Blood Bank

BS MLT

Semester 6th

Prepared by

Muhammad Shahab

I'd 13968

Instructor: **Ms Huma Imtiaz**

Department of Allied Health Sciences

Iqra National University

Peshawar

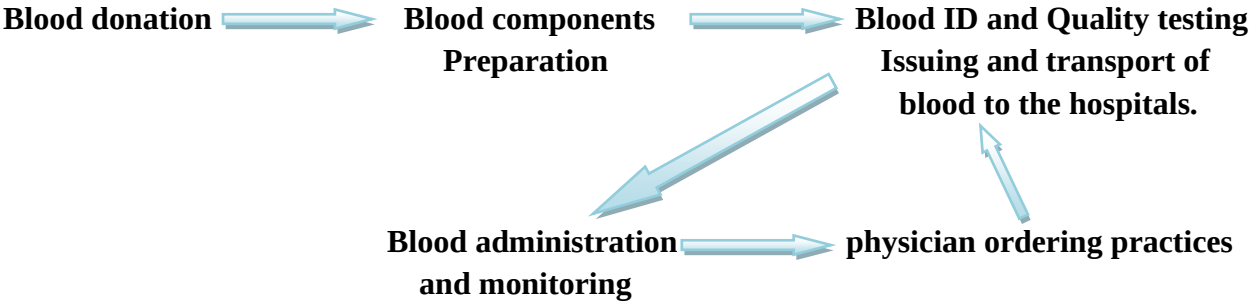
Hemovigilance:

The word hemo means “Blood”

And vigilance means “Watchful”

Hemovigilance is a series of observational procedure that monitors the whole chain of blood transfusion from the collection of blood and its investigation & analysis its adverse effects to the reporting of undesirable effects as a result of therapeutic used of labile blood products.

The transfusion chain



Benefits of Hemovigilance

1. It ensures the safety of patient regarding blood transfusion by framing the important changes in the whole blood transfusion.
2. It is the part of global healthcare risk management
3. It is helpful to understand the threats and risks during blood transfusion.
4. Helpful in preventing certain incidence occurring while transfusing blood.
5. It improves the quality of blood transfusion as well as assured the public amd improve the public trust.

Limitations of Hemovigilance

1. The reporting arise from Hemovigilance process is insufficient.
2. Provide limited information.
3. The terminologies and definitions are different from one another.

Q2.

Purpose of cross match

The purpose of cross match is to prevent blood transfusion reactions and for the purpose to recipient becomes safe from disease related to transfusion reactions.

- ⇨ Cross match increases in-vivo survival of RBCs.
- ⇨ Cross match is also another way of detecting antibodies.
- ⇨ Cross ensure that the donor and recipient is ABO compatible.
- ⇨ Cross match ensure selection safest blood for transfusion.
- ⇨ By the cross match method the clinically significant unexpected antibodies are detected.

Procedure of Major cross match

The major cross match test is performed to detect any serological incompatibility between donor's blood and patient's serum.

1. Take the patient's serum and donor's RBCs
2. Add one drop of 2-5% suspension of donor's RBCs and two drops of patient's serum in the pre labeled tube.
3. Mix the tube for a while.
4. Centrifuge at 1000 RMP for 1 minutes.
5. Shake the sample gently

Observation;

If agglutination occur = shows **incompatibility.**

If agglutination do not occur = shows **compatibility**

Q3.

HDN (Hemolytic Disease of Newborn)

Also called "**Erythroblastosis fetalis**"

The major cause of HDN is Rh incompatibility of mother with her fetus; the D antigens are highly immunogenic that leads to cause hemolytic disease of the baby.

Pathogenesis

When the mother's blood is Rh negative and her baby inherits the Rh positive trait from the father.

Because of chromosome "D" that the fetus received from the father is foreign to the mother, when this chromosome escapes into maternal circulation.

It will stimulate the formation of Antibodies.

During labour the maternal and fetal blood mixes

The mother's body sensitized against baby's blood.

The anti-D antibodies belong to class IgG circulating in the mother's blood will cross the placenta and will attack on Rh positive gene of baby.

Result in the destruction of RBCs leads to anemia and excessive bilirubin level, Causing **Hemolytic Disease of Newborn**.

The Hemolytic disease of newborn is characterized by:

- Pale yellow skin due to billirubinemia.
- Jaundice; whiteness of eyes.
- Hepatosplenomegaly.
- Multiple edemas throughout the body.

Q5.

Preparation of Coombs Reagent

1. Take blood of human separate the serum from that blood, the separated serum then injected to animals (rabbits).
2. The rabbits are immunized by the human gamma globulin.
3. The immune system of rabbits produces anti-human globulin in response to human anti-bodies.
4. The blood of rabbit then drawn and the produced antibodies are separated from the rabbit's blood.
5. The coombs reagent is formed.

Procedure of IAT (Indirect Anti-globulin Technique)

This technique is performed in the blood banks that majority of incompatible antibodies.

1. Add one drop of 2-5% suspension of donor's RBCs and two drops of patient's serum in the pre labeled tube.
2. Incubate at 37 ^{o}C for 1 hour.
3. Then shake the sample for a while.
4. Observe; If agglutination occur = **show incompatibility.**
5. If no agglutination occur = **shows compatibility,**
6. Now if no reaction occurs, add AHG reagent about 2 drops.
7. Shake for it well.
8. If reaction yet not occurs, wait for up to 5 minutes.
6. Centrifuge at 1000 RMP for 1 minutes.
7. Shake the sample gently

Observation;

If agglutination occur = shows **incompatibility.**

If agglutination do not occur = shows **compatibility.**

Confirmation of test:

8. If no reaction occur yet add one drop of IgG coated RBCs.
9. Centrifuge at 1000 RMP for 1 minutes.

Final observation

If agglutination is not occur = the result is invalid.

Because agglutination at any stage can occur except after adding controlled RBSs suspension show incompatibility.