

Neonatal Outcomes of Infants with ABO Incompatibility

Sarhan Alshammari*

Department of Medicine, King Abdulaziz Medical City, Riyadh, KSA

BACKGROUND

ABO blood group incompatibility occurs in 15%-20% of all pregnancies and 10% of those develop hemolytic disease. Transcutaneous bilirubin screening use is increasing but still not widespread

AIMS

To compare neonatal outcomes of DCT positive and DCT negative infants born to blood group O positive mothers

To evaluate the effect of neonatal blood group on the severity of hemolysis and neonatal jaundice due to maternal-fetal ABO incompatibility

To investigate the value of transcutaneous bilirubin measurement and first serum bilirubin in predicting the development of significant hyperbilirubinemia later in the first few days in infants with ABO incompatibility

METHODOLOGY

One year retrospective review of infants with blood group A and B positive born to Blood group O positive mothers with gestational age of >33 weeks at birth.

RESULTS

Hyperbilirubinemia outcomes by coombs test status and infant's blood group status are shown in Tables 1 and 2. Prediction of intense phototherapy using TCB, first serum bilirubin levels among DCT positive infants are shown in Table 3.

Table 1: Hyperbilirubinemia outcomes by coombs test status.

	DCT positive	DCT negative	P value
Need for PT	208/270(77%)	85/330(25%)	<0.001
Needed intense PT	41/270(15%)	3/330(0.9%)	<0.001
IV IG	15/270(6%)	0/330(0%)	<0.001
PRBC transfusions	11/270(4%)	2/330(0.6%)	0.004

Length of stay (days)	3.7(2.2)	3(2.6)	0.001
Rebound HB	5.50%	3.30%	0.302
Readmission for jaundice	13/270(4.8%)	5/330(1.5%)	0.028

Table 2: Hyperbilirubinemia outcomes by infant's blood group status.

	Blood group B	Blood group A+	P value
Positive DCT	147/249(59%)	123/351(35%)	<0.001
Need for PT	152/249(61%)	141/351(40%)	<0.001
Need for intense PT	35/249(14%)	9/351(2.6%)	<0.001
IVIG therapy	13/249(5.2%)	2/351(0.6%)	0.001
PRBC transfusion	9/249(3.6%)	4/351(1.1%)	0.039
Readmission with HB	12/249(4.8%)	6/351(1.7%)	0.026
Length of stay (days)	3.6(2.5)	3.1(2.3)	0.035

Table 3: Prediction of intense phototherapy using TCB, first serum bilirubin levels among DCT positive infants.

	AUROC	95% Confidence interval	Coordinates of the ROC
TCB level	0.929	0.887-0.971	87, 93% sensitivity and 80 % specificity
First serum bilirubin	0.924	0.890-0.958	110, 92% sensitivity and 78% specificity

CONCLUSION

There were significant difference in the incidence and severity of hyperbilirubinemia and hemolysis between DCT negative and positive infants.

Infants with blood group B positive had more severe hemolysis as evidenced by need for PT, IVIG therapy and the duration of hospital stay.

Correspondence to: Sarhan Alshammari, Department of Medicine, King Abdulaziz Medical City, Riyadh, KSA, E-mail: sarhan@gmail.com

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Estimation of TCB after birth is useful in predicting which infants will develop severe hyperbilirubinemia.

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