Government of Newfoundland and Labrador

Department of Health and Community Services
Provincial Blood Coordinating Program

BLOOD COMPONENTS SUBSTITUTION IN ADULTS	NLBCP-002

Office of Administrative Responsibility	Issuing Authority
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Overview

Blood components transfused to a recipient shall be compatible with the recipient's blood. In situations where ABO/RhD identical components are not available, substitutions may occur.

Policy

1. Transfusion of red blood cells (RBC) shall be ABO compatible.
2. RhD negative female recipients (at or below child bearing age) shall receive RhD negative RBCs, except in life threatening situations when RhD negative RBCs are not available.
3. There shall be an established regional health authority (RHA) policy, which complies with Provincial Blood Coordinating Program (PBCP) policies, for the transfusion of RhD positive RBCs to an RhD negative recipient. This may occur when the inventory of RhD negative RBCs are impacted; such as: in cases of trauma, massive transfusion, and emergency situations or if RBCs are in short supply.
4. Known O Rh(D) negative hemorrhaging patients should switch to O-positive RBC unless known to have anti-D after four units of O-negative RBC.
5. The decision to transfuse RhD positive RBCs to an RhD negative recipient shall be approved by the attending physician or the physician on call for Transfusion Medicine or the Medical Director/designate.
6. There shall be an established RHA policy, which complies with PBCP policies, for Rh Immune Globulin (RhIg) administration whenever RhD positive platelets are transfused to an RhD negative recipient.
7. RhD positive RBCs shall not be given if the recipient's plasma contains Anti-D.
8. Recipients shall be transfused with plasma that is ABO compatible with the recipient's RBCs but does not require a crossmatch. Approval by the Transfusion Medical Director or designate and the patients physician is required for the administration of incompatible plasma.
9. A policy shall be in place concerning ABO compatibility of cryoprecipitate components, however, all recipients may be transfused with any ABO group of cryoprecipitate.
10. The donor plasma in the platelet pool or apheresis unit should be ABO compatible with the recipient's RBCs, however, any recipient may be transfused with any ABO group of platelets.

Guidelines

1. RhD positive recipients may receive either RhD positive or RhD negative whole blood or RBCs.
2. RhD negative RBCs should be transfused to recipients who are RhD negative.
3. Evaluation of the change from RhD negative to RhD positive should be made early so as to conserve RhD negative RBCs for other recipients who may require it if the available supply of RhD negative blood is less than the expected transfusion requirement.
4. Consideration of recipient age and gender, diagnosis and transfusion history are important when planning to transfuse RhD positive RBCs to an RhD negative recipient.
5. In the event that a recipient will require repeated platelet transfusions or other special circumstances, arrangements should be made with Canadian Blood Services to obtain ABO compatible platelets where possible.
6. ABO compatible platelets should be used for recipients requiring repeated transfusions, but urgently needed transfusions should not be delayed in order to obtain them.
7. See Platelet Guidance Document on suggested RhIg dosing based on quantity of RhD positive RBC exposure.
8. RhIg should be administered to RhD negative patients within 72 hours of exposure to RhD positive RBCs cells following RhD positive platelet transfusions.

Quality Control

Emergency Issue Policy

Key Words

Blood components, substitution

Supplemental Materials

Selection of ABO Compatible Donor RBCs

Recipient	1st Choice	2nd Choice	3rd Choice	4th Choice
O	Group O	none	none	none
A	Group A	Group O	none	none
B	Group B	Group O	none	none
AB	Group AB	Group A	Group B	Group O

Suggested ABO Group Selection Order for Plasma

Recipient ABO	Component ABO Group			
	1st Choice	2nd Choice	3rd Choice	4th Choice
O	O	A	B	AB
A	A	AB	none	none
B	B	AB	none	none
AB	AB	none	none	none

Suggested ABO Group Selection Order for Platelets

Platelets in which the donor plasma in platelets is ABO compatible with the recipient's RBCs are preferred, if available. However, all ABO groups are acceptable.

In the instance a patient receives platelets in which the donor plasma found in the platelets is not ABO compatible with the recipient's RBCs and the platelets contain a high titre anti-A or Anti-B, the patient may become sensitized and hemolysis may occur with large volume transfusion (more than one adult dose per 24 hour period).

Suggested ABO Group Selection for Cryoprecipitate

All recipients may be transfused with any ABO group of cryoprecipitate.

When pooling cryoprecipitate, components of different ABO groups may be combined. In such cases, the label should either not specify an ABO type or be marked as "undetermined."

References

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