



BT
Part
1A





University of Baghdad

College of Medicine

2023-2024



Title: **BLOOD TRANSFUSION** – Part 1A

Grade: 4

Module: **PATHOLOGY (Hematology)**

Speaker: Professor Dr. Haithem Ahmed Al-Rubaie

MBChB (1985)

FIBMS-Hematopathology (1998)

DEPARTMENT OF PATHOLOGY AND FORENSIC MEDICINE

28 Jan - 14 Feb 2023



Blood Transfusion (Part 1)

Learning Objectives: at the end of this lecture, the student will be able to:



- Apply the principles of clinical transfusion practice.
- Properly select a blood donor.
- Defer unfit blood donor.
- Follow the steps of compatibility testing.



CONTENTS:

- Principles of clinical transfusion practice.
- Donor selection
- Donor deferment
- Mandatory tests that are done on blood units in blood banks



Blood transfusion

refers to the 'SAFE' transfer of

BLOOD or **BLOOD COMPONENTS**

from a **donor** to a **recipient**



Blood Donation

- ✓ Donors must be fit & healthy.
- ✓ It should not harm the donor.
- ✓ It should not transmit any disease to the recipient.

General principles



- Blood donation should always be **Voluntary**.
- Never give transfusion **Unnecessarily**.
- Blood transfusion should follow the **Components' policy**.



“Less blood, or what we call **restrictive transfusion**, did not harm patients”

And Yet

“There was no evidence that using more blood or **liberal transfusion** improved outcomes.”

**“If you can’t show that more
blood improves outcome”**



**Why would
you use it?**

PRINCIPLES OF CLINICAL TRANSFUSION PRACTICE:



1. Transfusion is **only one part** of the patient's management.
2. Prescribing should be based on **national guidelines** on the clinical use of blood.
3. Taking individual **patient needs** into account:
 - A. **Blood loss** should be minimized to **reduce the patient's need** for transfusion.
 - B. The patient with acute blood loss should receive effective resuscitation (intravenous **replacement fluids**, **oxygen**, etc.) while the **need for transfusion is being assessed**.



4. The patient's Hb level, although important, should not be the sole deciding factor in starting a transfusion.

The **decision of blood transfusion** should be supported by:

- The **need to relieve clinical signs and symptoms**
- **Prevent significant morbidity or mortality.**



5. The **clinician** should be aware of the **risks of transfusion-transmissible infections** in the blood products that are available for the individual patient.
6. Transfusion should be **prescribed only when** the **benefits to the patient are likely to outweigh the risks**.
7. The **clinician should record** the **reason for the transfusion**.
8. A trained person should **monitor** the transfused patient and respond immediately if any adverse effects occur.



Donor Selection and Deferment

(measures to protect the donor
and recipient)

Donor Screening



Donor screening encompasses:

- The medical history requirements for the donor,
- The (mini) physical examination, and
- Serologic testing of the donor blood.

Therefore before blood donation, the donor should be subjected to:

- 1. Detailed medical history (Questionnaire form).***
- 2. Limited physical examination.***

Questionnaire form



Registration:

1. Name of the donor.
2. Date and time of the last donation
3. Address
4. Gender
5. Age
6. Weight
7. **Donor consent:** written consent.

Donor selection:

- Age: usually 18 - 65 years (maximum 60 at first donation)
 - **Age** limits vary slightly worldwide, but a **lower limit** is set to take into account the high iron requirements of adolescence.
- An **upper limit** is necessary because with age there is an increase in medical conditions that might make blood donation more hazardous and which increase the probability that coincidental accidents may be attributed to the act of giving blood.





- Weight > 50 kg *
 - Hb >13 g/dL for men, >12 g/dL for women
 - The minimum interval between donations of whole blood should be 12 weeks for males and 16 weeks for females
- *Vasovagal reactions become more common in those who weigh < 50 kg, as the standard donation represents a greater proportion of their total blood volume.



- The interval between plateletpheresis donations should not exceed more than twice a week or more than 24 times a year.
- Female donors during pregnancy and up to 6 months after delivery or termination of pregnancy or during lactation are not selected as blood donors

Donor deferment



- **Exclusion of** any donor returning to occupations such as driving a bus, plane or train, heavy machine or crane operator, mining, scaffolding, etc. because delayed faint would be dangerous
- **Defer** for 12 months after body piercing or tattoo, paid sex, or homosexual sex, after acupuncture
- **Defer** for 2 months after live vaccinations such as measles, mumps
- **Defer** if travel history suggests the risk of infection

Exclusion of those with:

- Known cardiovascular disease
- Hypertension:
 - Defer permanently individuals with hypertensive heart or renal disease
 - If recently started taking anti-hypertensive medication: defer for 28 days after the BP has been stabilized and controlled **by medication**
- Significant respiratory disorders





- Gastrointestinal disorders with impaired absorption
- Chronic renal disease
- Cancer
- Blood diseases such as leukemia, lymphoma, thalassemia major, sickle cell anemia, polycythemia, and abnormal bleeding tendency

- Drugs: certain drugs (e.g., anti-platelets)
- History of blood transfusion: defer for 6-12 months
- Major surgery: defer for 6-12 months





- **Infectious diseases:**

- HIV/AIDS patients:

- **Defer permanently** individuals with evidence of HIV infection

- Hepatitis:

- **Hepatitis A;** defer one year after full recovery
- **Hepatitis B:** defer if active infection (HBs Ag+ve) or a history of infection within the last 12 months.
- **Hepatitis C** defer permanently.

○ Malaria:

- **In the endemic area:** defer individuals with a recent infection with malaria for 6 months after full recovery.
- **In the non-endemic area:** deferred for 3 years after becoming asymptomatic.

○ Brucellosis: **defer permanently**

○ Herpes viruses:

- Herpes simplex types I and II, varicella-zoster, **EBV**, **CMV**: defer until 28 days after full recovery
- Human herpes virus 8 (HHV8): **defer permanently**





- Syphilis: **defer permanently**
- Leishmaniasis: **defer permanently**
- Gonorrhoea: defer for 12 months following completion of treatment
- Tuberculosis (*Mycobacterium tuberculosis*): defer for 2 years following confirmation of cure

In blood donation; state whether the following statements are True or False:



- a. Donor with a history of hepatitis C is deferred permanently.
- b. Age of the donor should be between 18-65 years.
- c. Donor with high blood pressure is not accepted for donation.
- d. A 30-year-old female with Hb level 13 g/dL, and a weight is 46 Kg is accepted for donation.
- e. Donors with brucellosis are deferred for 2 years from the last febrile episode.

In blood donation; state whether the following statements are True or False:



- a. Donor with a history of hepatitis C is deferred permanently.
- b. Age of the donor should be between 18-65 years.
- c. Donor with high blood pressure is not accepted for donation.
- d. A 30-year-old female with Hb level 13 g/dL, and a weight is 46 Kg is accepted for donation.
- e. Donors with brucellosis are deferred for 2 years from the last febrile episode.

Physical Examination

This should be simple & brief and includes:

1. General appearance.
2. Temp: not more than 37.5 °C.
3. Pulse: 60-100 beats/ min, regular.
4. Blood pressure: within normal.
5. Weight: at least 50 Kg.
6. Hb level: > 13 g/dl for males and
> 12 g/dl for females.



The Mandatory tests done on donor blood in Iraqi Blood Banks are:



1. ABO grouping & Rh typing.
2. Test for HIV 1 & 2 Ag and Ab.
3. Test for HBs Ag.
4. Anti-HBc.
5. Test for HCV Ab.
6. Test for syphilis.

Blood transfusion

Before giving blood to the patient we should do:

Compatibility testing: This includes:

1. ABO & Rh typing of the donor and the recipient blood.
2. Screening of the donor & the recipient sera for unexpected antibodies.
3. Crossmatch the donor & the recipient's blood by: crossmatching the donor's red blood cells with the recipient's serum.





The Objectives of cross-matching are:

1. Assurance of the ABO and Rh compatibility.
2. Recognition of clinically significant antibodies.

Summary



- **Never transfuse BLOOD** when unnecessary.
- **Blood transfusion (BT)** should be safe.
- Always remember the **principles of clinical transfusion practice** BT should:
 - **Relieve clinical signs and symptoms or**
 - **Prevent significant morbidity or mortality.**

THANK YOU FOR YOUR DONATION

Baghdad/ College of Medicine Jan 2024



End of BT
part 1A

**“If You're A Blood Donor, You're A Hero
To Someone, Somewhere, Who
Received Your Gracious Gift Of Life.”**