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## Placental umbilical cord whole blood transfusion in an emergency when the hemoglobin concentration is less than 8gm percent in pediatric to the geriatric age group from 1999

We conducted over 1260 cord blood transfusions in consented volunteers with anaemic (Haemoglobin less than 8gm/100ml) from 1999 till date in children and adults for various indications of transfusion-caused by Cancer to Malaria, Leprosy, HIV, Rheumatoid arthritis, Tuberculosis, Thalassaemia only to name a few. Not a single case of immediate or delayed graft vs host or other immunological or nonimmunological reaction was noted in any of the patients. Stem cells (0.01% nucleated cells) is used for stem cell transplantation purposes only, while the rest, i.e., 99.99% is discarded. But the discarded part has many potential uses in resource-restricted countries for transfusion purposes, after due screening for the transfusion-transmitted diseases like HIV (1&2) or Hepatitis B/C etc. Cord blood is practically free from infection due to the structural or functional integrity of the placental barrier up to 34-35 weeks. This makes the fetal blood practically free from infection apart from its intrinsic hypoantigenicity in nature, an altered metabolic profile and, is enriched with growth factors and inflammatory and noninflammatory cytokine filled plasma. This blood with 60-70 percent fetal hemoglobin content which has the potentiality to carry at least 60 percent more oxygen than adult and its use can be extremely beneficial in case of attempted revival after cardiac arrest. The placental vessel at term contains approximately 150ml of cord blood. Cord blood contains three types of hemoglobin, HbF (major fraction), HbA (15-40%) and HbA2 (trace amounts). HbF, which is the major component, has a greater oxygen binding affinity than HbA. The blood volume of a fetus at term is around 80-85ml/kg.

### Biography

Niranjan Bhattacharya, Head of the Department, Regenerative Medicine and Translational Science, Calcutta School of Tropical Medicine, Kolkata, India. He is credited as the first person to conduct more than 1,200 cord blood transfusions in patients with severe anemia (less than 8gm/100ml) without the report of single adverse event. Long-term follow-up studies confirm that nearly all patients achieved a sustainable rise in hemoglobin levels, imparting a positive impact on background conditions. The following method of cord blood transfusion under the titles “A study on Human Umbilical Cord Blood Transfusion in Case of Bone marrow suppression” and “Placental Umbilical Cord Whole Blood Transfusion” is also globally patented by the Department of Science and Technology, India. He is credited with setting up India’s first public cord blood bank and is the one of the few clinical researchers in India to get a Doctor of Science Award in Obstetrics and Gynaecology for his award-winning work on “Intra-amniotic antigenic disruption of human fetal growth: Search for a new safe and cheaper method of abortion in third world countries.

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