

*O. Krasnozhon, Medical Assistant Department student  
N. Shygonska, PhD in Ped., As. Prof., research advisor  
N. Shygonska, PhD in Ped., As. Prof., language advisor  
Zhytomyr Nursing Institute*

## **THE RISKS OF TRANSFUSION-TRANSMITTED INFECTIONS**

A blood transfusion is the transfer of blood or blood products from one person (donor) into another person's bloodstream (recipient). This is usually done as a lifesaving maneuver to replace blood cells or blood products lost through severe bleeding, during surgery when blood loss occurs or to increase the blood count in an anemic patient.

Blood can be provided from two sources: autologous blood (using your own blood) or donor blood (using someone else's blood).

### **WHAT IS THE INFECTION RISKS OF AND COMPLICATIONS OF A BLOOD TRANSFUSION?**

The use of greater amount of red blood cells is associated with a high risk of infections. In those who were given red blood only with significant anemia infection rates were 12% while in those who were given red blood at milder levels of anemia infection rates were 17%.

On rare occasion, blood products are contaminated with bacteria. This can result in life-threatening infection, also known as transfusion-transmitted bacterial infection. The risk of severe bacterial infection is estimated, as of 2002, at about 1 in 50,000 platelet transfusions, and 1 in 500,000 red blood cell transfusions. Blood product contamination, while rare, is still more common than actual infection. The reason platelets are more often contaminated than other blood products is that they are stored at room temperature for short periods of time. Contamination is also more common with longer duration of storage, especially when exceeding 5 days. Sources of contaminants include the donor's blood, donor's skin, phlebotomist's skin, and from containers. Contaminating organisms vary greatly, and include skin flora, gut flora, or environmental organisms. There are many strategies in place at blood donation centers and laboratories to reduce the risk of contamination. A definite diagnosis of transfusion-transmitted bacterial infection includes the identification of a positive culture in the recipient (without an alternative diagnosis) as well as the identification of the same organism in the donor blood.

Since the advent of HIV testing of donor blood in the 1980s, the transmission of HIV during transfusion has dropped dramatically. Prior testing of donor blood only included testing for antibodies to HIV. However, due to latent infection (the "window period" in which an individual is infectious, but has not had time to develop antibodies), many cases of HIV seropositive blood were missed. The development of a nucleic acid test for the HIV-1 RNA has dramatically lowered the rate of donor blood seropositivity to about 1 in 3 million units. As transmittance of HIV does not necessarily mean HIV infection, the latter could still occur, at an even lower rate.

The transmission of hepatitis C via transfusion currently stands at a rate of about 1 in 2 million units. As with HIV, this low rate has been attributed to the ability to screen for both antibodies as well as viral RNA nucleic acid testing in donor blood.

Other rare transmissible infections include hepatitis B, syphilis, Chagas disease, cytomegalovirus infections (in immunocompromised recipients), HTLV, and Babesia.

#### **ARE THE ALTERNATIVES TO BLOOD TRANSFUSION?**

Researchers are trying to find ways to make blood. There's currently no man-made alternative to human blood. However, researchers have developed medicines that may help do the job of some blood parts. For example, some people who have kidney problems can now take a medicine called erythropoietin that helps their bodies make more red blood cells. This means they may need fewer blood transfusions.

Surgeons try to reduce the amount of blood lost during surgery so that fewer patients need blood transfusions. Sometimes they can collect and reuse the blood for the patient.

#### **REFERENCES**

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