Case Report

Haemolytic Diseases of Newborn (HDN)-Case report

*Khatun A[1], Biswas J[2], Habibullah M.M[3], Rahman A[4], Bhuiyan ZR[5], Biswas DA[6]

Abstract

Allo-antibody mediated Haemolytic diseases of newborn in the common term of blood group fetomaternal incompability. Most of the HDN are due to Anti-D allo antibody of a D-Negative mother where the child is D positive1. In this case study we describe an unusual HDN in a D+ve mother where the child is also D positive. Fetomaternal incompability is a clinical syndromes in the fetus Caused by the placental transfer of a maternal allo-antibody. Blood group incompability is the major cause of incompability. Among blood groups ABO, Rhesus, Kell, Kidd, Duffy are mostly involve in HDN. About 2/3rd of all pregnancy are ABO incompatible, but it is of very mild type and usually not identified. But rhesus & others blood groups involve rest 1/3rd incompatibility, which are severe form of HDN.

Key words: Haemolytic diseases, HDN, Allo-anti body.

INTRODUCTION

Most of the HDN are due to Anti-D allo antibody of a D-negative mother, child D-positive, child inherited the antigen from his/her father. D negative mother immunized previously by wrongly transfused D-positive blood or D positive fetus causes fetomaternal bleeding. D positive mother or any individual also immunized by other blood group antigens, previously by transfusion of blood or pregnancy. The transfer of antibodies from mother to fetus takes place only via the Placenta. The only immunoglobulin transfered is 1gG, which is bound to an FC recetor on the plasma membrane of the placenta.

1.*Ayesha khatun, Professor, Dept. of Transfusion Medicine, BSMMU.
Cell Ph: +88 01552469408

2. Jolly Biswas, Prof. Dept. of Transfusion Medicine, BSMMU.

3. M.M Habibullah, Prof. Dept. of Transfusion Medicine, Sir Salimullah Medical College.

4. Atiar Rahman, Assistant professor, Dept. of Tr. Medicine, BSMMU.

5. Zillur Rahman Bhuiyan, Associate. Prof. Dept. of Oncology, BSMMU.

6. Danis Arefin Biswas, Assist. Prof. Sir Salimullah Medical College.

*For Correspondence

Haemolytic disease due to anti-D tends to be more severe than hemolytic diseases due to anti- . Where as about 60% of infant, born a positive DAGT require exchange transfusion. As a cause of death from haemolytic diseases Anti-K, is the next in importance after anti- . The presence of red cell allo-antibodies in the Serum of pregnant women is often the Consequence of a previous transfusion, rather than of pregnancy. A history of blood transfusion is common in pregnant women whose serum contains anti- , anti-K and anti-Fya.

CASE HISTORY

A 19 years old female primigravida admitted in BSMMU. Gynae & obstratic department on January-2014 gave birth to a male child. This child develop jaundice within 24 hours of birth. On investigations his serum bilirubin was rapidly rising. Baby's mother suffering from hereditary haemolytic anaemia & receive series of blood transfusion for many years. At first we do direct coomb's test of babies sample which shows positive (DAGT-positive) mother's indirect coomb's test also-positive. Baby's cell was incompatible with mother's serum. We conduct test for father, mother & baby's rhesus & ABO groups which was as follows:

	ABO blood group	Rhesus Phenotype	
Mother	B	CDe/CDe	R_1R_1
Father	A	CDe/ $\bar{c}$ DE	R_1R_2
Baby	B	CDe/ $\bar{c}$ DE	R_1R_2

Allo-antibody present in the mother's serum was identified & titration also done. Mother's serum contain Anti- whose titre was 1:16 and her red cells was Rhesus antigen negative. She was immunized against antigen by previous repeated transfusion of blood. Baby inherited the antigen from his father. For that reason the baby sufferings from Rhesus HDN (Haemolytic diseases of new born) due to anti- , Exchange transfusion done in NICU of BSMMU with the blood group of `B` Rhesus R1R1 phenotype safely. The baby was discharge without any hazards.

DISCUSSION

The antibodies encounterd in HDN most commonly are anti-D, anti- , and anti-kell. The list of antibodies which have been claimed to have caused haemolytic disease of new born includes virtually every one which can occur as 1gG i.e., in the Rhesus system: anti-D,-C, -e, -E, -Ce. Kell system: anti-Kell, anti-K, Duffy system: anti Fya, -Fyb, kidd system: anti-JKa, anti-JKb, other's are anti-M, -N, -S, -U etc. These antibodies are associated with moderate to severe HDN.

The disease due to anti- usually less severe than that caused by anti-D, but assessment & treatment of the infant are along the same lines[2,3]. It exchange transfusion is required, blood that lacks the appropriate antigen should be given. After anti-D, anti- is the most important Rh-antibody from clinical point of view. Anti- is found only as an immune antibody[4,5]. Anti- is relatively often involved in delayed haemolytic transfusion reaction & in haemolytic disease of the newborn.

CONCLUSIONS

Alloantibodies formed by previous blood transfusion, pregnancy or transplantation. Whenever a patient is likely to receive a series of blood transfusion in the future his/her Rhesus phenotype should be determined since it will then be far easier to identify any alloantibody which may cause DHTR & HDN.

All pregnant women should be advised to do antibody screening whether she is Rh-D +ve or D-negative. Single unit of blood transfusion may immunize a mother, which was the cause of HDN.

REFERENCES

1. Wagle S, Deshpande PG. Haemolytic disease of newborn. Update April 9, 2010. (Accessed on 20/03/11). Available from: http://emedicine.medscape.com/article/974349-overview.

2. Abourazzak S, Hajjaj S, Hakima C, Bouharrou A, Hida M. Haemolytic disease of the newborn due to anti-c. BMJ Case Reports. 2009 Jan 1; 2009, 10:1136.

3. Singla S, Kumar S, Roy KK, Sharma JB, Kachhawa G. Severe hydrops in the infant of a Rhesus D-positive mother due to anti-c antibodies diagnosed antenatally: a case report. J Med Case Reports. 2010 Feb 18;4:57.

4. Appelman Z, Lurie S, Juster A, Borenstein R. Severe hemolytic disease of the newborn due to anti-c. Int J Gynaecol Obstet. 1990 Sep;33(1):73–5.

5. Fele Z. Haemolytic disease of the newborn caused by rhesus immunization (anti-c). Eastern Mediterraneam Health Journal. 2001;7(6):1056–60.