EDITORIAL

Misuse of Blood Transfusion

"A person would be liable for damages following and caused by a transfusion that was not indicated by the facts of the case. Even if no negligence could be proved . . . an action for damages would lie if the plaintiff could prove that the transfusion was not indicated medically."*

Fortunately, this is an aspect of transfusion therapy with which few physicians and surgeons have had to deal. The proper use of blood transfusion, however, poses a problem, and many of us deserve criticism for the way in which we have met this problem. The reason for misuse of blood transfusions is that we are not sufficiently aware of what are valid indications for this procedure. A surgical operation is not an indication for blood transfusion. Uterine bleeding is not an indication. Neither is a low hematocrit. Blood transfusion is not a tonic. It is not a placebo. It does not improve wound healing. Neither is it a substitute for careful consideration of the patient and his problem.

Setting aside the question of exchange transfusions, there are two valid indications for the transfusion of blood: (1) to improve the stability of the circulatory system when the blood volume has been reduced in such a way as to imperil the patient; (2) to improve the oxygen-carrying capacity of the blood to prevent acute hypoxia or invalidism.

During the Korean conflict the use of massive blood transfusions saved the lives of many of the most severely wounded soldiers. The blood was given rapidly in large amounts, 10 liters in an hour, 20 liters in a day. Critics, relying on so-called “common sense” rather than on first-hand experience, declared that these surgeons in Korea used too much blood. The surgeon's problem was not, however, to answer such criticism but to re-establish and maintain the stability of the patient's circulatory system while he underwent the essential surgical procedure. The criterion of an adequate transfusion was not established by any measurement of blood volume or hematocrit (although these were often done); nor was the resuscitative effort limited by a preconceived notion of the amount of blood it was safe to give. The surgeon was governed by the blood pressure, the pulse rate and ability of the severely wounded patient to withstand gentle manipulation, such as elevation of the shoulders.

Contrast this, if you will, with a surgical service at home where every patient undergoing major elective surgery receives a liter of blood the day before the operation to make sure he is not suffering from “chronic shock.” (On such a service one patient with polycythemia received a liter of blood when his hemoglobin was 18 grams.) Contrast the Korean practice with that of obstetrical services where every pregnant woman receives a transfusion when a laboratory report indicates that her hemoglobin concentration is less than a certain level.


1198
than 10 grams. Contrast the practice of our surgeons in Korea with that of a cancer service where once a week hematocrits are done and every patient below 38 per cent receives one unit of blood, and every patient whose level is below 32 per cent receives two units. I have not invented these instances, and they are not exaggerated. They are flagrant examples of what might be called the secretarial practice of medicine. In such a practice a stenographer types out the laboratory request, and when the patient flunks her hemoglobin test the stenographer types out a transfusion request.

Several years ago at the Armed Forces Institute of Pathology all the cases of acquired hemolytic anemia were reviewed. There were approximately 100 cases submitted by the Armed Forces, the Veterans Administration and civilian hospitals. Hemolytic anemia is a serious disease, and the mortality in the series was high. It was higher than it might have been, however, had not eight of the patients died because of inept use of the transfusion service. Five died of acute anemia; they had not received transfusions when they should have. Three died of complications of unnecessary transfusions; two of these deaths were due to reactions; the third was caused by fulminating viral hepatitis three months after the so-called prophylactic transfusion of a unit of plasma during an uneventful splenectomy.

All of us are concerned with the welfare of our patients. All of us are aware that we should not undertake a dangerous procedure without a thoughtful consideration of the indications and consequences and that blood transfusion is inherently dangerous. When we prescribe the transfusion we should balance the remote—although not less real—dangers against a present, real, even urgent requirement of the patient. Anemia alone is not a sufficient justification. The requirement of the anemic patient for oxygen-carrying capacity should be balanced against his present capacity. Much of a person's 15 grams of hemoglobin is a reserve against strenuous exertion. Where there is no requirement for exertion, an individual can well tolerate a lower level of hemoglobin. For a sedentary life, 10 grams is often sufficient, and most bed-fast patients are comfortable with as little as 5 or 6 grams. Many patients can learn to live with a chronic anemia, and a little quiet encouragement is often as helpful as repeated blood transfusions. Acute blood loss must also be regarded with a critical judgment. A healthy adult can sustain the rapid loss of one third of his blood volume without serious derangement of circulatory stability. Recently, during the delivery of a child, a woman lost by final measurement 700 milliliters of blood. It is reasonable to suppose that she could have sustained this loss without danger and without transfusion. In fact, however, the blood loss was replaced by a transfusion of six units. This seems unreasonable.

It is commonplace to insist that the hemoglobin concentration be "normal" before a patient comes to surgery. This is another instance where common sense appears to ignore physiology. It seems only common sense that the patient should have 14 grams of hemoglobin. Actually, however, the hemoglobin concentration represents oxygen-carrying capacity, which is rarely a limiting factor during surgery. Blood dilution studies made on patients dur-
ing surgical operations have demonstrated that, when blood volume is maintained, the vital signs do not begin to show a deficiency of oxygen-carrying capacity until the hemoglobin concentration is less than 7 grams.

The dangers of blood transfusion, infection, hemosiderosis and transfusion reaction are well known. Try as we may, we can only reduce the incidence of the reactions. We cannot eliminate them, and patients will continue to be damaged as a result of blood transfusions. For example, it was a tragedy when a young woman died from a bottle of blood. How much more tragic it seemed when it was learned that her hematocrit had been 40 per cent when the transfusion was begun.

Thoughtless prescription of blood transfusion is playing Russian roulette with bottles of blood instead of a revolver. While the odds are in the physician's favor that nothing will go wrong, the patient takes the risk.

WILLIAM H. CROSBY

ADDENDUM

What do you treat? The patient, or his lab report, or your own anxiety?

The following is extracted from an article on the Professional Activities Study (PAS) of the Commission on Professional and Hospital Activities, Inc., published in Scope, March 12, 1958:

When studies showed two hospitals across the street from each other had a 2-Gm. difference in the average initial hemoglobin for their patients, laboratory workers investigated and restandardized their instruments. As a result, average daily transfusions in one hospital were reduced by more than 50 per cent, saving more than 1,000 transfusions yearly.

PAS was established by the Southwestern Michigan Hospital Council in July, 1953, with financial support from the W. K. Kellogg Foundation, Battle Creek. It now processes medical reports of 75 hospitals in 19 states and furnishes rapid access to more than 1,000,000 individual patient records.

Analysis of the data shows a wide range of medical practice, among both hospitals and individual members of their medical staffs. For example, two separate studies of transfusions in 13,000 uncomplicated deliveries in 1955 and 1957 showed use of blood transfusions ranging from 1 to 12 per cent.
Editorial—Misuse of Blood Transfusion

WILLIAM H. CROSBY

Updated information and services can be found at:
http://www.bloodjournal.org/content/13/12/1198.citation.full.html
Articles on similar topics can be found in the following Blood collections

Information about reproducing this article in parts or in its entirety may be found online at:
http://www.bloodjournal.org/site/misc/rights.xhtml#repub_requests

Information about ordering reprints may be found online at:
http://www.bloodjournal.org/site/misc/rights.xhtml#reprints

Information about subscriptions and ASH membership may be found online at:
http://www.bloodjournal.org/site/subscriptions/index.xhtml