PROCEDURE

Title: Fresh Frozen Plasma, Thawer, and TRALI

Procedure #: 2015BLOODBANK86

Institution: Highlands Regional Medical Center

Address: 3600 Highlands Avenue, Sebring Florida 33870

Prepared by: Anita Smith Date: 6/12/2015

Title: Laboratory Administrative Director

Accepted by: _____ Date: 6/12/15

Title: Laboratory Medical Director

Date Patient Testing Implemented: 6/1/2008

Review of procedure every two years

Reviewed by: _____ Date: _____

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Highlands Regional MEDICAL CENTER

Policy Name: Fresh Frozen Plasma **Department: Blood Bank**

Departmental Review: **Policy #: B4.4**

INITIATE DATE **DATE REVIEWED/REVISED** **PAGE 1 of 3**
06/2008 **02/102009, 06/2013, 05/2014**

PURPOSE:

Fresh Frozen Plasma (FFP) is used to treat bleeding associated with clotting factor deficiencies when clotting factors are not available or are not indicated. FFP is a valuable therapeutic component for clinically significant Factor XI deficiency and for other congenital deficiencies for which there is no suitable clotting factor concentrate available. FFP is most likely to be of clinical benefit in patients with multiple factor deficiencies and of limited clinical benefit in patients with inhibitors to any coagulation factor.

The most common cause of multiple coagulation abnormalities among hospitalized patients is deficiency of the Vitamin K-dependent factors (II, VI, IX, and X). Although patients with Vitamin K deficiency do not require FFP and are better treated with parental vitamin K, plasma is occasionally needed to treat active bleeding.

Plasma contains mainly proteins (albumin, globulin and coagulation factors), water and electrolytes.

PROCEDURE:

1. Select plasma compatible with the ABO group of the recipient's red cells. Crossmatching is not required for this component. Refer to the following chart for suitable unit selection.

RECIPIENT	DONOR					
	A	B	O	AB	Rh POSITIVE	Rh NEGATIVE
A	YES			YES		
B		YES		YES		
O	YES	YES	YES	YES		
AB				YES		
Rh Positive					YES	YES
Rh Negative					YES	YES

2. Carefully remove box from freezer, using shortest dated units first, and place in a closed bag to prevent water from contaminating the ports.

3. Place the bag in the water bath (30° to 37°C). Frozen bags are extremely brittle and should be left in the box until they have begun to thaw. Cracked bags should be discarded. When removed from the box replace unit into bag to continue thawing.

4. Agitate bag in plasma thawer for 20 to 25 mintues. Maintain water bath temperature at 30 to 37°C.

5. Fresh frozen plasma **MUST** be infused within 24 hours after thawing and should be stored at 1-6 °C until infusion. Thawed plasma not used within 24 hours must be discarded.

6. The product FFP must be changed to thawed FFP in SoftBank. Follow the procedure on how to change product in SoftBank. Print a product label and attach to thawed plasma unit.

7. Notify the nursing unit when the plasma is ready, informing them of the expiration time of the unit; document on the transfusion request form the call.

8. Issue unit as per facility protocol.

PROCEDURE NOTES:

1. FFP is plasma along with anticoagulant-preservative, placed at -18 °C or colder within 8 hours after collection if prepared from whole blood or if collected by apheresis it must be frozen with 6 hours. Stored at -18 °C or colder, FFP contains maximum levels of labile and nonlabile clotting factors (about 1 IU per ml) and has a shelf life of 12 months from the date of the collection.

2. An infusion of FFP that increases the concentration of factors by 20% will have a far greater impact on a greatly prolonged PT or aPTT than on a mildly prolonged PT or aPTT. The infusion of 2 units of FFP in a patient with a PT of 14.5 seconds is unlikely to produce any clinical benefit and is also unlikely to correct the PT to the normal range.

3. Fresh frozen plasma may be used to replace coagulation factors in newborns particularly if multiple factors are involved. The usual dose is 10 to 15 ml/kg of body weight, which should increase the factor activity by 10 to 20%. Once thawed aliquots can be prepared but must be used within the 4-hour period after units have been entered.

4. Notify supplier if frozen bags are damaged.

REFERENCES:

AABB Technical Manual

Highlands Regional MEDICAL CENTER

Policy Name: Plasma Thawer **Department: Blood Bank-Lab**

Departmental Review: **Policy #:**

INITIATE DATE **DATE REVIEWED/REVISED** **PAGE 1 of 2**

PURPOSE:

Fresh frozen plasma and Cryoprecipitate are thawed at 37°C. The Helmer plasma thawing system gently agitates one to four units in a 37°C water bath. The automated system has pre-programmed time settings of 0, 3, 5, 8, 10, 12, 14, 16, 18, 20, and 25 minutes, as well as a hold ("HO") setting.

QUALITY CONTROL

Temperature and water level are checked and recorded daily. Water bath is cleaned monthly.

PROCEDURE:

1. Remove chamber cover.
2. Press lift out button to raise and open basket.
3. Place frozen FFP or Cryoprecipitate in overwrap bag.
4. Place overwrapped plasma bag in basket and hook the slot at the top over the tab on the basket.
5. Press lift out button to lower and close basket.
6. Set cycle time by pressing Cycle Time button to advance through each time setting.
7. Press CYCLE START to begin agitation.
8. At the end of thaw cycle an alarm will sound and the baskets will stop agitating, lift out and open.
9. Remove the plasma from the thawer and discard the overwrap bag.
10. Replace chamber cover.

Button	Button Name	Function
	CYCLE TIME	► Set thaw cycle time (in minutes) ► Extend thaw cycle time ► Select the hold ("HO") setting
	CYCLE START	Start a thaw cycle
	LIFT OUT	► Pause a thaw cycle in process (press to raise the basket) ► Resume a paused thaw cycle (press to lower the basket) ► Stop a thaw cycle

PROCEDURE NOTES:

1. Refer to instrument product and service manuals for troubleshooting and maintenance instructions.
2. Raising the baskets with chamber cover on will strain the lift out motor.

REFERENCES:

Helmer QuickThaw Plasma Thawing System Operation and Service Manual

Highlands Regional MEDICAL CENTER

Policy Name: Fresh Frozen Plasma **Department: Blood Bank**

Departmental Review: **Policy #: B4.4**

INITIATE DATE **DATE REVIEWED/REVISED** **PAGE 3 of 3**
06/2008 **02/102009, 06/2013, 05/2014**

Reviewed by	Reviewed Date	Reviewed by	Reviewed Date
	5.27.15		
	5.29.15		

Initial Implementation Date: _____

Reviewed by: _____on file_____ Date: 5/28/14
Department Supervisor

Reviewed by: Angela Lawster on file Date: 5/28/14
Department Adm. Director

Reviewed by: _____n/a_____ Date: _____
Department Chief Technologist

Reviewed and Approved by: _____on file_____ Date: 5/28/14
_____
Department Medical Director

Highlands Regional MEDICAL CENTER

Policy Name: Plasma Thawer **Department: Blood Bank-Lab**

Departmental Review: **Policy #:**

INITIATE DATE **DATE REVIEWED/REVISED** **PAGE 2 of 2**

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Reason: _____

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Department Supervisor

Reviewed by: Angela Lanston Date: 7/22/13

Department Adm. Director

Reviewed by: _____ Date: _____

Department Chief Technologist

Reviewed and Approved by: _____ Date: 7-22-13

Department Medical Director

TRALI

Introduction

Transfusion-related acute lung injury is characterized by acute respiratory distress, bilateral pulmonary edema, and hypoxemia in the setting of transfusion of plasma-containing blood components. Hypotension (unresponsive to fluid administration) and fever (1-2 C rise) are frequent manifestations. The hypoxemia and pulmonary edema are frequently severe. The onset of symptoms us typically 1 to 2 hours following the beginning of transfusion; however, cases commencing up to 6 hours after transfusion have been noted. All plasma-containing blood components, including platelet concentrates, cryoprecipitate, and additive-preserved red blood cells have been implicated.

Prevention of TRALI

Substantial evidence indicates that a majority of cases of TRALI are caused by transfusion of plasma containing leukocyte antibodies. Many recipients who develop TRALI have received a donor unit containing antibodies directed against an antigen present on their leukocytes. Such antibodies may be directed against HLA Class I or Class II antigens or nonHLA neutrophil antigens (HNA). The highest frequency of leukocyte antibodies is found in female donors who have previously been pregnant.

In some TRALI cases, no antibody is detected in either donor the recipient. There is evidence that some of these cases are caused by nonantibody substances contained in stored blood.

Based on the current state of knowledge, it is evident that no single intervention can prevent all cases of TRALI. However, current data about the incidence and severity of antibody-mediated TRALI in the US suggest that precautionary risk reduction strategies should be implemented.

Recommendation for TRALI Reduction

The AABB (American Association of Blood Banks) recommends that blood transfusion facilities should work towards implementing appropriate evidence-based hemotherapy practices in order to minimize unnecessary transfusions and should monitor the incidence of reported transfusion reactions.

Most reduction strategies for TRALI are geared toward prevention. Some of the specific recommendations are as follows:

1. Donors who have been implicated in TRALI should be permanently deferred if future testing on donor is positive for HLA antibodies..
2. Multiparous donors should be prospectively identified and screened for antibodies or diverted for uses other than whole blood, FFP or apheresis platelets.

TRALI Reduction Plan at Highlands Regional Medical Center

1. Encourage appropriate blood utilization practices.
2. Use of a donor service that follows the prevention strategies listed above.

Reviewed by	Reviewed Date	Reviewed by	Reviewed Date
[signature]	8·6·14		
[signature]	5·28·15		

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Reviewed by: Angela Lawster Date: 7/23/2013
Department Supervisor

Reviewed by: Angela Lawster Date: 7/23/13
Department Adm. Director

Reviewed by: _____ Date: _____
Department Chief Technologist

Reviewed and Approved by: [signature] Date: 7-23-13
Department Medical Director