PRE-TRANSFUSION TESTING

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RESULTS FOR DEVELOPMENT

HEALTH SYSTEMS STRENGTHENING ACCELERATOR

RWANDA BIOMEDICAL CENTER

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PRE, PER AND POST TRANSFUSION PROTOCOL

Outline

1. Introduction
2. Pretransfusion protocol
3. Pertransfusion protocol
4. Post transfusion protocol

I. Introduction

- ✓ Blood transfusion should only be given when the clinical benefits to the patient outweigh the potential risks. Patients' consent must be sought wherever possible following discussion about benefits , risks and possible alternatives.

- ✓ Stringent procedures must be followed to ensure that the correct blood is given and that any adverse reactions are dealt with,promptly and efficiently.

Pre-transfusion protocol

Pre-transfusion testing is a multistep process that begins with the clinician's order for the right blood product and dose for the patient. It involves the following steps:

- Positive patient identification
- Collection of the blood samples of the patient for compatibility testing
- ABO and Rh blood grouping of the patient and the donor unit
- Selection of appropriate blood component
- Performance of compatibility testing
- Labeling of the unit with details of the product and the
- Patient identification information
- Generation of compatibility report that is written on the working sheet

Pretransfusion protocol Cont…

Positive patient identification:

- Based on asking the patient (where possible) to state their surname, first name and date of birth and checking if these details match with the same details on the patient’s wristband and the request.

- To ensure safe blood transfusion, it is critical that a properly labeled blood sample for pretransfusion testing,is collected from the correct patient.

- The person collecting the sample must identify the patient, using the wristband, which contains two unique patient identifiers (usually the patient's full name and the hospital's unique registration number) and remains on the patient throughout the hospital stay and blood transfusion.

- The information on the requisition form must be compared with that on the wristband; blood samples should not be collected if there is a discrepancy

Pre transfusion protocol Cont…

The request form:

This, either in paper or electronic form, for a transfusion must contain the following information:

- The patient's full name, including first and last (family and given) and gender
- A unique identifier like date of birth (DOB) or a hospital or health card number
- The recipient's address
- The required blood component/product with appropriate dose/volume
- The indication for transfusion
- History of previous transfusion or transfusion reactions
- Date and time of the order
- Identity of the qualified medical person ordering the blood products
- Date and time of the intended transfusion
- If any special requirements, like CMV negative unit, leukoreduced, irradiated, washed, or reduced volume

Pretransfusion protocol…

Blood Sample:

- Pre-transfusion testing requires an EDTA sample for red cells and plasma.
- Hemolyzed or lipemic samples are unacceptable because it is difficult to visualize agglutination, the endpoint of pretransfusion testing.
- It is required to collect a sample from the mother for pre-transfusion testing in infants under four months of age.

Labeling the sample: It should contain the following information:

- Patient's names and hospital ID number
- Date and time of specimen collection
- Initials (if collected by laboratory personnel) or signature (if collected by non-laboratory personnel) of a phlebotomist.

Samples not complying with any of the above information should be rejected and give feedback to the concerned service to collect another sample

Pretransfusion protocol…

Diagnostic Tests

- ✓ The methods recommended for serological testing are based on test tube methods, column agglutination (CAT), or solid phase.
- ✓ The principle involved is the detection of antigen and antibody reactions by observation of agglutination or hemolysis in vitro.
- ✓ It is recommended to perform them up to the Antihuman Globulin phase
- ✓ ABO and Rh Typing:
- ✓ The patient's ABO grouping is performed by ascertaining concordance with both cell typing (forward grouping) and serum testing (reverse typing). Discrepancies noted, should be resolved before proceeding with further pretransfusion testing.
- ✓ Rh D typing is performed by testing the recipient's red cells with anti-D sera.

Pretransfusion protocol…

TRANSFUSION SERVICE COMPATIBILITY CHART

RECIPIENT'S BLOOD TYPE	POSSIBLE DONOR BLOOD TYPE				
	PRBC	FFP	Random donor platelets (Whole blood derived platelets)	SINGLE DONOR PLATELETS (Apheresis)	CRYOPRECIPITATE
O	O	Any Type	0	Any Type	Any Type
A	A or O	A or AB	A	A or AB	A or AB
B	B or O	B or AB	B	B or AB	B or AB
AB	Any Type	AB	AB	AB	AB
Rh+	Pos. or Neg.	Pos. or Neg.	Pos. or Neg.	Pos. or Neg.	Pos. or Neg.
Rh-	Negative	Pos. or Neg.	Neg.	Pos. or Neg.	Pos. or Neg.

Pretransfusion protocol Cont…

Selection of appropriate red cell units:

Recipients should receive ABO and Rh D identical(iso-group)units. In situations where Rh D negative units are unavailable, Rh D positive units may be given to men and women over reproductive age after they have been determined to lack anti-D antibodies. Fresh red cell units (less than seven days old) should be selected for large-volume transfusions in neonates.

Selection of other blood products:

All plasma-containing components should be compatible with the recipient's red cells. All products containing more than 2 ml of red cells must be ABO compatible with the recipient's plasma. When RhD-positive products are given to RhD-negative recipients, RhIg should be administered

Pretransfusion protocol

Compatibility Testing

- ✓ Complete compatibility testing should be done up to Antihuman globulin phase.
- ✓ In case of a massive transfusion, a patient's sample after transfusion may not accurately reflect blood type or alloantibodies, depending on the ABO type of the RBCs and plasma selected for emergency resuscitation. Hence it is imperative to continue the blood products based on the samples collected before the transfusion.

Per transfusion protocol

Administering Blood or Blood Products

1. Check the identity of :
a. The patient (ask patient his/her first name and surname or hospital ID)
b. The patient's file
c. The blood product
2. Check the blood product for deterioration, damage and expiry date
3. Check and note the general condition of the patient, the temperature, the blood pressure, pulse, respiratory rate and urine output (ie pre-transfusion observations).

Note: Checking should be done by two staff members reading out the information loudly

Per transfusion protocol

Administering Blood or Blood Products

7. Record the following in the patient's file:

a. Time and date for each transfused unit , start and end time

b. Blood group and specific identification number of each unit

c. The volume of each unit and the total volume transfused.

8. Sign the notes and observations as the person administering the blood

9. Record vital signs at 15 minutes and after 30 minutes

Per transfusion protocol

Administering Blood or Blood Products

- ✓ Transfusion maximum time is **4 hours**
- ✓ Transfusion time for packed red blood cells is 1-2 hours
- ✓ Transfusion of platelets, plasma and Cryoprecipitates require a period of 30 to 60 minutes.
- ✓ If transfusion has been completed, dispose empty blood bag according to hospital policy for clinical waste
- ✓ Always use one transfusion set for each component
- ✓ In case of adverse reaction ,stop the transfusion but maintain intravenous access with normal saline , call for help (a colleague),notify the prescribing doctor ,notify the blood bank through your laboratory about the reaction,the prescribing doctor must complete the “Transfusion Reaction Report Form”

Summary of Best practice in blood components transfusion

The does in blood transfusion:

- Prescription of blood is solely done by a physician
- Collect samples of blood group in EDTA tubes
- Perform both forward and reverse when blood grouping
- Perform Crossmatch up to Antihuman Globulin Phase
- For infants aged < 4 months, the sample of the mother shall be brought to the lab.
- Prior to transfusion, discuss the risks, benefits and alternatives to transfusion with the patient and gain their consent.
- Prior to transfusion, take vital signs of the patients
- Issue O Rh negative red cells for infants under 4 months
- Perform identification of patient and visual inspection of unit prior to transfusion
- During the transfusion process, always record vital signs
- Document transfusion process in the donor file
- Remain with the patient for the first 15 minutes to observe for possible adverse reactions.
- Document and report any adverse reaction

Summary of Best practice in blood components transfusion

The don’ts in blood transfusion

- Do not store foodstuffs in the refrigerator reserved for storing blood
- Do not rely on a single blood group to determine a patient’s blood group
- Do not perform blood group testing on slides
- Do not issue blood without performing pre-transfusion tests unless the emergency release of blood components is filled and signed by a physician
- Do not warm blood in a water bath
- Do not add medications to blood components, unless they are approved
- Do not request Platelets for an adult or infant in number of units, request in doses for adults and in ml for infants
- Do not let any blood component expiring in your stock

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THANK YOU !