PROTOCOL ON BLOOD TRANSFUSION

SUMMARY:

Transfusion of blood and blood products is frequently performed intervention in NICU. 85% of extreme preterm babies receive at least 1 transfusion by the end of NICU stay. Hence this intervention needs to be judicious and exact in application as it is precious, life-saving and resource intensive therapy.

AIM:

To establish standard guidelines which is evidence based for appropriate transfusion of blood and blood products in NICU, which is based on high quality RCTs and updated systematic reviews.

GOAL:

- To reduce the number of transfusions as much as possible by practicing delayed cord clamping (DCC).
- To procure and transfuse leuko-depleted and irradiated blood products.
- To have a judicious, consistent and evidence-based approach in transfusion of blood and blood products in NICU.

INTRODUCTION:

Transfusion of blood products are required in nearly 40% of preterm below 1500gm and 95% below 1000gm birth weight babies for correction of anaemia and it is one of the commonest interventions in NICU setting.

For transfusing the preterm, PRBCs should be washed, CMV negative, irradiated, leucodepleted, have high Hct >60%, preferably not older than 7 days, issued in satellite bag from single donor. Measures to prevent anaemia in neonates by practicing delayed

cord clamping (DCC), restricting sampling and micro sampling.

THRESHOLD FOR PRBC TRANSFUSION:

In order to limit the number of transfusions and the number of donors as well, restrictive transfusion policy is recommended.

Hb (g/dl)/ HCT (%) thresholds for PRBC transfusion in preterm neonates <32 weeks.

POST NATAL AGE	VENTILATED	NIPPV/ O2 REQUIREMENT	NO RESPIRATORY SUPPORT
First 24 hours	12.0 (35)	12.0 (35)	10.0 (30)
Week 1	12.0 (35)	10.0 (30)	10.0 (30)
Week 2	10.0 (30)	9.5 (28)	7.5 (23) *
Week 3	10.0 (30)	8.5 (25)	7.5 (23) *

British Committee for Standards in Hematology, Guidelines for transfusion for fetus es,neonates and older children 2016.

*Clinical judgement may be used and transfusion may be given at a higher threshold of <8.5g/dl.

AMOUNT OF TRANSFUSION TO BE GIVEN:

In neonates requiring packed red blood cell transfusion, smaller volume (10-15ml/kg) is preferred in non-bleeding neonates. The transfusion should be administered at 5ml/kg/h. Top-up transfusion in excess of 20ml/kg are not recommended because of risk of transfusion associated circulatory overload (TACO).

PROPERTIES OF PRBC PRODUCTS USED IN NEONATAL TRANSFUSION:

Fresh packed red cells (5-7 days) for the transfusion in neonates is recommended. Fresh RBCs with high 2,3-DPG levels ensure higher tissue oxygen delivery. They also reduce the risk of hyperkalemia.

CHOOSING THE BLOOD GROUP FOR NEONATAL TRANSFUSION:

For transfusion in neonates, it is preferable to take samples from both mother and the newborn, for initial testing prior to transfusion. Mothers sample should be tested for blood group and any atypical red cell abnormality. ABO compatibility is essential for transfusing PRBC. Blood unit should also be compatible towards any atypical red cell antibody present in maternal serum.

IRRADIATION OF PRBC:

Gamma irradiated PRBC, is preferred in neonates<1.2kg. Gamma irradiation reduces the shelf life of PRBC and also causes leakage of potassium out of PRBC. Hence irradiated PRBC should be used within 4 hours to avert the risk of hyperkalemia.

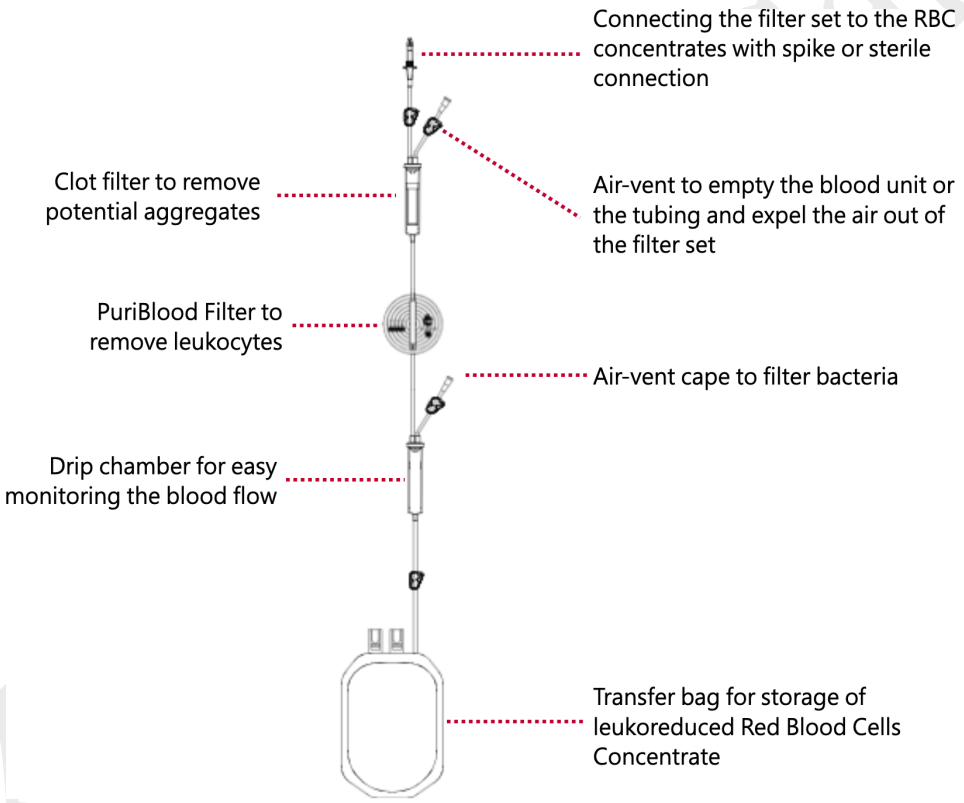
WITHOLDING OF ENTERAL FEEDS:

Enteral feeds should be restricted to trophic feeds (10-20ml/kg/day) during packed red cells transfusion in extreme preterm neonates (<28 weeks).

CMV REDUCED LEUKODEPLETED PRBCs:

Provision of CMV negative and leuco- depleted packed red cells are strongly recommended. CMV reduction can be achieved by either leuco-filtration or by preselecting CMV negative donors.

LEUCO-FILTER USED BEDSIDE.



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