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Refusal of Blood Transfusion

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Blood transfusions are used to treat anemia, hemorrhage, and increase the supply of oxygenated blood to the tissues.[18] Occasionally, a surgical patient undergoing a procedure during which a blood transfusion may be deemed necessary will refuse the transfusion due to religious reasons, fear that the transfused blood may not be safe, or a concern that a transfusion reaction may occur.

According to one religious website, interpretations of Biblical writings found in Genesis 9:4, Leviticus 17:14, and Acts 15:20 have led the organization's leaders to make the following statement. "The Bible commands that we not ingest blood. So we should not accept whole blood or its primary components in any form, whether offered as food or as a transfusion."[20] Members of this religious organization do not accept blood transfusions even though refusal of whole blood and/or blood components may result in loss of life.[14]

Some patients feel that the national blood supply is not safe or fear that there is a risk of a transfusion reaction. In the United States, the risk of receiving an unsafe blood transfusion is rare because blood donors are carefully screened and if any evidence of current illness is noted, the donation is delayed until no indication of illness remains. The voluntary screening process also attempts to identify and eliminate donors who have traveled to high risk regions or who participate in activities that carry a high risk of contraction of a communicable disease. Donated blood undergoes nucleic acid testing to identify bac-

LEARNING OBJECTIVES

- Examine the reasons why some choose to refuse blood transfusions
- Discuss the risks related to blood transfusions
- List the blood conservation techniques
- Identify blood transfusion alternatives
- Evaluate the known outcomes of patients who underwent surgery without blood transfusions

terial contamination, hepatitis B virus, hepatitis C virus, human immunodeficiency virus types one and two, human t-lymphotropic virus types one and two, syphilis, West Nile virus and cytomegalovirus[2,3] Since 1999, of more than 25 million units of donated blood that were administered in the United States, only one case of hepatitis C (< 0.0000001%) virus and three cases of human immunodeficiency virus (0.0000001%) have been documented.8 Transfusion reactions pose a greater risk. Between 1990 and 1998, 161 deaths were reported to the Food and Drug Administration due to infusion of the wrong type of blood. Statistics are not available on the total number of transfusion errors because only fatal errors are required to be reported.[15] Other types of transfusion reactions include acute hemolytic reactions (occurs in 1 to 5 of 50,000 transfusions), allergic reactions including anaphylaxis (occurs in 1% to 3% of transfusions), coagulopathies and febrile nonhemolytic reactions (ranges from 1% to 35% of transfusions).[18]

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RELATED SOCIAL JUSTICE AND BIOETHICAL CONCERNS

In the book entitled *Justice as Fairness,* Rawls defines justice as fairness. Rawls theory of social justice involves providing care to marginalized societal groups and providing equal access to opportunities, freedom and human rights (including the right to religious freedom). Rawls states that all individuals should be free to enter into agreements with full knowledge of the implications.[17] If Rawls' theory is applied to a situation in which a patient refuses of a blood transfusion, the individual is entering into an agreement knowing that the outcome may not be compatible with life; a risk the individual is willing to take.

In the book entitled *Principles of Social Justice,* Miller states that there are situations when inequalities are just according to circumstances. A judgment of whether a situation is just or unjust is determined based on the context and motivation of the individual.[17] Leaders of a religious organization base decisions on the teachings of the organization and set forth doctrines for the members to follow. In the context of religious freedom, members of certain religious organizations have chosen not to accept blood transfusions. The inequality is considered just within the context of Miller's social justice principles.

There are many definitions of social justice each with its own set of principles. Jost & Kay (nd) on page 1122 define social justice as a:

> state of affairs (either actual or ideal) in which (a) benefits and burdens in society are dispersed in accordance with some allocation principle (or set of principles); (b) procedures, norms, and rules that govern political and other forms of decision making preserve the basic rights, liberties, and entitlements of individuals and groups; and (c) human beings (and perhaps other species) are treated with dignity and respect not only by authorities but also by other relevant social actors, including fellow citizens.[9]

From a bioethical standpoint, Descombes supports an adult's right to make a decision to refuse a transfusion, but questions a parent's rights and responsibilities when making similar decisions on the making on behalf of their children. Descombes also suggests that adolescents may have strong views about receiving transfusions and should be consulted during the decision making process.[5] Krebs on page 1 (2005) disagrees with Descombes stating:

> By examining the issue of juvenile Jehovah's Witnesses and blood transfusion from a social justice perspective, it becomes evident that the patient is highly influenced by power relationships. As such, adolescents' lives need to be protected until they reach adulthood and can make independent and informed decisions.[11]

Lateef identifies a bioethical concern between a healthcare provider's oath to do no harm and withholding potentially life-saving treatment such as a blood transfusion; especially when the patient is a child. The conflict may cause a healthcare provider to seek legal action on behalf of a child or administer the treatment without the necessary consent of the parent or guardian.[12]

BLOOD CONSERVATION TECHNIQUES

If possible, the patient should be well hydrated and in optimum health prior to a planned surgical procedure. If the patient smokes, a smoking cessation program may be recommended. Steps should be taken to ensure that the patient has adequate nutrition that may include iron, vitamin B12 and folate supplements. It may be wise to consider administration of human recombinant erythropoietin which is used to increase the number of red blood cells.[7]

Use of blood conservation techniques, such as meticulous attention to hemostasis, during a surgical procedure is imperative. Use of mechanical devices including hemostatic clamps and manual pressure along with thermal hemostatic devices such as the electrosurgical unit, harmonic scalpel and diathermic dissection are effective in reducing blood loss. Chemical hemostatic agents including bone wax, absorbable gelatin, oxidized cellulose and microfibrillar collagen also are effective.

Gohel, et al,[7] promote the use of controlled hypotension while the patient is anesthetized and caution that the small amount of blood removed from the patient to conduct laboratory analysis can become significant if blood sampling occurs frequently.

TRANSFUSION ALTERNATIVES

Fluids for intravenous use that consist of crystalloids, blood, blood products, colloids and oxygen carrying solutions (which are in development) may be used to replace fluid lost as a result of trauma, surgery or dehydration. Crystalloid solutions, such as normal saline and lactated Ringer's solution are used to correct volume deficiencies and to provide electrolytes. Hypertonic crystalloid solutions are used in patients with low sodium levels (hyponatremia) and to expand the volume of plasma and are often used in conjunction with colloid solutions.[19]

Colloid plasma expanders contain a colloid which is a large molecular weight insoluble particle such as gelatin or a starch placed in a solution that can be administered as a plasma expander to patients experiencing low blood volume. Plasma proteins (albumin, fibrinogen, globulin, and others in small amounts) are the natural colloids found in blood. Colloids are too large to pass through the capillary membrane and are useful in maintaining colloid osmotic pressure (also called oncotic pressure). Oncotic pressure draws in and retains fluid within the blood vessels helping to maintain blood pressure and circulate remaining red blood cells so that oxygen is provided to the tissues. Colloid solutions are hypertonic. Examples of colloid plasma expanders include albumin (available in 5% and 25% strengths), dextran (available in 6% and 10% strengths), hydroxyethyl starch/hetastarch, pentastarch, polygeline and succinylated gelatin.[7]

Some individuals who are opposed to transfusion of whole blood may be willing to receive component therapy. Instead of transfusing whole blood, specific portions of the blood may be separated and used as needed. Blood components that may be acceptable include red blood cells (sometimes called packed cells) and platelet rich plasma which may be further separated into platelet concentrate and plasma. Cryoprecipitate (that contains Factor VIII, fibrinogen, von Willebrand factor and Factor XIII), plasma proteins, albumin, immunoglobulin and other clotting factor derivatives are additional examples of components that can be fractionated from blood plasma.[6]

KNOWN OUTCOMES

Juraszek evaluated outcomes of 30 patients who underwent cardiothoracic surgery that would have received blood intraoperatively or postoperatively had they not been members of a religious organization that does not allow blood transfusions. Coronary artery bypass graft surgery was performed on 18 of the patients, 11 patients had valve procedures, five patients underwent a coronary artery bypass graft procedure in conjunction with a valve procedure and one patient's ascending aorta was replaced. Five of the patients undergoing coronary artery bypass graft surgery were not placed on cardiopulmonary bypass because of the necessity to prime the bypass machine with donated blood. For the remaining 25 patients, a low-prim-

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ing method was utilized. "Mean baseline hematocrit serum levels were 35.8 +/– 6.3%. The mean decrease of hematocrit serum levels was 20.0 +/– 21.1% after surgery."[10] One patient died intraoperatively due to a decrease in serum hematocrit and four patients died postoperatively due to anemia. Patients who underwent coronary artery bypass surgery without cardiopulmonary bypass experienced the lowest decrease in serum hematocrit levels.[10]

Individuals who might refuse transfusion of blood may not aware of the relatively new techniques (and related success rates) that may be used eliminate or reduce the need for a blood transfusion. From a social justice perspective, all patients (or parents) should be informed of every option that is available prior to refusing or consenting to transfusion of blood.[1]

ABOUT THE AUTHOR

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