


Hemolytic disease of fetus and newborn due to anti-E alloantibody in a newborn of Rh (D)-positive mother

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Sir,

In India, antenatal antibody screening is done at majority of transfusion centers in only Rh (D)-negative mothers. Alloimmunization to antigens other than D antigen in Rh blood group and antigens of other blood group system can lead to hemolytic disease of fetus and newborn (HDFN) not only in D-negative phenotype but in D-positive phenotype also. Here, we report a case of HDFN due to anti-E alloantibody in a baby born to B Rh (D)-positive mother.

The baby was referred to our institute on day 4 of life from a community health centre because of progressive pathological jaundice. The baby was hemodynamically stable with no evidence of sepsis. On evaluation, the total serum bilirubin was 22 mg/dL with unconjugated bilirubin being 18.3 mg/dL and hematocrit of 29%. A requisition for exchange transfusion was received because of unexplained hyperbilirubinemia. The blood group of both mother and baby was B Rh (D) positive. The direct antiglobulin test performed on the baby's blood sample revealed strongly positive (4+) agglutination with polyspecific antihuman globulin (anti-IgG and anti-C3d) as well as monospecific anti-IgG. Using the gel technology (LISS-Coombs Card, BioRad, cressier s / morat, Switzerland), the mother's serum tested with screening red cells (Diacell, BioRad, cressier s / morat, Switzerland), and identification panel (DiaPanel, BioRad, cressier s / morat, Switzerland) confirmed the presence of anti-E antibody with titer of 1:128 (tube method). An eluate was obtained from neonatal red cells using the commercial acid elution kit (Diacedal, BioRad, cressier s / morat, Switzerland), which confirmed the specificity to be anti-E. Anti-E titer in the neonatal serum was 1: 4 (tube method). Di-thiothreitol treatment of maternal serum showed presence of IgG type of antibody. The extended red cell typing of mother, father, and the baby showed R1R1 (DCe/DCe), R1R2 (DCe/DcE), and R1R2 (DcE/DcE) phenotypes respectively.

First pregnancy of mother was a full term normal vaginal delivery two and a half years back, and the baby girl had no history of jaundice and her postnatal period was uneventful. There was no history of blood transfusion to the patient, thus probably the mother was sensitized during her first pregnancy.

Anti-E is frequently encountered, often second or third in frequency to anti-Kell and anti-D.^[1] Most often, anti-E alloimmunization is associated with mild to moderate hemolytic disease of the fetus or newborn.^[1,2] There is no general agreement regarding critical antibody titer for monitoring the fetus. In a study by Joy and colleagues, a titer of 1:32 or greater was identified as critical titer of anti-E^[2] while Moran and colleagues found lack of co-relation between anti-E titers and both cord hemoglobin and HDFN severity.^[3-5] Newer noninvasive technologies like Doppler examination of the fetal middle cerebral artery^[6] for monitoring of fetal anemia due to maternal antibodies are promising.

Antenatal first trimester screening enables timely detection of alloantibodies and treatment of HDFN. An additional benefit of the screening program is the detection of alloantibodies, relevant in case of transfusion to the mother. Screening can save time, needed for the identification of antibody specificities. We conclude that antenatal antibody screening should be done in all pregnant women irrespective of the Rh (D) antigen status to detect red cell alloimmunization to other clinically significant blood group antigens, both for transfusion safety in mother and early management of HDFN.

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