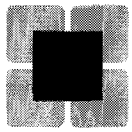

Explaining the risks of blood transfusion to patients

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■ Many patients express concern about the risk of an infection from blood transfusion. Blood transfusion is one of the safest therapies available, but its risks should never be trivialized when talking with patients. The most common infectious complication is hepatitis C, which occurs in 2% to 4% of transfused patients. Hepatitis B occurs in fewer than 1% of such patients. The risk of HIV infection from a blood transfusion is less than 1 in 100,000 in the United States. Explanation of risks is most effective when comparisons are meaningful and phrased from the patient's point of view.

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BLOOD COMPONENT THERAPY, prescribed annually for millions of American patients, is one of the most important tools of modern medicine. Transfusion support has made possible many advances in vascular surgery and transplantation. Despite obvious benefits of blood transfusion, many patients are preoccupied with the attendant risks. Fearful of acquiring infection—particularly AIDS—from blood transfusion, some patients will delay or even cancel needed surgery.

It is important neither to minimize nor trivialize the patient's concerns. Infection is a true hazard of blood transfusion: The patient's fears are founded in reality, and misapplied attempts to reassure can be mistaken for patronization.

The physicians of the Department of Blood Banking of The Cleveland Clinic Foundation have developed a successful approach to helping patients distinguish the perceived from the actual risks of blood transfusion.

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BALANCING THE RISKS AND BENEFITS

Patients need to know the risks associated with any elective therapy. We therefore convey accurate data, but the explanation is tailored to the patient's point of view and directly addresses his or her concerns. For example, we express risk in relative terms rather than in numerical quantities. That the risk for HIV infection from blood transfusion is "less than 1 in 100,000" is a difficult concept for anyone to grasp, and comparisons with hazards such as automobile or household accidents are irrelevant to most patients.

It is more meaningful to compare the risk with that of not undergoing the therapy at all or with the risks of infection before present HIV screening mechanisms were instituted. We also do not hesitate to respond to personal questions about how we would act if the patient were a member of our own family.

If the patient is concerned about blood transfusion and is a candidate for an alternative therapy, he should be given the option of another choice—for example,

deposit of autologous blood before elective surgery or intraoperative blood salvage. In some instances, it is appropriate to offer the patient the choice of moderate postoperative anemia and hematinic therapy as an alternative to homologous blood transfusion.

ACTUAL RISKS

Hepatitis C

The most common post-transfusion sequela is viral hepatitis. Recently introduced surrogate tests for non-A, non-B hepatitis have reduced the previous 6% to 12% incidence to 2% to 4% of transfusion recipients.[1] The hepatitis C virus is most commonly implicated.[2] The hepatitis incidence should be reduced further after the Food and Drug Administration licenses the recently developed screening tests for hepatitis C. These assays should reduce the incidence of posttransfusion hepatitis due to hepatitis C virus by 50% to 80%, or to 1% to 2% of transfused patients.

Hepatitis B

Before the introduction of specific screening assays in the late 1960s, hepatitis B virus was responsible for post-transfusion disease in about 30% of recipients. Now, it is implicated in the infection of fewer than 1% of recipients.[3]

Despite the use of specific assays, more sensitive second and third generation tests, and surrogate testing, the goal of eliminating post-transfusion hepatitis remains elusive.

HIV-1

The public most fears post-transfusion infection from the human immunodeficiency virus (HIV-1). The prevalence of HIV-1 varies from region to region and year to year, but since 1985, all donated units have been and continue to be tested for HIV reactivity, and all reactive units are destroyed; none enters the blood supply. The question remains whether blood that is nonreactive in an anti-HIV-1 test can still transmit the HIV virus. Between 1 in 100,000 and 1 in 250,000 seronegative units may be infectious.[4,5] Therefore, the risk of acquiring AIDS from a blood transfusion in the United States is no greater and probably considerably less than 1 in 100,000.

Blood collection programs nationwide have improved donor selection and component testing strategies in many ways that have increased the safety of transfusion therapy.[6] More detailed medical histories, self-deferment by individuals in high-risk groups, lengthy batteries of laboratory blood testing procedures, and the explicit, confidential option for donors to exclude their units from the inventory have all contributed to reduced risk of infection from transfusions. Indeed, these intensive screening efforts will more effectively eliminate HIV-1 from the blood supply than will in vitro testing.

Other complications

There are other complications of blood transfusion.[4] Cytomegalovirus infections occur with moderate frequency, but rarely are they clinically apparent except among immunocompromised patients. Other infectious agents can be acquired through blood transfusion, but none is common. The most common immunologic complication is the febrile nonhemolytic reaction observed in patients who are sensitized to leukocyte or plasma protein antigens; this affects 1% to 2% of recipients. Urticarial reactions also occur in about 1% of the transfused population. Hemolytic transfusion reactions have an incidence of 1 in 6,000 and account for fatalities in about 1 in 100,000 transfusions.[4]

PERCEIVED RISKS

The public perceives these risks quite differently than statisticians. Many of the variables that affect perception of risk have been identified;[7,8] these should be taken into account in discussions with patients.

We developed the following guidelines for explaining transfusion risk on the premise that the patient's perception of risk is critical to the success of therapy.

Limit comparisons to other involuntary activities

People more readily accept risks of voluntary actions than risks of actions imposed upon them. For example, the use of alcohol or tobacco—even riding in an automobile—has greater risk than receiving a blood transfusion; yet the involuntary nature of a blood transfusion is about a thousand times less well tolerated than a risk acceded to voluntarily.[9]

The sexual partner of an HIV infected individual has a 1:10 risk of acquiring the disease.[10] We can therefore tell the patient that the risk of AIDS from a unit of blood is perhaps 10,000 times less than the risk associated with marriage to a person infected with HIV-1. Similarly, patients will accept the risk of natural hazards, such as earthquakes and being struck by lightning, more readily than risks associated with unnatural hazards and technology, including blood transfusion.

Enlist the patient's participation

The patient who participates actively in the decision to have a transfusion has less perception of risk. Just discussing the therapy itself can reduce fear, even though the discussion will necessarily cover the possible complications. This is the basis of the doctrine of "informed consent." A patient who is not well informed will naturally downplay the risk of the disease and emphasize instead the risk of the treatment, such as a blood transfusion, in order to feel in control of a frightening situation. The patient who understands the nature of his or her therapy will feel more in control of his illness and better able to participate in the decision-making process.

Direct the discussion to treatment issues

The benefits of taking the risk must be clear to the patient. This is a powerful deterrent to fear, and the physician can use it to stress the importance of the therapy. Keeping the discussion focused on the treatment of the illness also will mitigate the patient's natural anxiety about consequences that, if they occur at all, many not be manifested for months or even years. The obvious corollary to this principle is that blood transfusion should never be offered for marginal indications.

Encourage familiarity with the procedure

Familiarity decreases the perception of risk. Many people accept risks such as domestic radon exposure, which may account for 10% of all lung cancer,[11] because they are comfortable in their own homes. On the other hand, the strangeness of a hospital magnifies the perception of risk. Anything that increases the patient's familiarity, such as a careful explanation of the procedure, can reduce the perception of risk.

Look for preconceptions

The patient's preconceptions may be the basis of fear. It is important to listen carefully to identify the patient's specific fears and address them effectively. For example, patients perceive the risk of AIDS from blood transfusion to be much greater than it actually is in large part because of news stories. A disproportionate number of AIDS patients who are featured in documentaries have acquired their disease as a result of blood transfusions. The media often fail to distinguish the paid donor habituating a commercial plasma collection center from the altruistic blood donor who supports a community blood program. The blood supply is 100% voluntary and unpaid—a fact not well known to patients.

Acknowledge limitations

The patient must trust the source of information. Some early assurances about the safety of the blood supply in the face of the AIDS epidemic had to be recanted when new data became available. This contributed to public mistrust. Physicians are in a good position to present authoritative information about blood transfusions, while conceding limitations in knowledge. Patients appreciate the honesty of a qualifying phrase such as "according to our present state of understanding."

The physician can reduce the patient's anxiety about blood transfusion by proper presentation of factual information, but some patients are so focused upon the risks that discussions with them present real challenges. Patients may need to hear the same message more than once; attending physicians, nurses, transfusion medicine specialists can all help to allay fears.

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