New York State Council on Human Blood and Transfusion Services

GUIDELINES FOR THE ADMINISTRATION OF CRYOPRECIPITATE

Fourth Edition
2012

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2012, 2006, 1996, 1995

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GUIDELINES FOR THE ADMINISTRATION OF CRYOPRECIPITATE

INTRODUCTION

Cryoprecipitate, or "cryo", whose official U.S. Food and Drug Administration (FDA) name is Cryoprecipitated Antihemophilic Factor, is the cold-insoluble portion of fresh frozen plasma (FFP) that precipitates when FFP is thawed at refrigerator temperatures (1-6 C). Considered a blood component, it contains clotting factor proteins from a single donor resuspended in approximately 10 to 15 mL of plasma. Each unit contains a minimum of 80 IU of factor VIII and at least 150 mg of fibrinogen, in addition to significant amounts of von Willebrand factor and factor XIII. Stored frozen at $\leq$ -18 C until needed, cryoprecipitate must be stored at room temperature after thawing. It must be transfused within six hours of thawing and four hours of pooling, if pooling is performed. Cryoprecipitate may be pooled by the transfusion service or by the collection center. Manufactured pathogen-inactivated fibrin sealant products used topically during surgery have superseded the use of cryoprecipitate in the preparation of "fibrin glue."

I. INDICATIONS FOR CRYOPRECIPITATE

A. Hypofibrinogenemia or afibrinogenemia, in association with bleeding***** or prior to an invasive procedure

Hypofibrinogenemia may be due to:

1. lack of synthesis (*e.g.,* liver disease);
2. consumption (*e.g.,* disseminated intravascular coagulation [DIC], abruptio placentae, amniotic fluid embolus, and treatment with asparaginase);
3. dilution (*e.g.*, massive transfusion or intensive plasma exchange); or
4. inherited deficiency

*****Note: A fibrinogen concentrate has been approved in the U.S. for treatment of acute bleeding episodes in patients with congenital fibrinogen deficiencies (afibrinogenemia, hypofibrinogenemia).[1]

B. Any of the following conditions in association with bleeding or prior to surgery:

1. von Willebrand disease when desmopressin (DDAVP) is ineffective or contraindicated (see Table 1) and von Willebrand factor-containing concentrates are not immediately available;
2. dysfibrinogenemias, both inherited and acquired (*e.g.,* due to liver disease); and
3. hemophilia A when factor VIII concentrate is not immediately available and other therapies, such as DDAVP, are not indicated.

C. Factor XIII deficiency in association with bleeding**†**

†Note: Cryoprecipitate may be indicated for replacement in the case of factor XIII deficiency.[2] FFP may also be used, but infusion requires much larger volumes. A

factor XIII concentrate has been approved in the U.S. for prophylactic treatment of congenital factor XIII deficiency, but not for bleeding episodes.[3]

D. Uremia with bleeding if the patient is unresponsive to other treatment modalities, such as dialysis, DDAVP, estrogen, red cell transfusions, and erythropoietin.

Table 1. Responsiveness to DDAVP in von Willebrand disease‡

vWD Type	Expected Response to DDAVP
Type 1	Good
Type 2A	Variable
Type 2B	Contraindicated§
Type 3	Poor

§Risk of thrombocytopenia

‡Note: A trial dose should be given prior to administration of a full dose.

II. CRYOPRECIPITATE ADMINISTRATION

A. For fibrinogen replacement, two units of cryoprecipitate/10 kg of body weight generally raise fibrinogen concentration by 100 mg/dL, except in cases of DIC or continued bleeding with massive transfusion. Therapy should be based on clinical status, with a goal of achieving and maintaining a fibrinogen concentration of 100 mg/dL, as clinically indicated.[4,5]

B. Cryoprecipitate may be pooled and must be transfused through a standard blood filter.

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