

ARE THE BLOOD TRANSFUSIONS SAFE !

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Transfusion of blood and blood components, as a specialized modality of patient management, saves millions of lives worldwide each year. Recent concept of blood transfusion emphasizes on the transfusion of component therapy instead of transfusing whole blood which is required in only a few instances. It is well known that blood transfusion is associated with a large number of complications, some are only trivial and others are potentially life threatening, demanding for meticulous pre-transfusion testing and screening particularly for transfusion transmissible infections (TTIs).

Blood transfusion history dates back about 200 years and is relatively recent considering the history of mankind. The credit of first successful human to human blood transfusion goes to Dr James Blundell, an obstetrician, who successfully transfused 8 oz (227ml) of blood to a patient of postpartum haemorrhage in 1818^{1,2}.

The practice of modern blood transfusion began in early twentieth century, about a hundred years back, with the discovery of the ABO blood group antibodies and antigens by Nobel Prize winner Karl Landsteiner, an Austrian physician, in 1901 and the Rh blood group antigens by Lanesteiner and Wiener in 1940^{3,4}. The era of collection and storage of blood, blood banking, began with the introduction of anticoagulants/preservatives of blood during and shortly after World War I⁵. Citrated blood could only be stored for 1 week as a result of the lack of sources of purine and energy. The first of the truly practical anticoagulant/preservative, acid citrate dextrose (ACD), was introduced in 1943 during World War II allowing the blood to be stored for 21 days⁶. In the early days of transfusion therapy blood was collected in glass bottles. Now a days blood is collected in sterile plastic bags containing a measured amount of anticoagulants. Introduction of plastic bags and tubings allowed the manufacturers to produce satellite bags and this in turn allowed the blood banks to divide each donation into several blood components - the red cells, platelets, fresh plasma and cryoprecipitates ensuring the most appropriate use of the precious donations.

The important article in this issue of the journal on the 'Incidence of Common Transfusion Transmitted Diseases among Blood Donors' of Khulna Medical College Hospital by Dr MU Ahmed and colleagues reveals the prevalence of HBsAg and anti-HCV among the unpaid voluntary blood donors and the risk of transmission of these viruses to the recipients if the donations are not

screened meticulously. The study prompted us to emphasize upon the importance of developing awareness about TTIs and the need for adherence to the WHO guidelines to provide safe blood transfusion. Studies carried out by other workers with the healthy voluntary blood donors and healthy adult personnel of the Bangladesh Armed Forces revealed similar findings⁷⁻⁹. According to the WHO estimate, the lack of effective screening of blood donors results in up to 16 million new infections with hepatitis B, 5 million new infections with hepatitis C and 160,000 new cases of HIV infections every year¹⁰. In countries endemic for malaria transmission of the disease through transfusion is an additional risk. Incidences of transfusion transmitted falciparum malaria have been reported in Bangladesh¹¹. The information obtained from above studies suggest that the degree of risk of transmitting the TTIs like viral hepatitis B and C, HIV, syphilis and malaria is tremendous. The risk of acquiring TTIs is particularly high in this country where professional blood donors are providing majority of the 270,000 units of blood annually⁹.

The risk of disease transmission increases many fold if blood donor selection is inappropriate (such as blood from professional donors) and testing of all blood for transfusion is inadequate. For many years WHO has been working to help nations to make the transfusions safe with the following guideline: establishment of a nationally coordinated blood transfusion service, collection of blood only from voluntary donors, testing of all blood for compatibility and TTIs and reduction of unnecessary transfusion.

Government of the Peoples Republic of Bangladesh with the financial assistance of the United Nations Development Programme (UNDP) formed a Blood Transfusion sub-committee (BTSC) under the auspice of National AIDS Committee (NAC) in 1997 with the aim of curbing the incidence of TTI in this country. The Programme, named 'Safe Blood Transfusion Programme', was launched through initially establishing 98 blood transfusion centres throughout the country. Since 2004 the programme had been continuing in this country with the assistance of WHO and the World Bank. Now the programme is being run as Health Nutrition Population Sector Programme (HNPS) under the Ministry of Health and Family Welfare of Bangladesh. Safe blood transfusion law was approved by the National Parliament

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of Bangladesh in 2002. The law makes it mandatory for all blood transfusion service centres to screen all donations for 5 transmissible diseases through testing for HBsAg, anti-HCV, HIV ab1 & 2, VDRL and malaria^{12,13}. The objective of the programme is to encourage and promote voluntary blood donations, screening of the donations for 5 transfusion transmissible infections, predonation testing of donor blood and thus ensuring safe blood supply to the recipients¹⁴. A total of 1,687,390 donations under safe blood transfusion programme mainly from voluntary and directed (relatives) donors were screened throughout the country during a period of 8 years (2001-2008). One hundred eleven donors (0.0065%) were found to be positive for HIV ab 1 & 2. Overall HBsAg, anti-HCV and RPR were found positive in 0.96%, 0.15% and 0.15% donations respectively¹⁵. The important feature of the programme is an increase in the number of voluntary donations and thus an increasing number of donations coming under screening programme.

The hazards of blood transfusion, specially the risk of transmission of disease through transfusion, can never be totally eliminated. Transfusion of blood and blood components should thus be considered in terms of risk versus benefit. Transfusions should be planned judiciously and, side by side, efforts should be made to minimize the risk of disease transmission through adopting the guidelines of WHO for safe blood transfusion.

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