Table 2: The significance of clinical parameters in the likelihood of detecting CMA abnormality

Parameter	Normal CMA, N (%)	Abnormal CMA, N (%)	Total	P-value
Gestational age at diagnosis ≥16	36 (81.8)	8 (18.2)	44	.016
Gestational age at diagnosis <16	18 (66.7)	9 (33.3)	27	
Gestational age at diagnosis ≥24	9 (90.0)	1 (10.0)	10	.043
Gestational age at diagnosis <24	45 (73.8)	16 (26.2)	61	
Age ≥35	11 (64.7)	6 (35.3)	17	0.17
Age <35	43 (79.6)	11 (20.4)	54	
Age ≥40	4 (44.4)	5 (55.6)	9	0.03*
Age <40	50 (80.6)	12 (19.4)	62	
Normal nuchal translucency (<3 mm)	42 (79.2)	11 (20.8)	53	0.67
Elevated nuchal translucency (≥3 mm)	7 (70.0)	3 (30.0)	10	
Normal aneuploidy screening test	32 (84.2)	6 (15.8)	38	0.02*
Elevated risk according to aneuploidy screening tests	4 (44.4)	5 (55.6)	9	
Isolated organ malformation	27 (84.4)	5 (15.6)	32	0.17
Multiple organs malformations	27 (69.2)	12 (30.8)	39	

*Statistically significant finding (p <0.05)

390 High Density Lipoprotein: composition and function in patients with Gestational Diabetes Mellitus

Yael Pasternak[1], Tal Biron-Shental[1], Yael Einbinder[2], Meital Ohana[2], Nissim Arbiv[1], Sydney Benchetrit[2], Tali Zitman- Gal[2]

[1]Department of Obstetrics and Gynecology, Meir Medical Center, Kfar Saba, Israel, Israel, [2]Department of Nephrology and Hypertension, Meir Medical Center, Kfar Saba, Israel, Israel

OBJECTIVE: Gestational diabetes mellitus class A2 (GDMA2) has short- and long-term effects on the mother and child, including placental abnormalities with endothelial damage and future cardiovascular disease. Trans- placental fatty acid and lipoprotein transport and turnover, including high density lipoproteins (HDL) might be involved in the pathophysiology related to GDMA2. The aim of this study is to assess changes in HDL quantity, qualitative composition and function among patients with GDMA2, the placentas and the neonates.

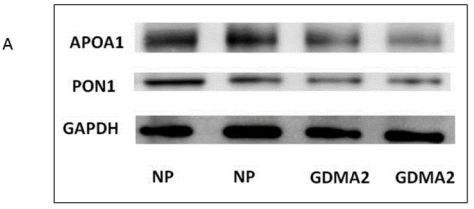
STUDY DESIGN: Thirty pregnant women (20 with GDMA2 and 10 with normal pregnancy (NP)) were recruited during admission for delivery. Blood samples were obtained from the parturients and umbilical cords, as well as placental tissue. Lipid profiles and

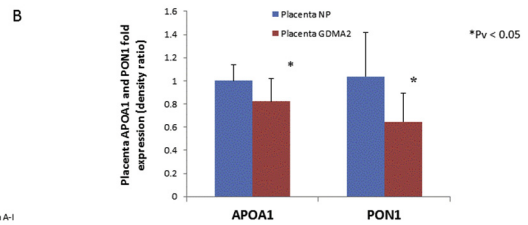
Apolipoprotein A-I (APOA1) levels were assessed in blood samples. HDL and its associated proteins: Paraoxonase-1 (PON1) and APOA1 function and expression were examined in maternal blood and placental tissue. An *in vitro* model of endothelial cells was used to evaluate the effect of HDL on cell migration.

RESULTS: APOA1 (mg/dl) was lower in the maternal plasma of GDMA2 patients compared to NP (203±40 vs. 242±40; P=0.04). Maternal HDL release of APOA1 and PON1 was increased in GDMA2 compared to NP (1.97±1.1 vs. 1.0±0.18, P=0.027; 2.71±1.0 vs. 1.0±0.31, P<0.0001, respectively). Placental APOA1 and PON1 protein expression was lower in GDMA2 compared to NP (0.82±0.19 vs. 1±0.13, P=0.001; 0.63±0.24 vs. 1.03±0.37, P<0.0001, respectively). Lipid profile and APOA1 were similar in umbilical cord blood from GDMA2 and NP. HDL cell migration test in endothelial cells stimulated by the inflammatory factor TNFα was increased when cells were manipulated with GDMA2-HDL compared to NP-HDL (P<0.05).

CONCLUSION: GDMA2 affects plasma HDL composition and function. Interestingly, HDL changes typical to GDMA2 are observed in maternal and placental samples but not in cord samples. These results might imply a placental role in protecting the fetus and require further investigation.

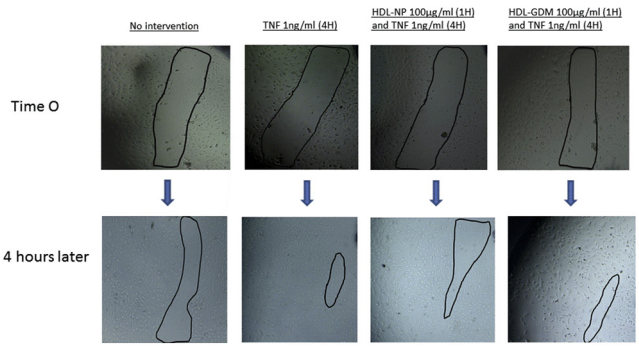
Figure 1. Placental expression of APOA1 and PON1 in Gestational Diabetes Mellitus (GDMA2) and Normal Pregnancy (NP) by Western Blot





Aberrations:
Apo A1: Apolipoprotein A-I
PON1: Paraoxonase1
GAPDH: Glyceraldehyde 3-phosphate dehydrogenase: A housekeeping gene used as a loading control for western blot

Figure 2: Human umbilical vein endothelial cell scratch assay- cell migration test with Tumor Necrosis Factor (TNF) and High Density Lipoprotein (HDL) of Gestational Diabetes Melitus (GDM) and Normal Pregnancy (NP)



391 Maternal and neonatal outcomes of attempted vaginal delivery in women with triplet pregnancies

Young Mi Jung, Seung Mi Lee, Keumran Cho, So Yeon Kim, Se Jin Lee, Subeen Hong, Chan-Wook Park, Joong Shin Park, Jong Kwan Jun

Seoul National University College of Medicine, Seoul, Seoul, Korea (Republic of)

OBJECTIVE: In triplet pregnancy, cesarean section is usually recommended as a mode of delivery. However, we have tried vaginal delivery in women with triplet pregnancy who are candidates for and want trial of labor (TOL). We have already experienced over one

thousand cases of vaginal delivery in twin pregnancy. We undertook this study to determine whether TOL is an alternative option in triplet pregnancy.

STUDY DESIGN: The study population consisted of triplet pregnancies born in Seoul National University Hospital (≥24 weeks). The "women who are candidates for TOL" were those with cephalic presentation of the first fetus and without any contraindication for vaginal delivery. We compared maternal and neonatal outcomes between triplet pregnancies with attempted vaginal delivery and those with planned cesarean delivery.

RESULTS: Out of total 358 triplet pregnancies, 152 cases were defined as candidates for TOL. Of them, 47 (31%) women attempted vaginal delivery and 105 women chose planned cesarean delivery. The success rate of attempted vaginal delivery was 78.7% (37/47). The cause of failed vaginal delivery was induction failure in all 10 cases and there was no case of combined delivery. The rate of maternal and neonatal morbidities were not different between cases with attempted vaginal delivery and those with planned cesarean delivery, even if the median birthweights of fetus were smaller in cases with attempted vaginal delivery. And duration of hospital stay after delivery was shorter in cases with attempted vaginal delivery than in those with planned cesarean delivery. (Table)

CONCLUSION: In triplet pregnancies, attempted vaginal delivery did not increase the risk of maternal and neonatal morbidities and resulted in shorter postpartum hospital stay. Our data support that vaginal delivery of triplet pregnancy can be tried in the hospital which has experience in vaginal birth of twin pregnancy.

	Attempted vaginal delivery (N=47)	Planned cesarean delivery (N=105)	P-value
Gestational age at delivery	35.0(32.6-35.4)	35.0(34.2-35.2)	NS
Birthweight (kg)	1.89(1.61-2.13)	1.99(1.74-2.21)	0.035
Maternal outcomes			
Duration of hospital stay after delivery (days)	3(3-5)	5(5-7)	<0.001
Blood transfusion	23.4%(11/47)	20.0%(21/105)	NS
Uterine artery embolization	4.3%(2/47)	2.9%(3/105)	NS
Peripartum hysterectomy	0.0%(0/47)	0.0%(0/105)	-
Wound infection	0.0%(0/47)	0.0%(0/105)	-
Endometritis	0.0%(0/47)	1.9%(2/105)	NS
Pulmonary edema	4.3%(2/47)	5.7%(6/105)	NS
Thromboembolism	0.0%(0/47)	0.0%(0/105)	-
Cardiomyopathy	0.0%(0/47)	1.0%(1/105)	NS
Death	0.0%(0/47)	0.0%(0/105)	-
Total maternal morbidity	27.7%(13/47)	25.7%(27/105)	NS
≤34wks	21.4%(3/15)	31.8%(7/22)	NS
Over 34wks	31.3%(10/32)	24.1%(20/83)	NS
Neonatal outcomes			
NICU admission	50.4%(71/141)	46.0%(145/315)	NS
Respiratory distress syndrome (RDS)	8.5%(12/141)	4.8%(15/315)	NS
Bronchopulmonary dysplasia (BPD)	2.8%(4/141)	1.6%(5/315)	NS
Necrotizing enterocolitis (NEC)	0.7%(1/141)	1.3%(4/315)	NS
Intraventricular hemorrhage (IVH)	0.0%(0/141)	1.6%(5/315)	NS
Sepsis	0.0%(0/141)	0.6%(2/315)	NS
Significant neonatal morbidity	10.6%(15/141)	7.3%(23/315)	NS
≤34wks	31.1%(14/45)	24.2%(16/66)	NS
Over 34wks	1.0%(1/96)	2.8%(7/249)	NS

*NS, not significant

*Total maternal morbidity was defined as the presence of blood transfusion, uterine artery embolization, peripartum hysterectomy, wound infection, endometritis, pulmonary edema, thromboembolism, or cardiomyopathy. Significant neonatal morbidity was defined as the presence of respiratory distress syndrome, bronchopulmonary dysplasia, necrotizing enterocolitis, intraventricular hemorrhage, or culture proven sepsis.

392 How long should we wait? Impact of inter-birth interval after one or two complicated pregnancies

Yulia Wilk Goldsher[1], Liran Hiersch[2], Eran Ashwal[2], Amir Aviram[2], Nir Melamed[3], Arnon Wiznitzer[1], Eran Hadar[1], Rinat Gabbay-Benziv[4]

[1]Rabin Medical Center, Petah Tikva, Israel, Israel, [2]Tel Aviv Sourasky Medical Center, Tel Aviv, Israel, Israel, [3]University of Toronto, Toronto, Ontario, Canada, [4]Hillel Yaffe Medical Center, Hadera, Israel, Israel

OBJECTIVE: To estimate the impact of inter-birth interval on the risk of preterm delivery (PTD), small for gestational age (SGA), placental abruption and hypertensive complications in a large cohort of women with three consecutive deliveries.

STUDY DESIGN: A retrospective cohort analysis of all women with singleton pregnancies who delivered their first three consecutive deliveries in a single university affiliated medical center over a 20-year period (1994−2013). Multiple gestations or pregnancies with fetal anomalies were excluded. Inter-birth interval was defined as the time interval (in months) between 1st, 2nd and 3rd deliveries. SGA was defined as $<10^{th}$ percentile by local growth charts, and hypertensive disorders included gestational hypertension (GH) or preeclampsia (PE). Complicated delivery included any of: placental abruption, SGA, PE, GH or PTD <37 weeks. For women with 1st complicated delivery, we compared the inter-birth interval from the 1st to 2nd delivery stratified by 2nd delivery outcome and for women with first 2 complicated deliveries, we compared the 1st to 3rd and 2nd to 3rd inter-birth interval stratified by 3rd delivery outcome. Outcomes were compared separately and as composite. Related samples Cochran's' Q test and Mann Whitney analysis were used as appropriate.

RESULTS: Of the 121,728 deliveries during the study period, 4,310 women (12,930 deliveries [11.0%]) met inclusion criteria. Of them, 787 (18.3%), 452 (10.5%) and 400 (9.3%) had complicated delivery at their 1st, 2nd or 3rd delivery, consecutively. Median (range) Inter-birth interval was 30.2 (9.8-158.1), 45.2(9.8-173.0) and 78.4(19.9-197.6) months between the 1st-2nd, 2nd-3rd and 1st-3rd delivery. Following 1st complicated delivery, inter-birth interval did not differ between women with or without 2nd complicated delivery. Similarly, following two complicated deliveries (1st and 2nd) inter-birth interval (2nd to 3rd and 1st to 3rd interval) did not differ between women with or without 3rd complicated delivery ($p>0.05$ for all). This remained true for comparison of any delivery complication separately or as composite outcome.

CONCLUSION: In our large cohort, inter-birth interval had no influence on the recurrence of preterm delivery, hypertensive disorder, placental abruption or small for gestational age in the two consecutive deliveries.

Table 1:

Rate of pregnancy complications in our cohort

Pregnancy complication	1st delivery N (%)	2nd delivery N (%)	3rd delivery N (%)
Preterm delivery <37w*	256(5.9)	204(4.7)	211(4.9)
Preterm delivery <34w	48(1.1)	29(0.7)	35(0.8)
Small for gestational age <10%*	480 (11.1)	222(5.2)	171(4.0)
Hypertensive disorder (PE or GH)*	150(3.5)	54(1.3)	41(1.0)
Placental abruption*	25 (0.6)	15(0.3)	9(0.2)
Composite complication*	787(18.3)	452(10.5)	400(9.3)

* p<0.05