires physicians to scrutinize the

patient's premolded medical directive more closely and take a more individualized approach.” Muramoto also points out that this reform movement is essentially a struggle for freedom of choice in the medical care of JW's. He notes [26]:

“ Although it is well known that the WTS has fought many years for freedom of choice to refuse blood transfusions vis-à-vis legal authorities and medical professions - members within the WTS are not accorded the same freedom of choice to receive blood transfusions without penalty. The fact that the very freedom that the WTS has demanded outside the organization has been denied inside the organization is another major point of reform called for by the AJWRB. Any JW who openly and willfully receives a prohibited blood-based treatment and does not repent of the action before a "judicial committee" will receive the harshest sanction of the religion, excommunication or "disfellowshipping." This is considered equal to betraying God and involves shunning, or isolation from normal association or fellowship with family and life-long friends who are members. Many former JW's testify to the psychological trauma associated with leaving the religion.”

Ethical Issues

As discussed earlier, the central ethical dilemma in the management of Jehovah's Witness patients is in the nature of a conflict between beneficence and autonomy, where autonomy is generally given precedence over beneficence, at least in Canadian and American law. But there is another potential dilemma for anesthesiologists who care for

Jehovah's Witness patients: because many JW patients are not likely to be fully informed about possible inconsistencies in church doctrine regarding medical issues, should anesthesiologists attempt an in-depth discussion to encourage a rational and truly autonomous decision (for instance, using information provided by the Jehovah's Witness "reform" movement [www.ajwrb.org])? Alternately, or should they remain silent regardless of the degree to which they might find the patients' views to be irrational and misguided, so as to avoid the perception of "religious interference"? Muramoto [33-36] and others [37-39] have taken the position that truly ethical physicians should inform their patients as fully as possible on all matters affecting their care, seeing any discussions centering on possible religious inconsistencies as merely an attempt to ensure that their patients have had the opportunity to be fully informed on an important life-and-death issue. By contrast Shander [40] has taken the position that one should remain silent on religious issues and focus solely on clinical concerns, citing the difficulties of what he sees as essentially being an attempt at religious conversion. In short, Shander believes that the anesthesiologist has no business influencing a person's religious views.

This is not a simple issue, given the fact that the leaders of the Jehovah's Witness faith have reversed previous teachings against medical interventions, such as vaccination and organ transplantation, and have already allowed some blood products such as albumin, immunoglobulins and clotting factors (according to the individual's conscience) [41]. Some Witnesses believe that it is only a matter of time and effort before the ban against blood transfusions is removed completely.

The situation is obviously complex and rich in ethical nuances. Perhaps all that can be said is that patients are more likely to be better served by offering all current relevant information.

Artificial Blood

Although it is well-known that orthodox Jehovah's Witnesses may not accept blood transfusions, even when medically necessary to save life, it is less clear whether artificial blood based on hemoglobin extracted from outdated human blood or from animal sources will be acceptable to Jehovah's Witnesses once these products become available in the next several years. (For example, in 2001 Hemosol Inc. announced completion of its U.S. Phase II cardiac bypass study of Hemolink, its first hemoglobin replacement product.) Until recently, it appeared that such artificial blood would be banned for Jehovah's Witnesses. For instance, in 1998 Richard Bailey and Tomonori Ariga, writing in an official capacity, explained the Watch Tower Bible and Tract Society (WTS) policy to the medical community [42]:

"... Jehovah's Witnesses do not accept whole blood, or major components of blood, namely, red blood cells, white blood cells, platelets and plasma. Also they do not accept hemoglobin which is a major part of red blood cells ... According to these principles then, Jehovah's Witnesses do not accept a blood substitute which uses hemoglobin taken from a human or animal source."

More recently however, there has been an important but subtle change in WTS policy that clinicians should be aware of [20]. Whereas the WTS had previously permitted Jehovah's Witnesses to accept fractions of blood plasma, it appears that they may now accept fractions of all "primary" components. The WTS defines "primary" components as red cells, white cells, platelets and plasma.

This policy clarification appears to open the door to the use of hemoglobin-based blood substitutes for Witnesses and would be expected to result in a number of lives saved annually. Indeed, newspaper accounts describing compassionate pre-approval use of hemoglobin-based blood substitutes in Witness patients have already been published [43]. As well, clinical accounts of the use of hemoglobin-based blood substitutes in other circumstances have been published [44].

Conclusions

Jehovah's Witness patients will accept virtually all medical treatments except transfusion of primary blood components (red cells, white cells, platelets and plasma). When patients refuse transfusion of blood and blood components, physicians need to discuss the risks associated with that refusal, as well as the potential alternatives. While physicians are ordinarily taught to preserve life, they also must respect a competent adult patient's right to refuse treatment. By offering alternative therapies, physicians treating Jehovah's Witness patients frequently will be able to realize both their own goals as well as those of their patients.

References

[1] Anonymous. Jehovah's Witnesses and the Question of Blood. New York: Watchtower Bible and Tract Society of New York, Inc., 1977.

[2] Anonymous. How Can Blood Save Your Life? New York: Watchtower Bible and Tract Society, Inc., 1990

[3] Ridley DT. Jehovah's Witnesses' refusal of blood: obedience to scripture and religious conscience. *J Med Ethics* 1999; 25: 469-472

[4] Letsoalo JL. Law, blood transfusions and Jehovah's Witnesses. *Med Law* 1998; 17:633-8

[5] Dixon JL, Smalley MG. Jehovah's Witnesses: The Surgical/Ethical Challenge. *J Am Med Assoc* 1981; 246: 2471-2.

[6] Benson KT. The Jehovah's Witness patient: considerations for the anesthesiologist. *Anesth Analg* 1989; 69: 647-56.

[7] Fontanarosa PB, Giorgio GT. The role of the emergency physician in the management of Jehovah's Witnesses. *Annals of Emerg Med* 1989; 18: 1089.

[8] Rothenberg DM. The approach to the Jehovah's Witness patient. *Anesthesiology Clinics of North America* 1990; 8(3): 589-607.

[9] Mann MC, Votto J, Kambe J, et al. Management of the severely anemic patient who refuses transfusion: lessons learned during the care of a Jehovah's Witness. *Annals of Int Med* 1992; 117: 1042-8

[10] Nelson BS, Heiskell LE, Cemaj S, O'Callaghan TA, Koller CE. Traumatically injured Jehovah's Witnesses: a sixteen-year experience of treatment and transfusion dilemmas at a level I trauma center. *J Trauma* 1995 39:681-5

[11] Dupuis JF, Nguyen DT. Anesthetic management of the patient who refuses blood transfusions. *Int Anesthesiol Clin* 1998 Summer;36(3):117-31

[12] Baker CE, Kelly GD, Perkins GD. Perioperative care of a Jehovah's Witness with a leaking abdominal aortic aneurysm. *Br J Anaesth* 1998;81:256-9

[13] Chiu M, Crosby ET, Yelle JD. Anesthesia for laparoscopic adrenalectomy (pheochromocytoma) in an anemic adult Jehovah's Witness. *Can J Anaesth* 2000 Jun;47(6):566-71

- [14] Harnett MJ, Miller AD, Hurley RJ, Bhavani-Shankar K. Pregnancy, labour and delivery in a Jehovah's Witness with esophageal varices and thrombocytopenia. *Can J Anaesth* 2000 47:1253-5
- [15] Baldry C, Backman SB, Metrakos P, Tchervenkov J, Barkun J, Moore A. Liver transplantation in a Jehovah's Witness with ankylosing spondylitis. *Can J Anesth* 2000 47:642-6
- [16] Anonymous. Jehovah's Witnesses – Who are they? What do they believe? The Watchtower Bible and Tract Society of New York, Inc.
<http://watchtower.org/library/jt/index.htm> Accessed November 6, 2001.
- [17] Anonymous. Should you believe in the trinity? The Watchtower Bible and Tract Society of New York, Inc.
<http://watchtower.org/library/ti/index.htm> Accessed November 6, 2001.
- [18] Anonymous. What does God require of us? The Watchtower Bible and Tract Society of New York, Inc.
<http://watchtower.org/library/rq/index.htm> Accessed November 6, 2001.
- [19] Harris AL and Engel TP. Anesthetic Challenges and the Jehovah's Witness Patient. *The Global Textbook of Anesthesiology*.
<http://www.gasnet.org/pda/gta/chapters/jehovahs-witness.html>
- [20] Watch Tower Bible and Tract Society. Questions from readers. *Watchtower* 2000 Jun 15:29-31.
- [21] <http://www.ajwrb.org/history/index.shtml>
- [22] Malette v Shulman. *Dominion Law Reports (Canada)* 1990; 67:3221-39.
- [23] http://www.lexum.umontreal.ca/csc-scc/en/pub/1995/vol1/html/1995scr1_0315.html
- [24] Current News Summary by the Editors at Religion Today, 1998-DEC-21.
See: <http://www.religiontoday.com/Archive/NewsSummary/>
- [25] Spence RK. Surgical Red Blood Cell Transfusion Policies. *The American Journal of Surgery* 1995 170, No. 6A (Suppl):3S-15S
- [26] Muramoto O. Recent developments in medical care of Jehovah's Witnesses. *West J Med* 1999; 170: 297-301
- [27] Kitchens CS. Are transfusions overrated? Surgical outcome of Jehovah's Witnesses. *Am J Med.* 1993;94:117119.

- [28] Spence RK, Alexander JB, DelRossi AJ, et al. Transfusion guidelines for cardiovascular surgery: lessons learned from operations in Jehovah's Witnesses. *J Vasc Surg*. 1992;16:825-831.
- [29] Viele MK, Weinkopf RB. What can we learn about the need for transfusion from patients who refuse blood? The experience with Jehovah's Witnesses. *Transfusion*. 1994;34:396-401.
- [30] Spence RK, Carson JA, Poses R, et al. Elective surgery without transfusion: influence of preoperative hemoglobin level and blood loss on mortality. *Am J Surg*. 1990;159:320-324.
- [31] Baker CE, Kelly GD, Perkins GD. Perioperative care of a Jehovah's Witness with a leaking abdominal aortic aneurysm. *Br J Anaesth* 1998; 81:256-9
- [32] Wooding N. Costs incurred by one severely ill Jehovah's Witness could run one unit in Africa for one year. *BMJ* 1999; 318:873
- [33] Muramoto O. Bioethics of the refusal of blood by Jehovah's Witnesses: part 1. Should bioethical deliberation consider dissidents' views? *Journal of Medical Ethics*. 1998; 24:223-230.
- [34] Muramoto O. Bioethics of the refusal of blood by Jehovah's Witnesses: part 2. A novel approach based on rational non-interventional paternalism. *Journal of Medical Ethics*. 1998; 24:295-301.
- [35] Muramoto O. Bioethics of the refusal of blood by Jehovah's Witnesses: part 3. A proposal for a don't-ask-don't-tell policy. *J Med Ethics* 1999; 25: 463-468
- [36] Muramoto O. Medical confidentiality and the protection of Jehovah's Witnesses' autonomous refusal of blood. *J Med Ethics* 2000; 26: 381-386
- [37] Savulescu, J. Rational non-interventional paternalism: why doctors ought to make judgements of what is best for their patients. *Journal of Medical Ethics*. 1995; 21:327-331.
- [38] Elder L. Why some Jehovah's Witnesses accept blood and conscientiously reject official Watchtower Society blood policy. *J Med Ethics* 2000; 26: 375-380
- [39] Doyle DJ. Informed consent and "reform" Jehovah's Witness patients. *Anesthesiology*. 1998 89:537
- [40] Shander A. Informed consent and "reform" Jehovah's Witness patients. *Anesthesiology* 1999 90: 1787

[41] Bergman J. Blood Transfusions. A History and Evaluation of the Religious, Biblical and Medical Objections. Clayton, CA: Witness, Inc. 1994 (ISBN 1-883858-27-5)

[42] Bailey R, Ariga T. The view of Jehovah's Witnesses on blood substitutes. *Artif Cells Blood Substit Immobil Biotechnol* 1998; 26: 571-576

[43] Sacramento Bee. August 24, 2000. Sacramento CA.

[44] Mullon J, Giacoppe G, Clagett C, McCune D, Dillard T. Transfusions of polymerized bovine hemoglobin in a patient with severe autoimmune hemolytic anemia. *N Engl J Med* 2000; 342: 1638-1643

Table 1: Blood Components and Procedures Usually Accepted and Usually Refused by Jehovah's Witness Patients

Modified and reproduced, with permission, from *Kaaron Benson, MD*
 Management of the Jehovah's Witness Oncology Patient: Perspective of the Transfusion Service
 Cancer Control: Journal of the Moffitt Cancer Center 1995;6:552-556.
<http://www.moffitt.usf.edu/pubs/ccj/v2n6/article13.html>

Usually Refused	Whole blood
	Erythrocytes
	Platelets
	Fresh frozen plasma
	Cryoprecipitate
	Granulocytes
	Predeposited autologous blood
Usually Accepted	Normovolemic hemodilution*
	Intraoperative red blood cell salvage*
	Erythropoietin**
	Hemodialysis***
	Cardiopulmonary bypass***
Veno-veno bypass***	
Individual Decision (“Conscience Item”)	Albumin
	Immune globulins
	Factor concentrates
	Organ and tissue transplants

* Usually accepted if patient remains continuously in contact with blood.

** Synthetic hormone frequently suspended in albumin.

*** Provided that a non-blood prime is used.

Table 2: Clinical Management of Anemic Jehovah's Witness Patients

Modified and reproduced, with permission, from *Kaaron Benson, MD*
Management of the Jehovah's Witness Oncology Patient: Perspective of the Transfusion Service
Cancer Control: Journal of the Moffitt Cancer Center 1995;6:552-556.
<http://www.moffitt.usf.edu/pubs/ccj/v2n6/article13.html>

Strategy	Achieved by
Minimize iatrogenic blood loss	Elimination of unnecessary testing Reduction of test sample volume
Minimize intraoperative red blood cell loss	Normovolemic hemodilution Intraoperative salvage of red blood cells "Bloodless" surgery
Enhance red blood cell production	Erythropoietin Iron, vitamin B12, folate in deficient patients
Ensure hemostasis (either prophylactically or therapeutically)	Desmopressin Antifibrinolytic agents Aprotinin
Maintain blood volume	Crystalloid solutions Synthetic colloid solutions

Table 3: Blood Management Policies for Jehovah's Witnesses

Summarized from: Richard K. Spence MD FACS, Surgical Red Blood Cell Transfusion Policies. The American Journal of Surgery Dec 1995 Vol 170, No. 6A (Suppl) (Results of a Clinical Consensus Conference)

1. Accept the limitation that allogeneic blood cannot be used.
2. Use alternatives to allogeneic blood whenever possible and appropriate.
3. Discuss consequences with the patient, including the potential for life-threatening hemorrhage and possible death if not transfused.
4. If unable or unwilling to treat a Jehovah's Witness patient, stabilize and transfer the patient to a sympathetic institution, such as a Center for Bloodless Surgery.
5. Contact the local Jehovah's Witness liaison committee for information and help.
6. In an emergency or if a patient is unconscious, look for an advance directive.
7. Seek legal assistance when dealing with an unconscious or incompetent adult.

Table 4: Current policy and practice of WTS on prohibited and acceptable treatments

Source: Muramoto O. Recent developments in medical care of Jehovah's Witnesses. West J Med 1999; 170:297-301

Prohibited Blood Components and Procedures	Acceptable Blood Components and Procedures
Whole blood	Plasma proteins (albumin, globulin, fibrin)
Red blood cells	Clotting factors
Platelets	Stem cells
Plasma	Hemodilution, cell saver
Hemoglobin solution	Bone marrow transplants
Stored autologous blood	Extracorporeal circulation (heart-lung machine, dialysis, plasmapheresis)
Blood donation	Use of donated blood (to take acceptable components)

Table 5: Complex conditions that make similar components/procedures acceptable or unacceptable

Source: Muramoto O. Recent developments in medical care of Jehovah's Witnesses. West J Med 1999; 170:297-301

	JWs May Not Accept	JWs May Accept
Whole blood	IF taken as "blood transfusion" *	IF taken as contained in bone marrow transplants
Plasma proteins	IF taken together as "plasma" *	IF taken separately as individual blood component (albumin, globulin, clotting factors, fibrin)
White blood cells	IF taken as "white blood cells" *	IF taken as "peripheral stem cells"
Autologous blood	IF tube connection to the patient's body is interrupted *	IF tube connection to the patient's body is maintained (hemodilution, cell saver)
	IF it is stored *	IF taken as "peripheral stem cells" (even if it is stored)
Stem cells	IF taken from umbilical cord blood	IF taken from peripheral blood or bone marrow
Major protein from prohibited component	IF taken from red blood cells (hemoglobin) *	IF taken from plasma (albumin)
Heart-lung machine	IF patient's blood is used to prime the machine *	IF patient's blood is used to circulate in the machine
Epidural blood patch	IF blood is removed from vein and injected	IF injecting syringe is connected to vein via tube
Blood donation	IF donated by JWs for use of JWs and others *	IF donated by non-JWs for use of JWs and others
<p>Conditions marked by * are observed by JWs without exception. Other conditions are observed by many JWs but with exceptions. For example, JWs never accept a heart-lung machine primed with blood, but most, if not all, JWs accept the machine as long as it is circulated with own blood.</p>		