

12th International Conference on
HEMATOLOGY AND HEMATOLOGICAL ONCOLOGY
&
6th International Conference on **HIV/AIDS, STDs AND STIS**
October 29-30, 2018 | San Francisco, USA

Garbage to gold: Experience of placental umbilical cord whole blood transfusion in Eastern India

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After birth or placenta is generally regarded as a discarded product. However umbilical cord blood is an admixture of fetal and adult hemoglobin, high platelet and WBC counts, several cytokine and growth factors and as well as its hypoantigenic nature and altered metabolic profile, is a potentially safe alternative to adult blood transfusion. In under developed and developing countries there is a huge dearth of safe transfusion facilities and infrastructures like leukoreduction, selective apheresis, irradiation of the blood, viral inactivation of blood by solvent and/or detergent treatment and cytomegalovirus safe blood. We transfused 413 U (range 50ml to 146ml; mean 86 ± 7.6 ml; median 80ml; mean packed cell volume 48 ± 4.1 %; mean hemoglobin concentration $16.2\text{g/dl} \pm 1.8\text{g/dl}$) of placental umbilical cord whole blood, after lower uterine cesarean section from consenting mothers, to 129 informed consenting patients, after screening by the institutional ethics committee between 1999 to 2005. The list of consenting patients included 54 men and 75 women. Patient age varied from 2 years to 86 years. Seventy-three patients (56.58%) suffered from advanced cancer and 56 (43.42%) patients had diseases like ankylosing spondylitis, systemic lupus erythematosus, rheumatoid arthritis, tuberculosis, aplastic anemia, and thalassemia major. In non-malignant diseases like tuberculosis and rheumatoid arthritis, the peripheral blood hematopoietic stem cell (CD34) estimation revealed a rise from the pretransfusion base level (0.09%), varying from 2.99% to 33%, which returned to the base level in most patients at the end of three months. None of the transfusions were associated with the immunologic or nonimmunologic reaction so far. Umbilical cord blood is a gift of nature, free from infection, hypoantigenic with an altered metabolic profile, the high oxygen carrying capacity and hence can be used as an emergency source of blood for the management of disaster or crises anywhere in the world.

Biography

Amitabha Bhattacharya MPhil student of Regenerative Medicine and Translational Sciences School Of Tropical Medicine, Kolkata. He passed MBBS in the year 1979 from Kolkata Medical College and also passed Diploma in Public Health from All India Institute Of Hygiene in 1988. He wrote several editorials as Editor of "YOUR HEALTH"-An Indian Medical Association Publication for the people to propagate Health Awareness amongst Community. He is at present Henry Associate Editor of "Journal Of the Indian Medical Association"- Indexed in Index Medicus. He retired as Deputy Chief Medical Health Officer Kolkata Municipal Corporation. Throughout his career, he worked as Tuberculosis control officer of RNTCP Kolkata. He also worked for of Malaria and Dengue control programme.

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