Meeting the Clinical Challenge of Care for Jehovah’s Witnesses

Zenon M. Bodnaruk, Colin J. Wong, and Mervyn J. Thomas

Quality patient care entails more than simply biomedical interventions. Respect for the wishes, values, and preferences of patients are important elements of quality care. Unique aspects of the beliefs of Jehovah’s Witnesses may present physicians with ethical and clinical conflicts. Witnesses believe that allogeneic blood transfusion (ie, whole blood, red blood cells, white cells, platelets, and plasma) and preoperative autologous blood deposit (PAD) are prohibited by several Biblical passages. This article reviews the Witness position on medical care, blood components, and fractions, placing these and related interventions into categories that may help physicians to individualize clinical management plans and meet the challenge of caring for patients who are Jehovah’s Witnesses. It includes an overview of cost, safety, efficacy, and medicolegal issues related to patient care using transfusion-alternative strategies.

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PATIENT CHOICE is integral to the ethical and legal principles of self-determination and individual autonomy, the bedrock for informed consent. In Reibl v Hughes, the Supreme Court of Canada referred to informed consent as “informed choice,” which includes physician disclosure of “alternative means of treatment and their risks.”1

The right of a capable person to control his/her own body is a concept that has long been recognized in common law and upheld by the Supreme Courts of the United States and Canada.2,3 The right of self-determination includes the right to consent or not to consent to a recommended medical treatment. That right applies even if, in the opinion of the treating physician, refusal of the treatment may result in harm to the patient or death. A number of courts have upheld the right of the capable patient to refuse potentially life-saving therapy.4-7 In 1990, the Ontario Court of Appeal ruled that even in an emergency, a physician must honor a patient’s advance instructions, including refusal of transfusion.8 A patient’s rejection of a procedure does not relieve the physician of the duty to provide other essential and acceptable medical management or emergency treatment.9 The previously expressed wishes of an unconscious person should be respected.10

In a pluralistic society, the degree to which wishes, values, and beliefs affect health care decision making (eg, regarding abortion, therapeutic cloning and stem-cell therapy, and aggressive chemotherapy in late-stage disease) varies among patients. Patients might assess risks and benefits differently and consider values in addition to the sanctity of life (eg, quality of life) and decline a treatment that appears to be in their medical interests.11,12 Respecting the autonomy and dignity of patients, physicians provide otherwise competent medical care, consistent with equally important duties of beneficence and nonmaleficence in accord with the patient-centered approach to medicine.13

The assessment of patients’ competence should be based on their ability to make decisions, not on the decisions themselves. The clash of a patient’s decision with societal values does not implicitly make the patient’s decision wrong.14 Buchanan and Brock15 observed that if the perceived irrationality of a patient’s choice is accepted as grounds for justifying paternalistic interference with it, it is virtually certain that choices accurately reflecting a patient’s own aims and values would be frequently and wrongly interfered with by others who have different values and preferences and a different view of what is best for the patient. Differences of opinion about the merits of a patient’s values or beliefs should not be used to circumvent the informed consent process and impose the physician’s choice of how or what care should be provided.16

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Editor’s Note: This article represents the current position of the Watch Tower Society on the use of blood components and fractions in the care of patients who are Jehovah’s Witnesses. © 2004 Elsevier Inc. All rights reserved. 0887-7963/04/1802-0003$30.00 doi:10.1016/j.tmrv.2003.12.004
PROFESSIONAL AND PUBLIC DEMAND FOR ALTERNATIVES TO TRANSFUSION

The devastating public health impact of blood-borne diseases increased professional awareness of the inherent risks of allogeneic transfusion. Informed consent discussions specific to transfusion of blood components have become mandatory in a number of jurisdictions. Despite donor screening and costly testing, the potential for emergence and unrecognized transmission of pathogens remains, particularly those associated with asymptomatic illness during a "window period." Moreover, the global blood supply is vulnerable to the rapid proliferation of pathologic biologic agents because of changes in human behavior and demographics, economic development and land use, microbial change, and perhaps bioterrorism. Although pathogen inactivation processes have been developed, trace amounts of potentially toxic agents remain in each component, raising concerns about the cumulative effects of large doses of such products. In addition, many investigators now accept that transfusion of stored allogeneic blood is associated with suppression of immune system defenses and higher rates of postoperative infection and cancer recurrence. There is also evidence that stored blood does not improve the delivery of oxygen to tissues immediately after transfusion and may even worsen it. Other issues associated with transfusion include immune- and nonimmune-related reactions, transfusion-related acute lung injury (TRALI), human error, and inventory shortages. As a result, rigorous minimization of blood loss and restrictive transfusion protocols are gradually being accepted as prudent objectives in treatment.

Patient- and physician-driven concerns about allogeneic blood have encouraged demand for medical alternatives. A recent survey of general practitioners, anesthesiologists, health journalists, and blood donors in the United Kingdom found that all respondents would prefer transfusion of their own blood compared with donor blood. Additionally, anesthesiologists would choose a red cell substitute over donor blood. Studies have found that a substantial proportion of the public in the United States, Canada, and Europe would prefer an alternative if they required a blood transfusion because of a surgical operation. As another indication of public concern, a 1998 media report stated that some 40 patients at Canadian hospitals went so far as to falsely present themselves as Jehovah’s Witnesses so as to avoid blood transfusion.

JEHOVAH’S WITNESSES

Beliefs Regarding Medical Treatment

Jehovah’s Witnesses are a Christian faith that had its modern beginnings in the 1870s in Pittsburgh, PA. In 2002, there were more than 6 million active Witnesses worldwide (approximately 1 million in the United States and 110,000 in Canada) and more than 9 million other persons associated with them. Among them are hundreds of health care professionals, including physicians and surgeons.

Witnesses believe that the entire Bible was written under inspiration from God and is beneficial in every aspect of life. Depending on the context, they believe some Biblical texts are to be understood literally and others symbolically, and in this sense they are not fundamentalists. Passages from both the Old and New Testaments are used for comfort when confronting illness and for guidance when making health care decisions. They endeavor to resolve ethical and moral questions as well as bioethical issues in the light of Biblical principles and precedents in order to preserve their relationship with God. Although they place a high value on prayer, faith, and Bible reading, they know these are not substitutes for medical treatment. On the contrary, Jehovah’s Witnesses avail themselves of medical and surgical care and accept most treatments and procedures.

Jehovah’s Witnesses also believe they must show respect for the sanctity of life. They value good health and act responsibly in safeguarding their own and their children’s well-being. Witnesses regard participation in extreme sports and the taking of unnecessary risks that could endanger human life as inappropriate activities. By trying to live healthy lifestyles, maintaining personal and household hygiene, observing safety precautions (e.g., automobile seat belts, speed limits), refraining from tobacco, abuse of alcohol or drugs, and adherence to strict sexual mores, they tend to be healthier and recover more quickly from illness. In the health care setting, a positive outlook along with social and spiritual support from their community also contribute to well-being and recovery.

Failure to use reasonable and humane efforts within a person’s means and circumstances to pre-
serve life is regarded as morally wrong. Although technological and therapeutic advances in medicine have made it possible to delay death, there are no Biblical statements to obligate the use of extraordinary measures to prolong life at all costs when there is little hope of recovery and continued treatment may only prolong the dying process. Suicide and euthanasia are deemed contrary to Scriptural law. Pain management is acceptable, particularly in the case of terminal illness, provided the objective is not to intentionally shorten life.

**Position on Blood Transfusion and Blood Fractions**

*Unacceptable procedures.* Although the risks associated with allogeneic blood are well established, the Witnesses’ primary reason for declining blood transfusion is religious. Witnesses believe that blood transfusion is prohibited by Biblical passages such as Acts 15:19-21, which say “Abstain . . . from fornication and from what is strangled [unbled meat] and from blood.” This first century apostolic decree, which was repeated at Acts 21:25, took into consideration the divine command given to Noah, the common ancestor of humankind, according to the Biblical record, and its reappearance in the Mosaic Law over 850 years later (Genesis 9:3, 4; Leviticus 7:26, 27; 17:1, 2, 10-12; Deuteronomy 12:22-25). Although these verses and others are not stated in medical terms, Witnesses view them as precluding the transfusion of allogeneic whole blood and its chief components (ie, red blood cells, white cells, platelets, and plasma). This has been their position since national blood banking was first established in civilian hospitals during the post–World War II era. In addition, Witnesses consider other Biblical statements (eg, Leviticus 17:13; Deuteronomy 12:15, 16; 15: 23) as ruling out preoperative collection and storage of autologous blood (presurgical autologous blood donation or preoperative autologous blood deposit [PAD]) for later transfusion.

*Personal decision.* Regarding use of a patient’s own blood in the course of a medical procedure or therapy, many Witnesses do not consider this to conflict with Biblical principles provided there is no advance storage. Witnesses generally consent to blood management techniques and procedures involving temporary diversion of autologous blood if no allogeneic blood prime is used (eg, cardiopulmonary bypass and hemodialysis). Some patients may request that external equipment be arranged so that continuity is maintained with their vascular system.

*The Watchtower,* the primary journal of Jehovah’s Witnesses, recently repeated the Witnesses’ religious position that accepting whole blood, red cells, white cells, platelets, and plasma violates God’s law. Regarding other minor fractions derived from blood, each Christian must make his/her own conscientious decision before God. Potentially acceptable blood fractions include immune globulin preparations and albumin. Consistent with this position, when they become available for clinical use, oxygen therapeutics and platelet-derived clotting agents might be acceptable to some Witness patients (Fig 1).

Witnesses do not believe that any Biblical statements pointedly forbid the transplantation of tissue, marrow (including stem cells), or bone. In the hematology/oncology setting, in which peripheral blood is increasingly being used instead of bone marrow as a source of hematopoietic stem cells for patients undergoing transplantation for hematologic disease, published reports have shown that some patients can successfully undergo this form of therapy without blood transfusion support.

**Implications for the clinical encounter.** In advance of treatment, physicians should discuss with the patient or substitute decision maker any anticipated or potential products or procedures appropriate to the clinical circumstances, as well as their respective risks and benefits. Table 1 outlines 3 categories of interventions. Therapeutic options listed as subject to personal decision (category B) are acceptable to many Witness patients. However, a patient’s acceptance of one or more options from this category should not be taken to mean that all are acceptable to that person. Furthermore, there is interpatient variability regarding the viewpoints on these products and procedures. Clinicians are cautioned to avoid generalization and consult with individual Witness patients as to what each one’s Bible-trained conscience dictates. Some patients might accept products containing derivatives of either primary cellular components or plasma or surgical or extracorporeal blood management methods, whereas others may vehemently and unequivocally refuse them. It is a serious decision that each Witness makes after careful and prayerful consideration of relevant Bible principles. Because patient choice is intrinsic to professional duty, phy-


**Fig 1. Blood components and fractions.**

<table>
<thead>
<tr>
<th>Blood Components and Fractions</th>
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<tbody>
<tr>
<td>Whole Blood</td>
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<tr>
<td>Red Cells</td>
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<td>White Cells</td>
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<tr>
<td>Platelets</td>
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<td>Plasma</td>
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**Oxygen Therapeutics**
- Products in development

**Interferons**
- Interleukins
- *Recombinant products available

**Platelet Substitutes**
- *Products in development

**Immune Globulins**
- Clotting Factor Concentrate
- Prothrombin Complex
- Cryoprecipitate
- Albumin
- *Recombinant FVIII, IX available
- † Prepared with 0.9% Sodium Chloride Injection (USP) diluent
- ‡ Recombinant albumin in clinical trials

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Physicians’ respect for patients’ conscientious decisions will keep them from stepping beyond their expertise or expounding their own beliefs.39,40

Emergency or incompetent (formerly competent) patients. In general, Witness patients will identify themselves to medical staff and declare their position regarding blood transfusion. If the patient is unable to communicate, health care providers should try to determine if there are any prior written or oral statements. For example, Witnesses carry an advance medical directive/release card expressing the bearer’s refusal of blood transfusion (Fig 2). The patient’s current active hospital chart or a prior record of treatment would also document a person’s request for nonblood medical management. There also may be a substitute decision maker previously appointed by the patient.

Impact of transfusion. Witnesses believe that members of the community who deliberately consent to blood transfusion and remain unrepentant show by their actions that they reject Biblical law as well as the norms of their religious community and therefore no longer want to be Jehovah’s Witnesses.

Refusal of donor blood transfusion is a deeply held religious belief of Jehovah’s Witnesses. Forced transfusion has been likened by patients to a violent assault on their person and their firm convictions.41 Many patients and their families undergo emotional, spiritual, and psychological trauma, notwithstanding support provided by their parents/family and the close-knit Witness community. The damage caused by forced medical treatment has resulted in a profound and prolonged sense of humiliation, injustice, guilt, and even severe depression.42,43 Disturbing memories of a forced transfusion may trigger intense emotional and psychological reactions. It is a myth that Witness children who undergo forced transfusion are abandoned by their parents or condemned by the church.

Some have incorrectly assumed that if blood transfusion is administered without the parent’s permission or the patient’s consent (ie, in a truly life-threatening emergency or by court order), the patient’s conscience is not violated or they are “glad to have the decision taken out of their hands.” Others have supposed that so long as a token effort is made to avoid transfusion, the patient/parents “won’t really mind if the child gets transfused.” Such assumptions fail to consider the deeply held religious beliefs of the patient/parents that are rooted in Biblical laws and principles. Furthermore, trivializing the wishes and values of one group of patients could lead to a loss of respect for other patients with inconvenient or unfashionable beliefs.

**Minors**

Recently, the Supreme Court of Canada held that parents have a constitutional right under sec-
tion 2(a) of the Canadian Charter of Rights and Freedoms to “rear their children according to their religious beliefs, including that of choosing medical or other treatments.” When the state seeks to interfere with that right, parents must have “an opportunity to present [their] case effectively,” which includes the right to present relevant and credible expert medical evidence. The state must give parents a fair judicial hearing, including reasonable notice, representation by counsel, and cross-examination. The onus is on the state, and it must present a strong case.

In general, Witness families understand their rights and physicians’ legal obligations. For moral reasons that go beyond the medical risks of transfusion, Witness parents ask that therapies be used that do not violate their religious beliefs. A physician who agrees with the medical tenet of treating the whole person will not overlook the possible

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**Table 1. Religious Position on Medical Therapy**

<table>
<thead>
<tr>
<th>A: Acceptable treatment</th>
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<tbody>
<tr>
<td>Most surgical and anesthesiological blood conservation measures (eg., hemostatic surgical instruments, controlled hypotension, regional anesthesia, minimally invasive surgery, meticulous surgical hemostasis)</td>
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<tr>
<td>Most diagnostic and therapeutic procedures (eg., phlebotomy for laboratory testing, angiographic embolization)</td>
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<tr>
<td>Pharmacologic agents that do not contain blood components or fractions such as: Drugs to enhance hemostasis (eg., tranexamic acid, epsilon-aminocaproic acid, aprotinin, desmopressin, recombinant factor VIII, conjugated estrogens)</td>
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<tr>
<td>Hematopoietic growth factors and hematinsics (eg., albumin, recombinant factor VIII, iron)</td>
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<tr>
<td>Recombinant products (eg, albumin-free coagulation factors)</td>
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<td>Synthetic oxygen therapeutic agents (eg., perfluorochemicals)</td>
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<tr>
<td>Non-blood volume expanders (eg., saline, lactated Ringer’s, hydroxyethyl starches)</td>
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<td>B: Personal decision (acceptable to some, declined by others)</td>
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<tr>
<td>Blood cell salvage* (intraoperative or postoperative autotransfusion)</td>
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<td>Acute normovolemic hemodilution*</td>
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<tr>
<td>Intraoperative autologous blood component sequestration* (including intraoperative plateletpheresis, preparation of fibrin gel, platelet gel, platelet-rich plasma)</td>
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<tr>
<td>Cardiopulmonary bypass†</td>
<td></td>
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<td>Apheresis†</td>
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<tr>
<td>Hemodialysis†</td>
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<tr>
<td>Plasma-derived fractions (eg, immune globulins, vaccines, albumin, cryoprecipitate‡)</td>
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<tr>
<td>Hemostatic products containing blood fractions (eg., coagulation factor concentrates, prothrombin complex concentrate, fibrin glue/sealant, hemostatic bandages containing plasma fractions, thrombin sealants)</td>
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<tr>
<td>Products containing plasma-derived blood fractions such as: human serum albumin (eg, some formulations of erythropoietin, streptokinase, G-CSF, vaccines, recombinant clotting factors, nuclear imaging products)</td>
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<tr>
<td>Products containing a blood cell-derived fraction</td>
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<tr>
<td>Epidural blood patch</td>
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<tr>
<td>Blood cell scintigraphy (eg, radionuclide tagging for localization of bleeding)</td>
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<tr>
<td>Peripheral blood stem cell transplantation (autologous or allogeneic)</td>
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<tr>
<td>Transplants (organ, marrow, bone)</td>
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<tr>
<td>C: Unacceptable Treatment</td>
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<tr>
<td>Transfusion of allogeneic whole blood, red blood cells, white cells, platelets, or plasma</td>
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<tr>
<td>Preoperative autologous blood donation (PAD or predeposit)</td>
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</table>

*Patients might request that continuity is maintained with their vascular system.
†Circuits not primed with allogeneic blood.
‡Cryoprecipitate suspended in 0.9% sodium chloride injection (USP) diluent.
lastling psychosocial damage of an invasive procedure that violates a family’s fundamental beliefs.46 Neither will the physician delay therapy that can reduce the likelihood of transfusion and later seek to force objectionable treatment by means of a court order. Leading pediatricians have urged clinicians to respect parental beliefs and the role of parents in rearing their children, recognizing the important role of religion in the lives of many individuals.47 Likewise, unnecessary polarization when conflict over religious beliefs arises should be avoided.

Physicians naturally look to parents to make decisions and grant permission for treatment on behalf of their minor children. Contemplation of court intervention to force transfusion therapy should prompt consideration of several factors.48 First, Witness parents love their children and seek quality medical care. They are not refusing medical treatment when they refuse transfusion. Furthermore, there is evidence of wide variation in pediatric transfusion practice with no differences in clinical outcomes.49,50 This suggests that transfusion-avoidance strategies may be inconsistently used and underscores the variability of medical opinion and the merits of consultation with more-experienced physicians. Additionally, the aggregate risk of donor blood transfusion is not insignificant. Thus, the option of management using transfusion-alternative strategies is rational and life saving. Finally, physicians sometimes propose allogeneic blood when a child is gravely ill and the treatment options offer only limited probability of success or involve additional risks. To resolve conflicts, consultation with specialist physicians who have personal clinical experience in managing patients without allogeneic transfusion is invaluable. Providers of care and services to children have to carefully justify the invasion of privacy and psychological disruption that come with taking legal steps to override parental prerogatives.51

Parents are unique individuals in a child’s life and provide vital elements of care to their critically ill child. Although hospitalization of a child is stressful for any parent, Witness parents may have the added anxiety of possible forced treatment for their child. Health professionals can do much to allay these fears by reassuring them of the medical team’s determination to respect their religious beliefs. Parents granting permission for surgery will look for assurance that every appropriate blood conservation measure and transfusion-avoidance strategy will be rigorously used. Some hospitals have developed institutional policies52,53 and systematic multimodality blood and anemia management protocols that enable infants and children to undergo procedures, deemed by some to be impossible to perform, without allogeneic blood transfusion.54,55

Mature minors. The developing autonomy of minors is gaining recognition in medical decision making.56-58 As children mature, they develop the ability to make responsible decisions in life. The law recognizes the doctrine of the “mature minor,” which acknowledges that many children have the capacity to make medical decisions, including those about life-sustaining treatment.59-62 When minors develop the capacity to consent, they are entitled to all rights accorded to adults in relation to that treatment or procedure. Thus, in some cases, apparent conflicts can be avoided when it is recognized that a minor has the capacity to make decisions based on personal religious values and an understanding of the therapeutic options.

Cooperation and Communication

To facilitate the care of Witness patients, Jehovah’s Witnesses have established a network of Hospital Liaison Committees (HLCs) in major cities worldwide. On request, these well-informed ministers from the local Witness community can interact knowledgeably with physicians, hospital administrators, social workers, and members of the judiciary. They are available to support physicians and Witness patients by providing pertinent clinical information, arranging physician-to-physician consultation, clarifying issues for patients or clinicians, or making presentations to professional staff. Committee representatives are also skilled in helping individuals cope with life crises involving illness and hospitalization.63 When complex questions regarding medical issues arise for which patients have difficulty identifying relevant Biblical texts, congregation elders or HLC members may be consulted to help patients locate relevant Scriptural information to guide their individual decisions. Although HLC members are well respected in the Witness community, it is patients who ultimately have the obligation to make choices according to Biblical principles and precedents and their own conscience.

Additional information for physicians is offered
by Hospital Information Services at national administrative offices of Jehovah’s Witnesses. These offices form part of an international network disseminating authoritative medical information regarding clinical strategies to avoid allogeneic blood transfusion. Hospital Information Services conducts ongoing searches of peer-reviewed medical journals to keep abreast of advances in blood conservation and transfusion alternatives. Current and relevant clinical information can be made available without charge to physicians treating Witness patients. (In Canada, physicians may call 1-800-265-0327. For information in the United States and other countries call 718-560-4300 or E-mail: his@jw.org.)

**MAJOR SURGERY WITHOUT BLOOD TRANSFUSION**

**Transfusion-Alternative Strategies**

Transfusion-alternative strategies consist of combinations of pharmaceuticals, devices, and medical/surgical techniques. The objective of such strategies, tailored to each clinical situation, is to minimize blood loss, optimize autologous blood management, and enhance hematopoiesis. The planned and systematic use of appropriate multiple modalities by interdisciplinary teams of health professionals who share a commitment to blood conservation can reduce or avoid donor blood transfusion in all patients. Clinical trials including randomized controlled trials and uncontrolled studies have evaluated the effectiveness of generally accepted bloodless surgery techniques. The International Study of Peri-Operative Transfusion (IS-POT) investigators conducted meta-analyses of randomized controlled trials involving several blood conservation measures and found them to be effective, although they differed in efficacy. The IS-POT reviewers also concluded there was evidence that acute normovolemic hemodilution (ANH) reduced the likelihood of allogeneic blood transfusion, but the methodological quality of the available clinical trials prevented the reviewers from reaching definitive conclusions. Recent studies continue to support the use of ANH in potentially high blood loss procedures. Although evidence for some blood-sparing interventions may be limited, there are data describing their use that should allow their consideration when treating patients who decline donor blood transfusion.

Since 1977 when Ott and Cooley published their report on 542 cardiovascular operations performed without transfusion on Witnesses, most major procedures have been performed without allogeneic blood including extensive cardiac, orthopedic, gynecologic, hepatic, organ transplant, and other types of surgery. Management of hematologic disorders has been more challenging, although progress is being made.

**Erythropoietin issues.** Recombinant erythropoietin, a biosynthetic form of a human hormone that regulates red blood cell production, is available commercially as epoetin alfa, epoetin beta, and darbepoetin alfa. Some formulations of erythropoietin are stabilized in human serum albumin, whereas others are albumin free. Most Witness patients prefer albumin-free formulations, although erythropoietin containing albumin has been accepted. Inadequate dosing and functional or absolute iron deficiency are the most common causes of limited response to erythropoietin. For patients with renal disease at risk for pure red-cell aplasia, the manufacturer has advised using the intravenous route of administration of epoetin. Dosing remains an issue, although it appears that for elective surgery 600 units/kg of epoetin administered subcutaneously once a week for 3 weeks before surgery can increase the hemoglobin level by 30 g/L or more. The cost of the drug itself cannot be considered in isolation because it is offset by savings resulting from reduced hospital stays, ease of administration, avoidance of transfusion-related immunosuppression, and potential disease transmission.

**Management of emergency patients.** There is growing consensus in critical care literature on the importance of the following principles in the management of bleeding emergency patients. The first management priority must be rapid arrest of hemorrhage. Thus, time at the scene and in the emergency department should be minimized to reduce treatment delays. Elevation of blood pressure to preinjury levels (eg, excessive fluid administration) in the presence of uncontrolled hemorrhage may increase blood loss and mortality. Appropriate resources should be promptly mobilized (ie, personnel, operating room, autotransfusion, and angiembolization). Multiple strategies may be required for early arrest of blood loss (eg, pharmacologic, endoscopic, angiographic, damage control surgery and early triage to the intensive care unit, and warming), and anemia therapy.
should be promptly initiated. With multidisciplinary collaboration, history taking, physical examination, rapid yet careful diagnostic workup, physiologic monitoring, and judicious volume replacement may proceed simultaneously with prompt arrest of hemorrhage. Some hospitals have developed contingency plans for management of Witness patients, similar to protocols developed for other scenarios. A study at one such institution found no statistically significant increased risk of death for Jehovah’s Witnesses after major trauma when demographics, severity, and type of injury were taken into account. Early definitive treatment to arrest bleeding during the critical “golden hours” can yield good clinical outcomes with modest resource implications.

**Need for professional education.** Several multicenter studies have found substantial heterogeneity in clinical transfusion practice despite consensus conferences and publication of numerous practice guidelines. Even in selected patient populations at low risk for transfusion, the percentage of patients transfused and the median number of units transfused per patient varies considerably between institutions. In the Safe and Good Use of Blood in Surgery (SANGUIS) study, wide variation was found among 43 teaching hospitals in 10 European countries and even among hospitals within the same country. Transfusion rates were found to depend more on individual physicians than the procedure, the patient population, or the hospital. The SANGUIS study and others have also shown that there is wide variation in the use of strategies for reduction or avoidance of allogeneic blood transfusion among physicians. It is not the lack of blood conservation methods and transfusion-alternative strategies but other factors, including deficiencies in individual clinicians’ knowledge or clinical experience, that may inhibit their wider utilization.

**Consultation or transfer.** A physician uncomfortable assuming the care of a Witness patient is encouraged to refer to the growing number of peer-reviewed journal articles discussing the management of patients without allogeneic transfusion or consult other physicians with more clinical experience in using transfusion alternative strategies. As a final option, a physician may withdraw from a case, after securing an acceptable transfer of the care of the patient to a physician with appropriate clinical experience.

**Cost Issues**

In an economic evaluation of several blood conservation technologies by the ISPOT investigators, Fergusson and colleagues concluded that, with the exception of PAD, there was evidence that individual modalities used in appropriate settings were associated with cost savings. Many blood conservation measures are more dependent on technique than technology. Some modalities can enhance the ability to cost effectively manage clinical situations without donor blood components (eg, cell salvage).

In contrast, the direct and indirect costs of allogeneic transfusion are seldom considered. Blood acquisition costs, as well as hospital costs for storing, handling, and transfusing blood, have increased significantly in recent years. In addition, the systemic cost of blood safety measures, the economic burden and increased use of health care resources to treat transfusion-related illness, financial compensation for victims of tainted blood, and the societal cost of blood-borne disease must be considered. Moreover, allogeneic transfusion, once thought to be a surrogate for injury severity, has been found to be independently associated with postoperative complications, longer hospital stays, and higher hospital charges.

Although current data are limited, a number of recent studies suggest that, on average, the cost of managing patients using multimodality blood conservation strategies is equivalent to, or less costly than, standard treatment. For example, Helm and colleagues compared blood utilization and costs in 100 consecutive coronary artery bypass grafting procedures using transfusion-alternative strategies with matched control patients receiving conventional care. Patients in the blood conservation group had a shorter mean hospital length of stay (7.1 ± 1.7 vs 9.6 ± 3.7 days) and required less time on mechanical ventilation and in the intensive care unit. For coronary artery bypass grafting procedures without catheterization, the mean total hospital cost for multimodality group (nontransfused) patients was $18,130 (± 4,900) versus $21,800 (± 8,600) (US) for the transfused control patients.

In a study of 221 consecutive patients requiring gastrointestinal surgery, Tartter and colleagues assessed the incidence of postoperative infections, hospital stays, and hospital charges of patients receiving conventional allogeneic packed red blood cells...
(RBCs) and leukocyte-depleted RBCs, with those who were not transfused. Postoperative hospital stays averaged only 9 days for untransfused patients and 18 days for recipients of packed RBCs. Hospital charges reported by Tartter, reflecting the length of stay, were $19,132, and $41,002 (US), respectively.

Safety Issues

Faught and colleagues studied the safety of blood conservation measures, incorporating extensive searches of the Medline database conducted by the ISPOT investigators. Overall, based on available data, the authors found that transfusion avoidance technologies were “quite safe” and severe complications were rare. Wells concluded that any risk associated with transfusion avoidance methods was likely of minor clinical relevance.

Suess and colleagues reviewed neurosurgical interventions performed on 103 Witness patients and compared outcomes with matched controls. Patients ranged in age from 4 months to 86 years. The authors state that the refusal of blood transfusion did not affect the surgical indications for neurosurgery and that morbidity and mortality rates in the 2 groups were comparable.

Boyd and colleagues retrospectively analyzed a cohort of 93 Witness patients who had undergone elective hysterectomy for recurrent uterine bleeding and compared outcomes with a matched control group of 186 women. The study and control groups had similar morbidity. However, the authors observed that according to published guidelines, transfusion was not indicated in 80% of the transfused patients in the control group. They concluded that allogeneic blood was overused in non-radical hysterectomy procedures.

Kitchens performed a retrospective analysis of 1,404 operations on patients who were Jehovah’s Witnesses. The data were derived from 16 published studies involving unselected patients undergoing a variety of major surgical procedures for which 2 to 6 units of blood were typically transfused. According to the author’s analysis, the Jehovah’s Witness patients’ decision to decline transfusions for major surgical procedures appeared to add 0.5% to 1.5% mortality to the overall operative risk. Kitchens concluded that the risk of refusing blood is probably less than the aggregate morbidity and mortality associated with transfusions.

SUMMARY AND CONCLUSION

This article has reviewed the position of Jehovah’s Witnesses on medical care, the use of blood components and fractions, and other issues in the care of Witness patients and has discussed how ethical and clinical conflicts might be resolved while maintaining quality patient care.

Providing medical care in a pluralistic society can present challenges to maintaining quality care. Factors such as the legal milieu, the culture, and religion of the patient, family, and clinician may influence what is considered acceptable or unacceptable. Because it is patients who will primarily be affected by the treatment they receive, it is rightfully patients who should make the value-laden decisions about their care according to their beliefs and the medical facts and uncertainties.

The request of patients/parents for treatment without donor blood transfusion is rational and reasonable. Witnesses recognize that their convictions regarding blood transfusion may place a challenge before clinicians. Accordingly, they are grateful to the thousands of professionals who respect their rights and treat patients using a range of transfusion-alternative strategies. In addition to having deep faith, they have an intense will to live and thus seek to cooperate with physicians and medical staff and to have respectful relationships with them.

Cultural and religious norms have sometimes played an important role in maintaining the well-being of a community. Similarly, the challenge of treating patients without transfusion has helped to stimulate advancements in blood management that allow many procedures to be performed without allogeneic blood to the benefit of all patients.

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