Chapter 27
Jehovah's Witness and the Bleeding Surgical Patient

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The religion named Jehovah's Witness was founded by Charles Russell in Allegheny, Pennsylvania, in 1869. Members of this religion do not accept blood transfusions based on passages from the Bible, such as Genesis 9:3-4, Leviticus 17:10-11, and Acts 15:28-29. "As for any man who eats any sort of blood, I shall certainly set my face against the soul that is eating the blood, and I shall in deed cut him off from among 'his people.'" Interpreting blood transfusions as "eating the blood," Jehovah's Witnesses believe that hope for an eternal life would be denied if blood transfusion is allowed.

Worldwide, there are approximately 6 million Jehovah's Witnesses, with approximately 1 million residing in the USA [1]. Many of whom do not accept homologous or autologous whole blood, packed red blood cells, white blood cells, or platelets [2]. Some will agree to the use of dialysis, heart-lung, or similar technology if the extracorporeal circulation is uninterrupted. Reportedly, the religion's belief of Jehovah's Witnesses does not absolutely prohibit the use of all component therapies, such as hemophiliac preparations, albumin, and immune globulins.

Unfortunately, a substantial percentage of bleeding surgical patients present in hemorrhagic shock and are in need of multiple transfusions [3]. This becomes a major impediment if the patient is a Jehovah's Witness, who abstains from receiving blood transfusions and blood product infusions based on his/her religious beliefs. The literature has been sparse regarding the determination of the risks of death after severe injury. Varela, Gomez-Marin, Fleming, and Cohn studied a cohort of 556 trauma patients, with 82 (14.7 %) being Jehovah Witnesses [4]. The authors concluded that after controlling for age, race, systolic blood pressure, Glasgow coma score, and type of trauma, Jehovah's Witnesses had a "nonsignificant increase risk of death after major trauma compared with other religious

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Table 27.1 Injury and mortality data[a]

Religion	Mean ISS	Type of injury	Case of injury (%)	Mortality (%)
Jehovah's Witnesses	10.3 ± 9 (NS)	Blunt (82)	MC (39)	11.0 (NS)
Catholic	10.3 ± 11	Blunt (68)	MVC (39)	6.9
Baptist	8.9 ± 10	Penetrating (56)	GSW (31)	5.8

Mean ISS for other religious groups was 11.3 ± 14. No statistically significant associations between religion and injury severity scores were identified by x^2 analysis

ISS injury severity score; *MVC* motor vehicle crash; *GSW* gunshot wound; *NS* not significantly different when compared to Catholics or Baptists by one-way analysis of variance

[a]Mean injury severity score for 433 injured patients, type, and cause of injuries, and mortality by religion

groups" (Table 27.1). While Catholics and Baptists were the other major religious groups, the full spectrum of religions was represented; however, the groups did not have a sufficient number of individuals for statistical analysis. Ott and Cooley [5] reported a similar finding when they documented that the Jehovah's Witness patients did not have a substantially higher death rate than other religious groups when elective surgery was being performed. The literature is replete with reports from other authors that compared to non-Jehovah's Witness groups, Jehovah's Witnesses do not have a statistically increased risk of death after major trauma when demographics, severity, and type of injury are taken into account [6–8]. However, there are some important baselines that must be considered when refraining from using blood transfusions and blood product infusion. Carson et al. reported in Lancet, on the operative mortality rate in surgical patients who refused blood transfusion, that there was a 61.5 % mortality rate for those with levels less than 6 mg/dL and the overwhelming majority of patients with hemoglobin levels less than 5 md/dL did not survive [9].

Under the autonomy principle, a competent patient can refuse any interventions, including one that is considered lifesaving. Refusal of treatment that ultimately results in the death of the patient who exercised his/her right to make such decisions is broadly supported by the courts—based on the patient's autonomy principle. The prototypical situation occurs when the proposed treatment/therapy violates someone's cultural or religious beliefs (e.g., the Jehovah's Witness patient). However, when there are situations when parents or guardians are the ones who refuse treatment of a minor, the courts have routinely intervened to balance the interests of the child with wishes of the parents/guardians—allowing blood/blood product transfusions to be given to the minor.

It has been reported in the past that the majority (two-thirds) of the European physicians working in intensive care units would give transfusions to an unconscious Jehovah's Witness who is losing blood, with 41 % indicating that they would not inform the patient later [10].

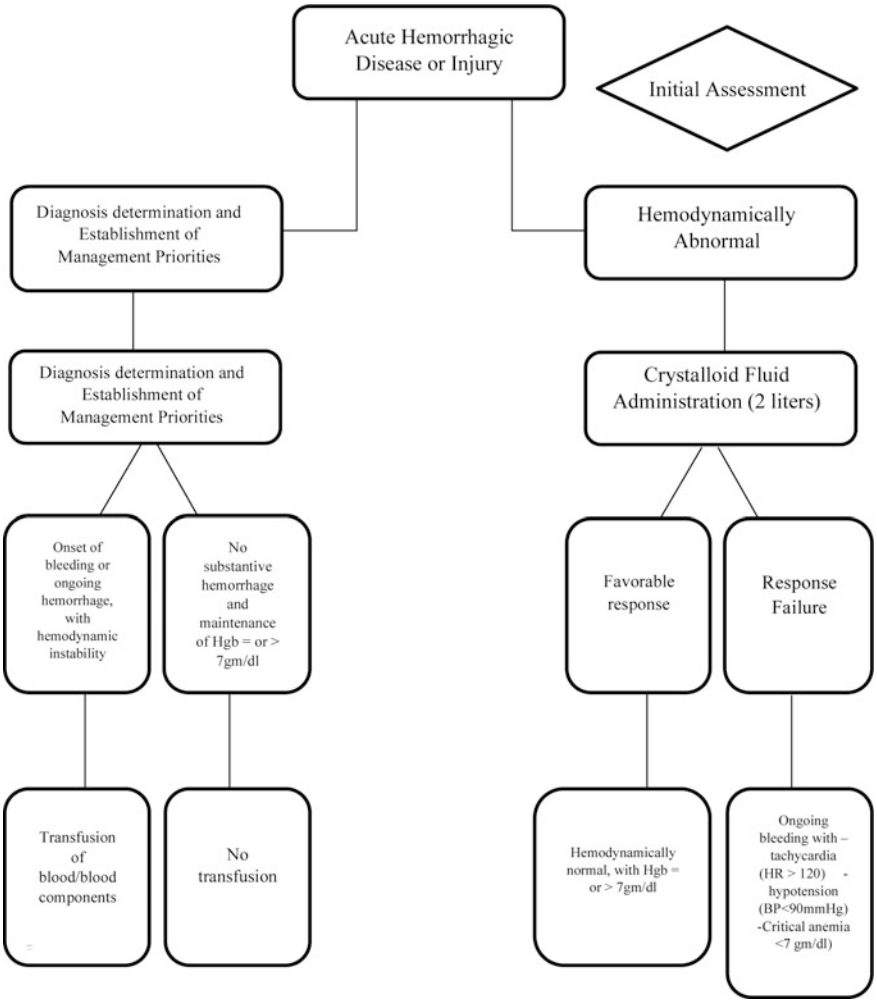

Fig. 27.1 Intravascular volume restoration after acute hemorrhage disease or injury

It is imperative that acute care surgeons not be dismissive of the legal liability if they choose to ignore a Jehovah's Witness' advance directive not to receive blood.

The practice guideline or algorithm for restoring intravascular volume after bleeding secondary to injury or hemorrhagic diseases is well chronicled (Fig. 27.1). The decision branches leading to the transfusion of blood/blood products are not an option for the competent patient who is a Jehovah's Witness and refuses blood/blood product transfusion. However, there is a spectrum of management strategies for the Jehovah's Witnesses with severe blood loss (Table 27.2).

Table 27.2 Armamentarium of management strategies

For Jehovah's Witnesses with acute severe blood loss
• Maximizing oxygen delivery (maintain O_2 saturation >98 %)
• Minimize metabolic demand (oxygen demand)
• Blood conservation and minimizing diagnostic phlebotomies
• Establishing optimal oxygen delivery
• Preventing iatrogenic injury and associated blood loss
• Stimulation of hematopoiesis
• Increasing the production of red blood cells (enhancement of erythropoiesis)
• Intravenous iron infusion
• Recombinant human erythropoietin (rHuEPO)
• Red cell substitutes[a] (or alternative oxygen-carrying agents)
• Meticulous and limited surgical dissection

[a]Artificial substitutes for human hemoglobin are still being studied. However, known limitations of these products include short half-life, poor oxygen-carrying capacity, and suboptimal release of oxygen to the tissue

Management Controversy

Recombinant Human Erythropoietin

After illness or injury-induced severe blood loss, the erythropoietin response is less than optimal secondary to release of inflammatory cytokines that down-regulate the erythropoietin gene, along with inhibition of bone marrow and modification of iron metabolism [11, 12]. The controversy has always revolved around some documentation that erythropoietin levels are actually preserved and that there is failure of the bone marrow to respond to erythropoietin—calling into question the utility of exogenous erythropoietin. Proponents for erythropoietin administration realize that beneficial effects take ten days to three weeks [13, 14]. Also, because some Jehovah's Witness patients will not accept any blood product, erythropoietin might not be considered a viable option due to the fact that it does contain small amounts of human albumin, which is a blood product [15].

Special Consideration and Circumstances

Although not included, one of the key underlying trends affecting optimal health care as outlined in Table 27.3, tailoring medical management based on religious beliefs, can also affect optimal health care.

Table 27.3 Key underlying trends affecting optimal healthcare

• Healthcare disparities of the population
• Aging of the population
• Increasing rates of utilization
• Economic growth of the nation
• End-of-life issues
• Advances in genetics screening
• Changes in health services delivery system
• Efforts to weed out unnecessary or marginally beneficial services
• Cost containment efforts

Table 27.4 Institute of Medicine

Six aims of care
• Safe
• Effective
• Patient-centered
• Timely
• Efficient
• Equitable

In its report on health literacy, the Institute of Medicine (IOM) highlighted that 90 million adults have trouble understanding and acting on health information. A patient who is fully informed regarding the full spectrum of management options, electing not to accept a potentially lifesaving intervention due to his/her religious belief, is the antithesis of someone whose "health literacy" is challenged. On the contrary, such a patient is fully informed and an active participant in his/her care. The Jehovah's Witness represents such a cohort of patients. Even the highly touted six aims of care by the IOM (Table 27.4) the patient can completely affect whether the care is, indeed, "equitable" by refusal of the prescribed or recommended care.

While others have reported on the role of nonoperative management of a splenic injury in a Jehovah's Witness patient with a bleeding disorder (hemophilia), an admonition should be made that the overall approach to nonoperative and selective management of solid organ injuries is predicated on the possible utilization of blood transfusion and/or blood product infusion [16, 17]. More prudent strategy would be to expeditiously address the solid organ (liver or spleen) injuries with more aggressive intervention by either angiography/embolization of surgical extirpation (e.g., splenectomy).

The increasing healthcare expenditures have been on a consistent trajectory, with a projected four trillion dollar price tag by 2018. In addition to providing quality patient care, each healthcare provider has a fiduciary responsibility to be good stewards of the finances of medicine. Some of the strategic options for the Jehovah's Witness patients are, indeed, expensive. A difficult question can be posed, asking the following: Who should be financially responsible for such excess

expenses, incurred by those choosing not to accept blood transfusions and blood product infusions? Of course, one could entertain the same argument for alcohol and smoke-related illnesses.

In a recent article by Peitzman et al. [18], it was reported that a potential expanded role for acute care surgery is "surgical rescue". The authors stated that "it has become apparent to us that a crucial service we provide to both our hospital and regions is that of surgical rescue." Ninety percent of operative deaths occur in the highest risk quintile, with 20 % of patients with the greatest risk for developing postoperative complications accounting for approximately 90 % of failure to rescue. In a landmark article by Ghaferi et al. [19] in Med Care, the authors underscore the advantages of establishing strategies that focus on the timely recognition and management of complications once they occur. With the postoperative complication of medical or surgical care being one of the most frequent hospital-based diagnoses (exceeding even cholocystitis, intestinal obstruction, and appendicitis), acute care surgery, undoubtedly, offers the specialty expertise needed to provide the hospital surgical rescues to optimally address these complications. Such management often necessitates volume resuscitation and the administration of blood products. Consequently, this expanded role of the specialty, acute care surgery, would likely not be applicable for a patient who is a Jehovah's Witness.

Irrespective of such an intervention, if any rescue strategy involves blood transfusion, it would not be an advantage for the Jehovah's Witness patient. The legal precedent is set in upholding the right of a competent patient to refuse blood transfusion, and the standard-of-care practice is established that there should be an informal consent for blood and blood component transfusion [20]. Healthcare providers should be knowledgeable of the fact that many Jehovah's Witnesses have an advance medical directive/release form (Fig. 27.2). In addition, there is a current classification of what is unacceptable and specific blood products that are available for the "Christian to Decide"—on an individual basis (Fig. 27.3).

The four major ethical principles that any healthcare provider should incorporate in his/her clinical practice include the following:

- autonomy—respecting the values of the patient
- beneficence—acting to benefit patients by sustaining life and treating illnesses
- non-maleficence—meaning to refrain from harm, a correlative principle to beneficence
- justice—the balance between the personal needs of the patient and societal resources

Justice underscores the fact that there must be recognition that resources are finite. Necessary stewardship must focus on the methods of cost containment, including attempts to limit care when it is deemed futile—either based on the status of the patient or on the restrictions imposed by the patient. While "futile care" can be rejected based upon the principles of non-maleficence and beneficence, such care can also be opposed due to the principle of distributive justice. Futile care is usually defined as a treatment that merely preserves permanent unconsciousness and/or

ADVANCE MEDICAL DIRECTIVE/RELEASE

I, , make this advance directive as a formal statement of my wishes. These instruction reflect my resolute 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 value 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 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 choicer 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.

Signature

Address Date

Telephone

Witness

Witness

Fig. 27.2 Advance medical directive/release

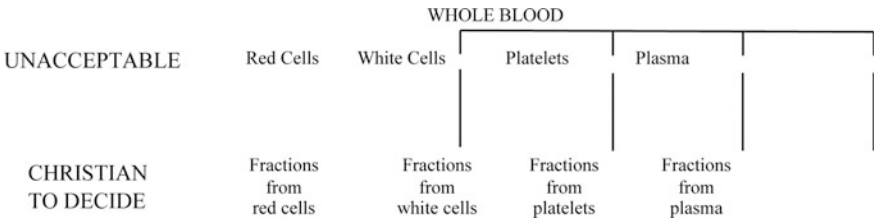

Fig. 27.3 The Watchtower Bible and Tract Society's current classification of blood products' acceptability

cannot end dependence on critical care. Table 27.5 depicts the proportional contribution to premature death. If a patient succumbs to an illness injury as a result of refusal of a potential lifesaving resource or intervention, the resulting premature death is the result of "social circumstances," as opposed to health care.

Although the surgeon of the future will lead safe high-performance teams and will implement evidenced-based effective practices with outcomes that are publicly reported (Table 27.6), the decision by the fully aware patient who exercises his or her will to reject specific elements of care.

Table 27.5 Proportional contribution to premature death

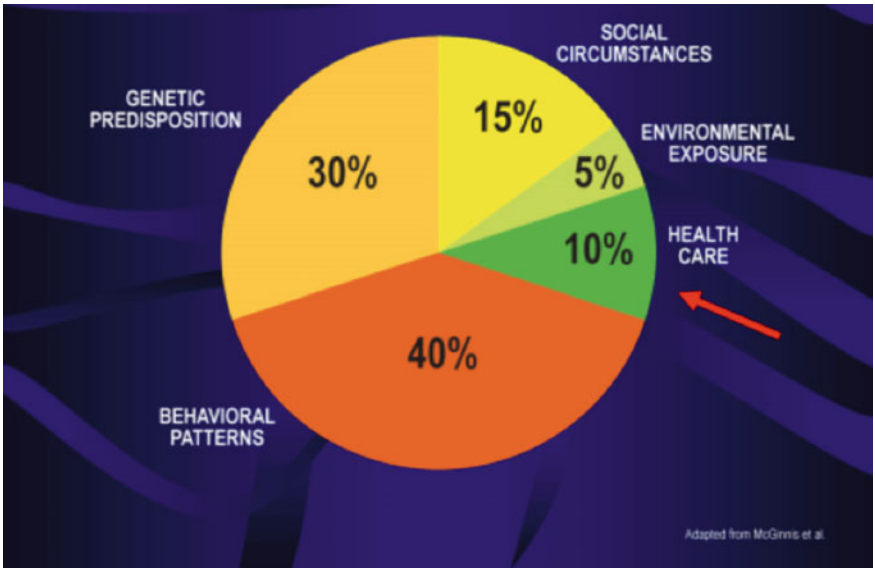

Table 27.6 The surgeon of the future

• Lead safe high-performance teams
– Integration of surgical/nonsurgical skills
– Part of systems of care
– Communication, respect for others
• *Evidence-based effective practice*
• Outcomes data—publicly reported
• Continuous, professional development
– Recertification based on practice
• Payment—performance-based

Clinical Scenario
69-year old man with a history of HTN and CAD has 6 weeks s/p large left hemispheric stroke. He underwent carotid artery stenting and was placed on Plavix and ASA. He recovers reasonably with mild residual deficit (right upper and lower extremity weakness). In rehab, he is noted to be short of breath and occasionally lightheaded. He is noted to have dark stools, and HGB check demonstrates a new level of 6.1 (previously 12). Colonoscopy demonstrates a friable cecal mass.

Response:
Confirmation that this 69-year-old man is a devout Jehovah Witness (who will refuse transfusion of any blood or blood products) should dictate addressing this patient's precipitous decline of his hemoglobin, with the associated symptomatology (shortness of breath and weakness). Even with the patient's comorbidities, the likely source of bleeding must be addressed. Consequently, this patient should be expeditiously prepared for extirpation of the documented "friable cecal mass." In addition to being the source of bleeding, the colon mass is likely a harbinger for a malignant neoplasm. Although clopidogrel should be stopped 5 days before surgery, this patient should remain on ASA throughout the perioperative period. The clopidogrel can be restarted on postoperative day 2—using a loading dose.

Key Questions

1. *In acute care surgery setting does having a Jehovah's Witnesses necessarily make them a high-risk patient?*
2. *As opposed to an elective procedure, can an acute care surgeon refuse to be involved in the emergency care of a patient who's refusal of transfusion makes intervention almost assuredly prohibitive?*

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