

MODULE

Hematology and Blood
Bank Technique



Notes

5

SELECTION AND REGISTRATION OF DONORS

5.1 INTRODUCTION

Blood Transfusion services form an essential part of the health care system. A well equipped transfusion centre ensures provision of efficient medical care.

The main aim of the Blood Transfusion centre is to provide safe blood and blood products free of pathogenic organisms to patients who need them.

To meet this aim, recruitment of healthy donors is of paramount importance. Infact, blood donation forms the cornerstone of a blood transfusion service. It is essential that in order to ensure an overall safety of the entire transfusion process, an effective programme for donor selection and screening is implemented.



OBJECTIVES

After reading this lesson, you will be able to:

- enlist the types of donors
- explain the criteria for selection of donors
- describe the conditions for deferring blood donors

5.2 TYPES OF BLOOD DONORS

There are four types of donors

- **Voluntary/unpaid** donors are those who donate blood of their own free will and do not receive any monetary benefit for the donation.

Selection and Registration of Donors

- **Paid/professional** donors receive payment for donation of blood.
- **Replacement** donors are friends and relatives of the patient who replace the unit of blood issued to the patient.
- **Autologous** donors are those who donate blood for their own use at a later time.

The World Health Organization recommends that the donor base should mostly be voluntary. Reliance on replacement and professional donors should be phased out.

Steps in selection of blood donors (Donor Screening)

All donors who come to the Transfusion centre are screened to ensure that they are in good health. This helps in avoiding transmission of infection/occurrence of any other untoward effect to the recipient and also protects the donor.

There are **four aspects of donor screening**

1. Donor registration
2. Medical history
3. Physical examination
4. Laboratory testing

1. Donor registration: The following information must be carefully recorded to enable the Transfusion centre to contact the donor, if required, at a later date.

- Donation date and time.
- Name of the donor
- Father's /Husband's name
- Age
- Gender
- Occupation
- Address with Telephone numbers.
- Blood group, if known

Records of these details as filled in the form are maintained in the blood bank for 10years.

2. Medical History: A qualified and trained person must take a detailed medical history of each donor. If the donor is found to have any abnormal condition he must be referred to the Physician of the transfusion centre who will decide if blood is to be collected.

MODULE

Hematology and Blood
Bank Technique



Notes

MODULE

Hematology and Blood
Bank Technique



Notes

Selection and Registration of Donors

The donor may be provided with educational material informing them of high risk activities for transmission of HIV infection. They should be informed of the significance of not donating blood if they have indulged in any of these activities. Donors must also be ensured that all this information will be kept confidential. (See box below)

High risk activities for transmission of HIV infection

Homosexual male (male donors who have had sex with another male)
Males or females who have had sex with multiple partners
Commercial sex workers
Intravenous drug abusers
Professional paid donors

Symptoms suggestive of HIV infection experienced in last 6 months

Unexpected weight loss >10% of original weight
Night sweats
Unexplained fever > 99°C for more than 10 days
Lymphadenopathy
Persistent diarrhea
Persistent cough with expectoration
White patches in mouth

Certain aspects in the history may make a donor unfit for donation temporarily or permanently. These points must be enquired from the donor carefully. Causes of permanent and temporary deferral are given below.

Causes of permanent deferral of donors

- High risk group for HIV infection as given above
- HIV antibody positive
- Cardiovascular disease/heart disorders: myocardial infarction, angina, coronary artery disease on medication
- Patients who have undergone open heart surgery
- Patients with Hepatitis B virus/Hepatitis C virus infection
- Malignant diseases
- Abnormal bleeding tendency
- Endocrinal disorders

Selection and Registration of Donors

- Severe allergic disorder
- Polycythemia vera
- Chronic liver disease
- Chronic kidney disease
- Donors on drugs such as anticonvulsants, anticoagulants, antithyroid drugs, cytotoxic drugs, immunosuppressive drugs, vasodilators, drugs for Parkinson's disease, insulin.

Causes for temporary deferral of donors

Condition	Period of deferral
Major surgery	1 year
Minor surgery	6 months
Dental manipulation	3 days
Dental surgery	1 month
Transfusion with blood/components	1 year
Exposure to hepatitis by tattoo/acupuncture/contact with hepatitis patient	1 year
Travel to area endemic for malaria	1 yr after return
Malaria	3 months after treatment
Syphilis	1 yr after completion of therapy
Tuberculosis	5 years
Pregnancy	6 months
Abortion	6 months
Lactation	Till baby is weaned
Immunization: polio, measles, mumps, yellow fever	2 weeks from vaccination
Rubella, anti tetanus serum, anti venom	4 weeks from vaccination
Hepatitis B immune globulin, anti rabies and gamma globulin	1 yr after vaccination
Drugs : Oral Antibiotics	3 days
Injectable antibiotics	4 days
Cortisone	7 days

MODULE

Hematology and Blood Bank Technique



Notes

MODULE

Hematology and Blood
Bank Technique



Notes

Selection and Registration of Donors

Note

1. Do not defer for these vaccinations : Tetanus, Diphtheria, Typhoid, Prophylactic Hepatitis B
2. Donors on salicylates(aspirin) should not be allowed to donate blood for platelet rich plasma/platelet concentrate if these drugs are used within the last 72 hours

Based on the history the donor may be

1. Accepted- donor continues on in the donation process
2. Deferred temporarily-donor is asked to come after a specified time
3. Deferred permanently - cannot be accepted as a blood donor under any circumstances

3. Physical examination: After the history all donors must be examined carefully to ensure their physical fitness. The following criteria must be met:

1. Age 18-65 years
2. Weight- If the donor weighs more than 45kg, he can donate 350ml of blood and donors weighing more than 60kg can donate 450ml blood.
3. Blood pressure must be normal.
4. Pulse: between 80-100/min, regular.
5. Afebrile i.e. body temperature not $> 37.5^{\circ}\text{C}$.
6. Venipuncture site must be free of any lesion.
7. Systemic examination: Heart, Lungs: normal.
Per abdomen: no organomegaly detected.
8. Interval between donation must be 12 weeks.

Laboratory Tests

Certain laboratory tests are performed on donors prior to collection of blood.

1. **Hemoglobin :** Hb estimation is done prior to each donation by any of these methods:

Sahli's method

Cyanmethemoglobin method

Hemocue

To be fit for donation the Hb must be greater than 12.5g/dl.

If Hb estimation is not available hematocrit can be estimated and must be greater than 38%.

2. ABO and Rh grouping must be done on all donors.
3. Record all results on the donor form.



INTEXT QUESTIONS 5.1

1. An ideal donor is a
 - (a) Voluntary donor
 - (b) Replacement donor
 - (c) Professional donor
 - (d) Autologous donor
2. All are causes for permanent deferral of a donor except
 - (a) Cardio-vascular disease
 - (b) Malignancy
 - (c) Abnormal bleeding tendency
 - (d) Major surgery
3. A donor on antibiotics is deferred for
 - (a) 3 months after last dose
 - (b) 3 weeks after last dose
 - (c) 3 days after last dose
 - (d) 1 day after last dose
4. Minimum hemoglobin level accepted for blood donation is
 - (a) 10 gm/dl
 - (b) 12 gm/dl
 - (c) 12.5 gm/dl
 - (d) 11 gm/dl
5. The minimum interval between two whole blood donations should be
 - (a) 6 months
 - (b) 1 year
 - (c) 3 months
 - (d) 2 weeks



WHAT HAVE YOU LEARNT

Donors can be voluntary, replacement or professional. Voluntary donors are preferred. Prior to donation all donors must be screened carefully with a history, physical examination and Hb estimation to ensure their fitness for donation. Certain conditions make the donor unfit for donation temporarily or permanently.



TERMINAL QUESTIONS

1. Describe various aspects of donor screening
2. Explain the reasons for deferring blood donors



MODULE

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Bank Technique



Notes



ANSWERS TO INTEXT QUESTIONS

5.1

1. (a) Voluntary donor
2. (d) Major surgery
3. (c) 3 days after last dose
4. (c) 12.5 gm/dl
5. (c) 3 months