Haemolytic Diseases of Newborn (HDN)-Case report

*Khatun A1, Biswas J2, Habibullah M.M3, Rahman A4, Bhuiyan ZR5, Biswas DA6

Abstract

Allo-antibody mediated Haemolytic diseases of newborn in the common term of blood group fetomaternal incompatibility. 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 incompatibility is a clinical syndromes in the fetus Caused by the placental transfer of a maternal allo-antibody. Blood group incompatibility is the major cause of incompatibility. 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-antibody.

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 IgG, which is bound to an FC recetor on the plasma membrane of the placenta.

CASE HISTORY

A 19 years old female primigravida admitted in BSMMU. Gynae & obstetric 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 anemia & 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:

<table>
<thead>
<tr>
<th></th>
<th>ABO blood group</th>
<th>Rhesus Phenotype</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother</td>
<td>B</td>
<td>CDe/CDe</td>
</tr>
<tr>
<td>Father</td>
<td>A</td>
<td>CDe/c DE</td>
</tr>
<tr>
<td>Baby</td>
<td>B</td>
<td>CDe/c DE</td>
</tr>
</tbody>
</table>

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 suffers 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 encountered 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 IgG i.e., in the Rhesus system: anti-D, -C, -c, -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. 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. 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 DHT & 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