SUMMARY

As a result of frequent blood sampling and an immature haematopoietic system, preterm infants become progressively anaemic Although the risks and benefits of RBC transfusions for preterm infants remain unclear according to studies on liberal or restrictive policy of RBC transfusions with inconclusive and contradictory results.

So, the present study aimed to shed light on the role of RBCs transfusion in induction of significant changes of plasma acid base, electrolytes and glucose in preterm neonates. To achieve this goal, 40 preterm newborns who needed RBCs transfusion were selected to participate in the study. They included 26 males (65.0%) and 14 females (35.0%). In addition, there were 20 age and sex matched healthy term neonates who served as control group.

Comparison of the demographic characteristics between the studied groups had shown no statistically significant differences apart from the significantly older gestational age for the term babies when compared with the preterm group. The reported clinical diagnoses in the studied patients included neonatal jaundice in 13 patients (32.5%), respiratory distress in 11 patients (27.5%), sepsis in 8 patients (20.0%) and convulsions in 8 patients (20.0%).

Comparison of hematological parameters in the studied groups had shown that patients had significantly lower RBCs count, Hb concentration and hematocrit value when compared with controls.

Comparison of the electrolyte levels between the studied groups had shown that patients had a significantly lower sodium levels when compared to controls.

Comparison of the other laboratory findings between patients and controls had decaled that patients had significantly lower pH, pO2 and HCO3 levels. Patients also, had significantly higher glucose levels when compared to controls. In spite of the fact that patients had significantly higher pCO2 when compared to controls, the differences lack statistical significance.

Comparison between hematological parameters before and after blood transfusion had shown a statistically significant increase in RBCs count, Hb concentration and hematocrit value. Moreover, correlation analysis showed a statistically significant increase in RBCs count, Hb concentration and hematocrit value after RBCs transfusion.

Comparison between serum electrolytes before and after RBCs transfusion had revealed no statistically significant difference. In addition, no correlation between RBCs transfused amount and serum electrolytes was found.

Regarding the other laboratory parameters, it was found that after RBCs transfusion patients had significantly higher pO2 and lower blood glucose. However, in correlation analysis, no correlation was found between RBCs transfused amount and other laboratory parameters.

CONCLUSIONS

- Patients had significantly lower RBCs count, Hb concentration and hematocrit value when compared with controls.

- Patients had significantly lower pH, pO2 and HCO3 levels. Patients also, had significantly higher glucose levels when compared to controls.

- Comparison between hematological parameters before and after blood transfusion had shown a statistically significant increase in RBCs count, Hb concentration and hematocrit value.

- Comparison between serum electrolytes before and after RBCs transfusion had revealed no statistically significant difference. In addition, no correlation between RBCs transfused amount and serum electrolytes was found.

- Comparison between the other laboratory parameters, it was found that after RBCs transfusion patients had significantly higher pO2 and lower blood glucose. However, in correlation analysis, no correlation was found between RBCs transfused amount and other laboratory parameters.

RECOMMENDATIONS

- A large multicenter study is recommended to declare the exact effect of blood transfusion on preterm neonates.

- National guidelines for neonatal blood transfusion should be designed and implemented.