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Technical Manual of Blood Components Preparation

Bibekananda Mukherjee

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Chapter

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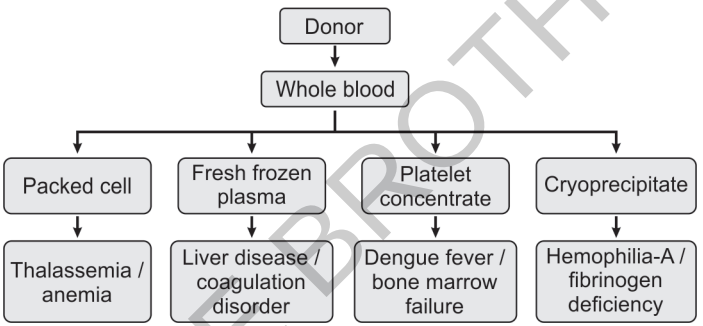
Blood Components Separation

Introduction



The blood components separation through whole blood is very useful contribution for modern medical practice. It also can reduce shortage of blood products. The advantage lies in the fact that, one unit of whole blood can now be utilized for more than one patient, the only appropriate component of the blood being used up by the patients as per their needs, thus not wasting the other important components which may be conserved for the other patients. **THUS, A SINGLE UNIT OF WHOLE BLOOD CAN SAVE FOUR LIVES**.

Thus, one can well-compensated with the acute shortage of blood units in growing developing countries, as

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far as the demand and supply of blood units is concerned because of the poor awareness of the blood donations.

Excess plasma available in a unit of whole blood is not beneficial for treatment of anemia; instead it causes volume overload, cardiac, and respiratory complications. Due to excess leukocytes in a blood unit patient may suffer from transfusion reaction like chill, fever, rigor, etc. **Usage of fresh whole blood refrigerated (2°C 6°C) has no significance in practical field**. Whole blood is rarely transfused, it happens only in cases of active blood loss like PPH bleeding (postpartum hemorrhage), accidental trauma for massive transfusion, patients with advanced renal or hepatic disease and in newborn baby exchange transfusion done for hyperbilirubinemia (blood stored for less than five days) whole blood transfusion can be considered. Neonates should not be transfused with whole blood/plasma component containing clinically significant antibodies. Plasma which is the liquid portion of the blood contains albumin, globulin, fibrinogen, and other coagulation factors. A unit of whole blood can prepare different types of components like packed cell/leuko-depleted packed cell, fresh frozen plasma, platelets concentrate, cryoprecipitate, etc.

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Step by Step®
Technical Manual of
Blood Components Preparation

In today's life, human blood is transfused in several ways and acts as medicine for treating a number of diseases.

I feel that several technical tips are essential for qualitative preparation of blood components. I have tried to write and cover all areas—from selection of donor to quality control and many other important information clearly—which are normally overlooked or ignored.

This ready-reference book is written in simple language and on the basis of completely practical orientation. Now, I hope, this book should be a milestone to those young personnel, who are seriously engaged in such professions, also is beneficiary for the doctors, technicians, nurses, and a person who donates blood.



Bibekananda Mukherjee, born on 2nd October 1968, is the youngest son of Late Sri Nonigopal Mukherjee and Late Smt. Shankari Mukherjee. He is a Graduate in Science and has obtained a Diploma in Medical Laboratory Technology in 1987. He joined Pathology department of Bokaro General Hospital in 1991. He has been associated with the blood bank for the last seventeen years.

He enriched his technical expertise through attending several technical courses in different national reputed institutes such as NARI, Pune; IBTMI, Kolkata; Jamshedpur Blood Bank, Jharkhand. In 2007, he was awarded by WHO for successfully completion of WHO fellowship training on Blood Bank Methodology at the NIIH (ICMR), Mumbai. He loves mankind.

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