

: : ABSTRACT : :**Hazards of Blood Transfusion**

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The ever demand and value of blood transfusion services, as treatment therapy in maintaining and saving human lives, and developed to such large proportions today, has presented many hazardous situations that will be presented briefly from this article.

The chief factors to be considered are the donor, the storage, the transfusion technique and the recipient. Considering the donor one must think of homologous serum jaundice, allergic reactions, tropical diseases, and other serum transmitted infections. Homologous serum jaundice is to be avoided by careful rejection of donors with the disease or any contact during the previous six months. The ultra-radiation of blood, formerly thought to prevent this occurrence, has since been discontinued. It might also be advisable to consider the rejection of tattooed donors because of the possible source of infection.

Allergic reactivity when transmitted to an ailing patient may be sufficient to precipitate a serious crisis. In these cases, a 10ml. injection, i.v., should be used to detect any reaction. Such a reaction would necessitate the use of washed red blood cells. Any history of tropical fevers will automatically rule out the donor. Awareness of preclinical cases of measles, influenza, recently inoculated and vaccinated donors might also produce adverse results.

Blood collection and storage raise problems that can be incurred in faulty collecting techniques, auto-claving and storage procedures.

It is best to maintain the blood at 37 degrees C. for a few hours, taking advantage of the bacteriostatic and bacteriocidal properties of blood, and follow with immediate refrigeration to prevent possible multiplication of surviving organisms. The survival time of the red cells is not seriously affected by the few hours of delayed refrigeration. Storage is to be limited to 3 - 4 weeks to prevent hemolysis and its effect on an already embarrassed kidney.

Technical errors arising from faulty labelling, and the dangers thereof, are well known. Blood incompatibilities for the ABO and Rh factors must, of necessity, be checked especially in patients with a history of a previous transfusion and Rh negative women with a past or present pregnancy. From experience gained in the Korean War, it is now established that, although group O is considered the universal donor group, repetitive transfusions to heterologous blood groups may seriously raise the agglutinin titre in the patients' plasma to cause ill effects with subsequent homologous blood transfusions. Rapidity of transfusion must be carefully attended in view of its effect upon the circulatory system. In order to prevent air embolism, attention must be paid to the blood level in the transfusing vial and

tubing, with care that the tubing is free of air before affixation of transfusion.

Careful attention is to be given to water distillation and cleaning of equipment in lieu of the danger of pyrogens and contamination. Thrombophlebitis decreases with experienced users and the associated use of latex tubing and the frequent changing of sets during transfusion. Hemolysis as a result of blood warming is also another danger to be avoided. Excess sodium citrate, although known to cause tetany in cases of repeated transfusions, is sufficiently metabolized by the liver to eliminate danger. Where repeated transfusions are needed, transfusions with packed red cells is advised.

Recipient antibody titer may raise obvious problems, but where sus-

pected in dangerous cases the Combs' test should be done to eliminate probable risks. In cases of cardiac and renal insufficiency, overloading of the circulation must be avoided and packed red cells be given in place of whole blood, within 24 hours of their preparation. In cases of anemia accompanied by an embarrassed circulatory system, a supportive treatment is advised consisting of propping the patient in bed, digitalis and transfusion of not more than 500 ml. of concentrated red cells, or if the hemoglobin concentration has fallen below 25%, transfusion should be limited to 0.5 ml./lb. of body wt./hr.

In view of these reservations, many reactions remained unexplained although some may be explainable on the basis of anaphylactic reactions.

Fred Mathews '58.

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