

Cryoprecipitated AHF

How Supplied:

Cryoprecipitate for adult transfusion is distributed by Versiti as a pool of 5 units. Cryoprecipitated AHF contains fibrinogen, factor VIII, von Willebrand factor, factor XIII, and fibronectin. Estimated fibrinogen per 5-pool Cryo bag is 1500-2000 mg.

Utilization Review Guidelines:

Cryoprecipitate is administered for the treatment of bleeding in patients with low or dysfunctional fibrinogen. Documentation of the indication(s) for a transfusion episode and special circumstances for transfusion that take place outside these guidelines is recommended.

Indications:

1. Hypofibrinogenemia (fibrinogen <150 mg/dL) **with** active bleeding or undergoing an invasive procedure.
2. As part of a massive transfusion protocol for patients who are massively bleeding and fibrinogen cannot be measured in a timely manner.
3. Obstetric patient with massive bleeding and fibrinogen <200 mg/dL (See Comments)
4. Dysfibrinogenemia (acquired or congenital) **with** active bleeding or undergoing invasive procedure (See Comments).
5. Replacement therapy in factor XIII deficiency **with** active bleeding or undergoing an invasive procedure when commercial factor concentrate is not available.

Dosing Recommendations:

- 1 single donor unit per 7-10 kg of body weight. For adults, one standard dose of cryoprecipitate is 10 units (or two, 5-pool bags).
- ABO-compatible cryoprecipitate is not required in adults due to the small volume of plasma transfused. Rh compatibility need not be considered for transfusion.¹

Expected Outcomes:

- 10 units (or two, 5-pool bags) in a 70 kg adult will typically raise plasma fibrinogen levels by approximately 50-75mg/dL.² Monitor for desired outcome.

Comments:

- While a fibrinogen threshold of 100 mg/dL has been historically used as an indication for cryoprecipitate transfusion, this value has not been rigorously defined in clinical trials. Recently, updated European guidelines recommend maintaining fibrinogen levels at ≥ 150 -200 mg/dL in massively bleeding patients.³

- Cryoprecipitate transfusions are not generally indicated in the absence of bleeding. Patients with low fibrinogen level (50-100 mg/dL) should be assessed for risk of bleeding,
- Studies show that fibrinogen under 200 mg/dL in pregnancy may be an independent risk factor for development of severe postpartum hemorrhage.^{4,5} Transfusion with cryoprecipitate may be preferable to FFP when attempting to rapidly control bleeding and regain hemostasis in an obstetric patient.^{6,7}
- Available evidence suggests that in perioperative bleeding patients with acquired hypofibrinogenemia fibrinogen concentrate performs similar to cryoprecipitate with respect to efficacy and safety. When cryoprecipitate is in limited supply, fibrinogen concentrate may be considered an alternative for the management of such patients (e.g. trauma or cardiovascular surgery patients).^{8,9}
- Cryoprecipitate may be used to control uremic bleeding after desmopressin (DDAVP) has failed, but there is limited data to support routine use.¹⁰
- Coagulopathy of liver disease is complex with multiple alterations in the hemostatic system (platelets, procoagulants and anticoagulants). In the absence of hypofibrinogenemia, cryoprecipitate may be indicated as adjunct management in addition to other clotting factors to help control bleeding in the end stage liver disease patient.
- In patients with congenital fibrinogen deficiency (afibrinogenemia, hypofibrinogenemia) with acute bleeding or impending surgery, consider fibrinogen concentrate (RiaSTAP[®], Fibryga[®]) instead of cryoprecipitate.^{11,12}
- Congenital Factor XIII deficiency is rare and commercial Factor XIII concentrate (Corifact[®]) is available for use in such patients.¹³
- Use of cryoprecipitate in hemophilia A or von Willebrand disease (vWD) is not standard of care. Cryoprecipitate should only be used if factor concentrates are not available.
- Historically, cryoprecipitate has been applied topically as part of an intraoperative “fibrin glue” for specific surgeries. Commercially available, virally-inactivated fibrin sealants are now routinely used. These sealants are part of a larger group of topical hemostatic agents and are preferred for this purpose.¹⁴
- Results of viscoelastic tests such as Thromboelastography (TEG) or rotational thromboelastometry (ROTEM) may demonstrate fibrinogen deficiency and guide cryoprecipitate transfusions better than conventional coagulation tests despite evidence from rigorous trials.^{15,16}

References:

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Additional Resources:

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