Baseline Characteristics of Recruited Cases

		Early Delivery Group, N=10	Routine Care Group, N=11
Maternal Age, mean(SD)		22.5 (7.1)	20.8 (3.2)
Gravidity, median[range]		1.5 [1, 11]	1 [1, 3]
Parity, median[range]		0.5 [0, 2]	0 [0, 1]
GA at Diagnosis median[range]		19.5 [13, 28]	19.7 [12, 29]
GA at Delivery median[range]		34.3 [34, 36]	36.7 [27, 38]
BMI, mean(SD)		25.3 (5.1)	23.5 (1.7)
Race, n (%)			
	Caucasian	7	7
	African American	1	0
	Hispanic	2	4
	Asian	0	0
Mode of Delivery, n (%)			
	Vaginal	4 (induced:4)	7 (induced:5)
	CS	6 (induced:2)	4 (induced:2)
Male Fetus, n (%)		4	5
Tobacco Use, n (%)		3	4

Primary and Secondary Outcomes

				P-Value
Primary Outcome				
	Duration of TPN(day), median[range]	54 [17, 248]	21 [9, 465]	0.08
Secondary Outcomes				
	Time to Closure(day), median[range]	7 [2, 21]	5.5 [1, 8]	0.18
	Hospital Stay(day), median[range]	70.5 [22, 137]	31 [19, 186]	0.15
Early Neonatal Outcomes				
Birth Weight(gr), mean(SD)		2110 (296)	2615 (469)	0.01
Primary Closure, n (%)		1 (10%)	1 (9.1%)	1.00
Total Intubation Time(day), median[range]		4 [1, 14]	3 [1, 13]	0.44
Nasal O2 Time(day), median[range]		6 [2, 10]	1.2 [1, 7]	0.07
Surfactant, n (%)		1 (10%)	0	0.5
NEC, n (%)		0	0	-
BPD, n (%)		0	0	-
RDS, n (%)		0	0	-
Sepsis, n (%)		4 (40%)	0	0.03
Apgar 5 < 7, n (%)		0	0	-

GA = gestational age; BMI = body mass index; NEC= necrotizing enterocolitis; BPD = bronchopulmonary dysplasia; RDS = respiratory distress syndrome
Values are presented as mean (SD) (independent t-test), median (range) (Mann-Whitney U test) and n (%) (Chi square test).

41 A randomized control trial on the effect of introducing a daily smartphone based feedback system between GDM patients and physicians- on patient compliance, glycemic control, satisfaction, and pregnancy outcome

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OBJECTIVE: To study the impact of introducing a smartphone-based daily communication platform between gestational diabetes mellitus (GDM) patients and their physicians, on patients compliance, glycemic control, satisfaction, and pregnancy outcome.

STUDY DESIGN: This is a prospective, single-center, randomized controlled trial. Newly diagnosed GDM patients presenting to our multidisciplinary diabetes-in-pregnancy clinic were randomized to: (1) routine bi-weekly prenatal clinic care (control group) or (2) an additional daily detailed feedback on their compliance and glycemic control from the clinic team via an application installed on their smartphone (smartphone group). The primary outcome was patient compliance defined as the actual blood glucose measurements/ instructed measurements X100. The secondary outcomes included diabetes-control parameters, pregnancy, and neonatal outcomes. The study was adequately powered to detect a 20% difference in patient compliance, based on a preliminary phase that demonstrated 70% baseline compliance to glucose measurements.

RESULTS: A total of 120 newly diagnosed GDM patients were randomized. The two groups did not differ in terms of age, parity, education, BMI, family history, maternal diseases, OGTT values, and HbA1C at randomization. The smartphone group demonstrated higher level of compliance (82% vs. 67%, p<0.001), lower mean blood glucose (104.7 ± 9.1 mg/dl vs. 112.6 ± 8.6 mg/dl, p<0.001), lower rates of off-target measurements both fasting (7.6% vs. 14.3%, p<0.001) and post-prandial (4.7% vs. 8.3%, p<0.001), and a lower rate of pregnancies requiring insulin treatment (11.6% vs. 28.3%, p=0.038). The rates of macrosomia, neonatal hypoglycemia, shoulder dystocia and other delivery and neonatal complications did not differ between the groups. Patients in the smartphone group reported excellent satisfaction from the use of the application and from their overall prenatal care.

CONCLUSION: Introduction of a smartphone-based daily feedback and communication platform between GDM patients and the multidisciplinary diabetes-in-pregnancy clinic team, improved patient compliance, glycemic control, and the rate of insulin treatment.

	Smart-phone group n=60	Control group n=60	p-value
Glycemic control			
Compliance	82 ± 0.16	67 ± 0.27	<0.001
Mean blood glucose (mg/dl)	104.7±9.1	112.6 ± 8.6	<0.001
Off-target (>120 mg/dl) post prandial glucose measurements (%)	7.6 ± 0.8	14.3 ± 0.9	<0.001
Off-target (>90 mg/dl) fasting glucose measurements (%)	4.7 ± 0.4	8.3 ± 0.5	<0.001
Patients requiring insulin treatment (%)	7 (11.6%)	17 (28.3%)	0.038
Pregnancy and delivery outcomes			
Gestational age at delivery (weeks)	38.11±1.76	38.45±1.45	0.250
Cesarean delivery (%)	10 (16.6%)	17 (28.3%)	0.190
Polyhydramnios (%)	0	4 (6.6%)	0.120
Neonatal outcome			
Birth weight (grams)	3074±550	3188±420	0.204
LGA (%)	6 (10%)	6 (10%)	1.000
NICU admission (%)	4 (6.6%)	7 (11.6%)	0.528
Composite adverse neonatal outcome (%)	7 (11.6%)	11 (18.3%)	0.443

LGA – large for gestational age (birthweight > 90th percentile), NICU – neonatal intensive care unit. Values in bold are statistically significant
Compliance-actual blood glucose measurements/instructed measurements X100