

Sepsis	01 (2%)
Hemolytic disease of Newborn (HDN)	03 (6%)
Total	50

4. Discussion

The Pattern of usage of Blood Components in neonatal transfusion from APRIL 2012 – MARCH 2015 showed frequency of usage of Platelets > Packed Red Blood Cells > Fresh Frozen Plasma > Cryoprecipitate in that order. The most frequently used component was Platelets (42%). Second most frequently used component was Packed Red Blood Cells (34%) followed by Fresh Frozen Plasma (23%) and Cryoprecipitate (1%).

Most frequently used component was Platelets (42%) which was most often indicated in the Platelet counts of 30,000 to 50,000/ cu.mm (72%) and premature babies (69%). Neonatal thrombocytopenia could be early (<72 hrs) or late (>72 hrs). Early type could be due to placental insufficiency (Pre-eclamptic Toxaemia, Intra Uterine Growth Retardation, diabetes), asphyxia, perinatal infection, maternal autoimmune (Idiopathic Thrombocytopenic Purpura, Systemic Lupus Erythematosus) and severe Haemolytic Disease of Newborn. Late manifestations could result from congenital infections (Cytomegalovirus, toxoplasma, rubella and maternal autoimmunity (Idiopathic Thrombocytopenic Purpura, Systemic Lupus Erythematosus) Second most frequently used component was Packed Red Blood Cells which was most often used in the haematocrit range of 20-30% (34%) which was more pronounced in premature neonates weighing less than 11.5kg. Phlebotomy losses due to frequent blood sampling and expected decline in haematocrit in neonates during first week could have contributed to lower levels. Leukodepleted Packed Red Blood Cells with additive are the product of choice. Irradiation and prolonged storage increases K⁺ and diminishes 2,3 DPG levels, hence in exchange / massive / intrauterine transfusions < 5days old irradiated Packed Red Blood Cells are transfused within 24 hours. Post transfusion hypoglycaemia may ensure due to stimulation of insulin secretion. Of the 50 neonates who received whole blood transfusion, 21 (42%) cases were for exchange transfusion and remainder for massive transfusions due to miscellaneous other causes.

Third most frequently used component in this series was Fresh Frozen Plasma (23%). Most cases comprises of bleeding in various sites associated with sepsis (48%) and miscellaneous other causes (32%). Some (20%) were due to various coagulopathies including congenital as well as acquired. Acquired coagulopathies include vitamin K deficiency, Disseminated Intravascular Coagulation, liver disease and exchange/ massive transfusion.

Least frequently used component was Cryoprecipitate (1%). Out of total two cases one was von Willebrand disease and the other one was haemophilia A (factor VIII deficiency). Indications for use of cryoprecipitate include hypofibrinogenemia/ dysfibrinogenemia, haemophilia A (when factor VIII concentration not available) and von

Willebrand disease with active bleeding when not responding to DDAVP (1-deamino-8-D-arginine vasopressin).

Incidence of Febrile Non Haemolytic Transfusion Reactions in our series revealed total of 8 cases (4%) including all types non of which warranted stoppage of transfusion. Frequency of individual type FNHTR and other reactions and other reactions includes FNHTR in PRBC's transfusion - 2 (1%), in Platelet transfusion -3 (1.5%) cases, in FFP transfusion -2 (1%), in cryoprecipitate transfusion -1(0.5%), Transfusion Related Acute Lung Injury – 1 (0.5%), hypoglycaemia – 3 (1.5%), hypomagnesaemia – 1 (0.5%), volume overload – 1 (0.5%) and immune mediated haemolysis – 1 (0.5%) are comparable to all other works (Table 5).

5. Summary & Conclusion

Neonates, more often premature babies often need blood transfusions. Relatively large number are transfused with possibility of passive transfer of antibodies. Therefore individual component transfusion is preferable compared to whole blood. Because of lack of isohemagglutinins in neonates, immature immune system with risk of TAGVHD and considering their long life expectancy, possibility of sensitization to HLA antigens the long term consequences of which remains significant. Use of only required components is prudent. This also ensures economy of the donor blood in a limited donor programme. Citrate, K⁺, volume and temperature regulation needs special requirements. Testing of maternal serum for antibodies is strongly advocated. Leukodepleted / Irradiated PRBC's must be used for extreme premature babies and for exchange / massive transfusion in neonates. Increased transfusion of components than the whole blood was achieved in our study.

6. Future Scope

The highest achievement in this new modern era in the field of Transfusion medicine is the separation of one unit of blood into its various components for the transfusion. So that more Blood component transfusion must be encouraged than the whole blood transfusion, to minimise avoidable transfusion reactions, allogeneic sensitization, volume overload and to use one unit of blood to save many lives. So further extension of this study to the patients of all age groups who got admitted in various departments and receiving various blood component transfusions is recommended in order to know the pattern of usage and the common indications of the blood components among all age groups and to increase the preparation and storage of the blood components which is used more and to minimise immediate as well as long term sequelae of transfusions. This simple cross sectional study can be done in all the institutions to know the common indications, transfusion reactions that encountered, pattern of usage of blood components of Blood transfusion in various geographical areas and to promote economy of voluntarily donated blood to save many lives with one unit of blood.

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