Table 2.

	≥10% O/E TLV increase after FETO (n=12)	<10% O/E TLV increase after FETO (n=18)	P
O/E LHR at 1st MRI (%)	27 [14 - 81]	26 [14 - 40]	0.890
O/E LHR<25% at 1st MRI (%)	45.5 [5/11]	41.2 [7/17]	0.823
O/E TLV at 1st MRI (%)	21.5 [11-31]	22.5 [7-41]	0.950
Liver Herniation at 1st MRI (%)	29.5 [11.3- 52]	30 [15 - 61]	0.920
O/E LHR at 2nd MRI (%)	47 [28-160]	26 [5-57]	0.006
O/E TLV at 2nd MRI (%)	51 [23-120]	21 [8-31.5]	<0.001
Liver Herniation at 2nd MRI (%)	28 [9-64]	31.5 [15-47]	0.865
Diaphragm defect type (%):			
B	16.7 [2/12]	6.3 [1/16]	
C	50.0 [6/12]	62.5 [10/16]	0.729
D	33.3 [4/12]	31.3 [5/16]	
Severe CDH* (%)	83.3 [10/12]	66.7 [12/18]	0.419
Need for iNO (%)	75 [9/12]	100 [15/15]	0.075
Need for ECMO (%)	16.7 [2/12]	61.1 [11/18]	0.026
Chronic ventilation assistance, tracheostomy at discharge (%)	25 [3/12]	5.6 [1/18]	0.274
Sildenafil at discharge (%)	50 [5/10]	75 [6/8]	0.367
Survival at Discharge (%)	91.7 [11/12]	44.4 [8/18]	0.018
Survival at 12 months of age (%)	91.7 [11/12]	50 [9/18]	0.024

*Results listed as percentage (proportion) and median (range). ECMO: extracorporeal membrane oxygenation; FETO: fetoscopic endoluminal tracheal occlusion; iNO: inhaled nitric oxide. O/E: observed-to-expected; TLV: total fetal lung volume by MRI, LHR: lung-to-head ratio by ultrasonography, MRI: magnetic resonance imaging; *Severe CDH: pre FETO O/E TVL <32 and % Liver herniation>21%.*

218 Adequacy of glycemic control in early pregnancy with type 2 diabetes and perinatal outcomes

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OBJECTIVE: In non-pregnant individuals with type 2 DM (T2DM), an HbA1c target < 7% is recommended. We sought to assess if an HbA1c < 7% in early pregnancy is associated with a lower risk for adverse pregnancy outcomes.

STUDY DESIGN: We conducted a retrospective cohort study of individuals with T2DM and a singleton gestation who delivered at 2 health systems between 2018-2020. Demographics, markers of health care utilization, and perinatal outcomes were abstracted from the medical record. Race and ethnicity were self-reported. The primary exposure was levels of glycemic control at less than 20 weeks' gestation using recommended HbA1c targets in non-pregnant individuals (HbA1c < 7% vs. HbA1c ≥7%). Patients without documentation of HbA1c prior to 20 weeks were excluded. Perinatal outcomes were abstracted from the medical record, and logistic regression was used to adjust for covariates.

RESULTS: Of the individuals who had a documented HbA1c < 20 weeks of gestation, 128/281 (46%) had a HbA1c < 7%, and 153/281 (54%) had a HbA1c ≥7%. Patients with HbA1c < 7% were more likely to be of White race and have private insurance. They also had the first HbA1c measured earlier in pregnancy, a lower mean HbA1c across gestation, less overall weight gain, and were less likely to require insulin at the time of delivery. There were no significant differences in other demographics or markers of healthcare utilization (Table 1). Outcomes are shown in Table 2. After adjusting for covariates, those with a HbA1c ≥7% were more likely to have a preterm birth < 37 weeks (aOR 2.3, 95% CI 1.3-4.0), cesarean delivery (aOR 1.9, 95% CI 1.1-3.3), and a neonate requiring NICU admission (aOR 2.9, 95% CI 1.7-4.9).

CONCLUSION: Adverse perinatal outcomes are common among individuals with T2DM even when early pregnancy HbA1c values are within recommended targets for non-pregnant individuals. Those who present with a HbA1c ≥7% are at even higher risk for several outcomes. We observed important disparities in HbA1c values in early pregnancy that likely represent barriers in accessing medical care prior to pregnancy.

Table 1: Maternal demographics and markers of healthcare utilization

	HbA1c <7% n=128	HbA1c ≥7% n=153	*p*-value
Maternal age (years)	32.4 ±6.4	33.0 ±6.0	0.07
Maternal race/ethnicity (n=277)*			
White	52 (42)	37 (24)	
Black	30 (24)	57 (37)	0.01
Hispanic	28 (22)	35 (23)	
Other	15 (12)	23 (15)	
Insurance			
Public	84 (66)	126 (82)	0.001
Private	44 (34)	27 (18)	
Nulliparity	30 (23)	38 (25)	0.79
Chronic hypertension (n=275) *	50 (40)	59 (40)	0.99
Retinopathy	3 (2.3)	14 (9)	0.02
Nephropathy (n=261)	10 (9)	22 (15)	0.18
BMI at 1st prenatal visit (kg/m²)(n=274)*	6.8±7.7	8.8 ±7.3	0.43
Weight gain (kg)	15.1 ±17	19.5 ±16	0.03
Gestational age at 1st prenatal visit (weeks)(n=276)*	11.6 ±4.4	11.3 ±4.0	0.58
First HbA1c (%)	6.1 ±0.5	9.0 ±1.9	<0.001
Gestational age at 1st HbA1c (weeks)	10.5 ±4.5	9.8 ±4.0	0.15
≥ 12 prenatal visits	80 (63)	86 (57)	0.38
Medications at 1st prenatal visit (n=270)*			
None	47 (39)	45 (30)	
Oral agents	54 (45)	42 (28)	<0.001
Insulin	9 (8)	46 (31)	
Insulin + oral agents	10 (8)	17 (11)	
Medications at delivery (n=275)*			
None	13(10)	4 (3)	
Oral agents	36 (28)	10 (7)	<0.001
Insulin	46 (36)	108 (73)	
Insulin + oral agents	32 (25)	26 (18)	
Mean HbA1c across gestation (%)	5.9 ±0.6	7.8 ±1.3	<0.001

Data shown as n(%) or mean ±SD

* accounts for missing data, n=total subjects for whom data is available

Table 2: Maternal and Neonatal Outcomes

	HbA1c <7% n=128	HbA1c 7% n=153	*p*-value
Birthweight category**			
AGA	84 (66)	97 (63)	
SGA	12 (9)	11 (7)	0.62
LGA	32 (25)	45 (29)	
Preterm birth <37 weeks	31 (24)	60 (39)	0.007
NICU admission (n=272)*	49 (39)	91 (62)	<0.001
Neonatal composite morbidity (n=273)*	46 (37)	64 (44)	0.29
Ventilatory support	9 (7)	24 (16)	0.02
Hypoglycemia	17 (13)	30 (20)	0.13
Jaundice requiring phototherapy	29 (23)	40 (27)	0.43
Congenital anomaly	9 (7)	17 (11)	0.24
Stillbirth	2 (2)	6 (4)	0.30
Hypertensive disorder of pregnancy	59 (46)	79 (52)	0.36
Cesarean delivery	72 (56)	103 (68)	0.04

Data shown as n(%)

* accounts for missing data, n=total subjects for whom data is available

**AGA=appropriate for gestational age, SGA=small for gestational age, LGA=large for gestational age

219 Neuroinflammation leads to axon loss in a murine model of preterm birth

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