CONCLUSION: Poly-alloimmunization and Anti-D are risk factors for elevated Doppler velocimetry. However, multiple antibodies do not appear to increase the severity of fetal anemia.

192 Anti-M isoimmunization: management and outcome at a single institution

Bethany Stetson, Kara Beth Markham
The Ohio State University College of Medicine, Columbus, OH

OBJECTIVE: To review management strategies and outcomes in gravidas with anti-M alloimmunization over 15 years at The Ohio State University, a period that includes implementation of middle cerebral artery Doppler assessment of patients with elevated antibody titers.

STUDY DESIGN: Data collected from 175 pregnancies found to have anti-M antibodies at The Ohio State University from July 2000 through March 2015 was reviewed retrospectively. Patients with additional red blood cell antibodies were excluded. We analyzed indirect and direct antiglobulin tests (DAT), antibody titers, M antigen genotype status, antepartum course, and perinatal outcome for each patient.

RESULTS: Anti-M antibodies were found in 131 women with 176 pregnancies over 15 years. Among those with positive indirect antiglobulin tests, 173 pregnancies had titers below or at 1:4. Only one patient with an initial low titer experienced a more than two-fold increase to a titer of 1:64. Two women underwent amniocentesis; one for a rising titer of 1:64 with elevated MCA Dopplers and one for a titer <1:1 with falsely elevated MCA dopplers. 89 (73%) of the 121 infants tested were positive for the M antigen. Eight infants required phototherapy (Table) and there were no cases of hemolytic disease of the newborn, mild or severe.

CONCLUSION: The incidence of severe hemolytic disease of the newborn due to anti-M is extremely low. We found no cases in our review of 175 pregnancies. If anti-M is detected in pregnancy with a low titer (no more than 1:8) and no history of prior pregnancy complications suggesting a hemolytic process, we recommend no further testing other than an indirect antiglobulin test at 28 weeks to evaluate for emergence of other red blood cell antibodies. We do not recommend monthly titers. However, if the initial titer is elevated, serial titers should be performed, with cordocentesis and possible intrauterine transfusion reserved for rising titers with persistently elevated MCA Doppler peak systolic velocities.

GA at delivery (wk)	Maternal indirect antiglobulin (highest)	M antigen antiglobulin	DAT	Lowest Hct (g/dL)	Highest bilirubin (g/dL)	Indication for phototherapy
36 6/7	<1:1	+	+	41.7	UK	ABO incompatibility
31 2/7	<1:1	+	+	41.2	12.7	Prematurity, Rh incompatibility
37 2/7	<1:1	+	+	UK	7.2	Maternal DM
32	<1:1	+	-	48	UK	Prematurity
36 2/7	<1:1	+	-	50	12.1	Prematurity, maternal DM
37 2/7	<1:1	+	+	UK	11.2	ABO incompatibility
39	<1:1	+	+	43.6	12	ABO incompatibility
39	<1:1	UK	UK	54	8.9	ABO incompatibility

193 Cord blood Troponins and Glycogen phosphorylase BB in pregnancies complicated by gestational diabetes and preeclampsia

Ana Mrkaic[1], Barak Rosenn[1], Ivana Stojanovic[2], Samir Tivari[3]
[1]Mt.Sinai West Hospital, New York, NY, [2]Medical Faculty, University of Nis, Nis, Serbia, [3]Rutgers University, Newark, NJ

OBJECTIVE: Troponins (Tn) and glycophosphorylase BB (GPBB) are heart-specific molecules that serve as markers for cardiac ischemia and tissue damage. We hypothesized that in pregnancies complicated by gestational diabetes (GDM) or preeclampsia (PET), subtle damage to the fetal heart will lead to elevated concentrations of Tn and GPBB in cord blood at delivery.

STUDY DESIGN: Pregnant women admitted for delivery at >28 weeks were divided into four groups, 30 in each group: healthy patients delivered vaginally (VAG), healthy patients delivered by C-section (CS), patients with PET, and patients with GDM. Cord blood was collected at birth and frozen at -80°c and later assayed for concentrations of cardiac TnI (cTnI), cardiac TnT (cTnT), and GPBB using ELISA. Concentrations of Tn and GPBB and maternal characteristics were compared between the 4 groups using t-test, Chi square, Kruskal-Wallis, and Wilcoxon rank sum, as appropriate.

RESULTS: There were no differences between groups with respect to maternal age, gravidity, or ethnicity, and there were no significant differences in the concentrations of GPBB related to maternal age, BMI, weight, or gestational age. The concentrations of cTnI were significantly higher in the PET group compared to the GDM and VAG groups and they were higher in the CS group compared to the VAG group. Additionally, cTnI was negatively correlated with gestational age (ρ= -0.22149, $p<0.05$), and positively correlated with maternal BMI (ρ =0.25747, $p<0.05$) and weight (ρ=0.22101, $p<0.05$).The concentration of GPBB was higher in the PET group compared to the VAG group. cTnT concentrations did not differ amongst the groups, and were significantly lower than cTnI concentrations.

CONCLUSION: Cord blood concentrations of cTnI and GPBB are elevated in pregnancies complicated by PET and may serve as early markers of subtle fetal cardiac damage in these pregnancies.

Results	GDM[a]	PET[b]	VAG[c]	CS[d]	P value
Gestational age Mean (SD)	37.79 (2.42)	37.71 (2.47)	39.34 (1.48)	38.64 (2.74)	<0.05
BMI (kg/m2) Mean (SD)	30.6 (5.01)	32.93 (6.97)	27.29 (3.26)	33.02 (7.17)	<0.05
Weight (kg) Mean (SD)	78.15 (13.32)	88.48 (18.28)	74.39 (8.67)	89.54 (20.19)	<0.05
GPBB (ng/ml) Median [Q1-Q3]	7.41 [4.77-15.03]	12.45 [3.57-20.54][b,c]	2.88 [1.29-11.03]	4.93 [1.48-10.44]	<0.05
TnI (ng/ml) Median [Q1-Q3]	2.70 [1.51-5.84][a,c]	9.11 [4.97-13.60][a,c,d]	0.00 [0.00-1.35]	7.20 [4.05-9.85][a,c]	<0.0001
TnT (ng/ml) Median [Q1-Q3]	0.01 [0.00-0.02]	0.00 [0.00-0.02]	0.01 [0.00-0.02]	0.00 [0.00-0.02]	>0.05

194 Optimal timing of delivery for women using heroin during pregnancy

Catherine S. John[1], Kayli Senz[2], Marissa Luck[1], Aaron Caughey[1]
[1]Oregon Health and Science University, Portland, OR, [2]University Hospitals Case Medical Center, Cleveland, OH

OBJECTIVE: Heroin use during pregnancy has been associated with higher neonatal morbidity such as increased rates of growth restriction and preterm delivery, leading to higher rates of intrauterine and neonatal deaths. Currently there are no studies demonstrating the best gestational age to deliver infants of heroin using mothers for optimal outcomes. We sought to determine whether an early