

SUPPLEMENTARY DATA

Protocol for the peripartum management of T1DM

Induction of labour with prostaglandin E2

- The usual dose of insulin is administered until in established labour
- An insulin and dextrose/saline infusion is commenced once in established labour
 - Dextrose/saline is administered as 1L 4% dextrose and 0.18% saline at 80mls/hr
 - Insulin is administered as 50 units Actrapid made up to 50mls with 0.9% sodium chloride
- The BGLs are monitored hourly and insulin adjusted to the below protocol
 - The aim is to maintain the BGL between 4-7mmol/L

BGL (mmol/L)	Insulin infusion (mls/hr)
<4	Discontinue infusion and notify medical registrar
4.1-6	1
6.1-8	2
8.1-10	3
>10	Notify and review by medical registrar

Induction of labour with artificial rupture of membranes or syntocinon or caesarean section

- The usual dose of insulin is administered the night prior
- The patient is fasted from midnight and ceases subcutaneous insulin
- On the morning of the planned induction/caesarean section an insulin and dextrose/saline infusion is commenced and management as above

Presentation in spontaneous labour

- An insulin and dextrose/saline infusion is commenced on arrival and management as above

Postpartum

Vaginal delivery

- Insulin infusion is ceased on delivery unless the BGL >10mmol/L (discuss with medical team)
- Cease intravenous fluids unless BGL <4mmol/L or unable to tolerate diet (discuss with medical team)

Caesarean section

- Insulin infusion is ceased on delivery unless the BGL >10mmol/L (discuss with medical team)
- Continue dextrose/saline infusion 1L q12h until tolerating diet
- Monitor BGL 2nd hourly for 8 hrs and then QID
- Recommence insulin if BGL >10mmol/L
 - Subcutaneously if able to tolerate diet
 - IV insulin infusion if still nil by mouth or unable to tolerate diet

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Supplementary Table 1. Differences between the peripartum management and glycaemic behaviour of women with multiple pregnancies (2 or 3) during the study period.

	Mean difference	95% CI	P value
Last dose of intermediate or long-acting insulin prior to delivery, hrs	9.2	4.4, 13.9	0.002
Magnitude of last dose of intermediate or long-acting insulin prior to delivery, units	20.4	8.2, 32.5	0.004
Time to first dose of intermediate or long-acting SC insulin after delivery, hrs	15.2	6.9, 23.6	0.002
Time to first dose of short or rapid-acting SC insulin after delivery, hrs	7.7	0.5, 14.8	0.041
Time to first dose of any SC insulin after delivery, hrs	7.2	0.4, 14.6	0.063
Time to first BGL >8.0mmol/L after delivery, hrs	11.2	0.1, 22.3	0.043
Average daily number of hypoglycaemic episodes from delivery to discharge	0.8	0.4, 1.2	0.001
Insulin dose recommenced as percentage of pre-pregnancy requirement, %	27.7	11.0, 44.4	0.004

Supplementary Table 2. Insulin treatment pre-pregnancy and at term.

Insulin at pre-pregnancy	All women (n=36)	Early requirement for insulin (n=12)	Late requirement for insulin (n=4)	p value
<i>Insulin dose</i>				
Absolute daily dose, units (SD)	52.0 (21.3)	57.2 (29.2)	45.3 (13.2)	0.451
Daily dose/kg, units/kg (SD)	0.7 (0.2)	0.7 (0.3)	0.7 (0.2)	0.927
<i>Basal insulin</i>				
Long-acting*, number (%)	17	5 (41.7)	4 (100%)	0.089
Intermediate-acting**, number (%)	16	5 (41.7)	0	0.245
<i>Bolus insulin</i>				
Rapid-acting***, number (%)	32	12 (100.0)	3 (75.0)	0.250
Short-acting, number**** (%)	4	0	1 (25.0)	0.250
Insulin at term				
<i>Insulin dose</i>				
Absolute daily dose, units (SD)	91.8 (35.5)	96.1 (46.0)	72.5 (40.6)	0.384
Daily dose/kg, units/kg (SD)	1.1 (0.4)	1.0 (0.5)	0.9 (0.5)	0.747
<i>Basal insulin</i>				
Long-acting*, number (%)	20	7 (58.3)	3 (75.0)	1.000
Intermediate-acting**, number (%)	13	2 (16.7)	1 (25.0)	1.000
<i>Bolus insulin</i>				
Rapid-acting***, number (%)	33	12 (100.0)	3 (75.0)	0.250
Short-acting****, number (%)	3	0	1 (25.0)	0.250

*insulin glargine, insulin detemir, insulin zinc

**isophane insulin, isophane (NPH)

***insulin aspart, insulin lispro

****insulin neutral (regular)

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Supplementary Table 3. Multiple regression analysis with dependent variable time to first dose of any subcutaneous insulin (all pregnancies)

Independent variables	Beta	P
Insulin infusion postpartum		
Time from last dose of long- or intermediate-acting insulin until delivery		
Duration of diabetes	0.071	0.728
BMI at term	-0.235	0.281
Creatinine at term	0.418	0.102
Mode of delivery	-0.232	0.222
Peripartum steroids	-0.155	0.406
Dose of long- or intermediate-acting insulin	0.243	0.207
Maternal hypertensive disorders	-0.088	0.748
Time to first oral intake	0.049	0.819

Adjusted R square 0.273, F=2.315, p=0.043

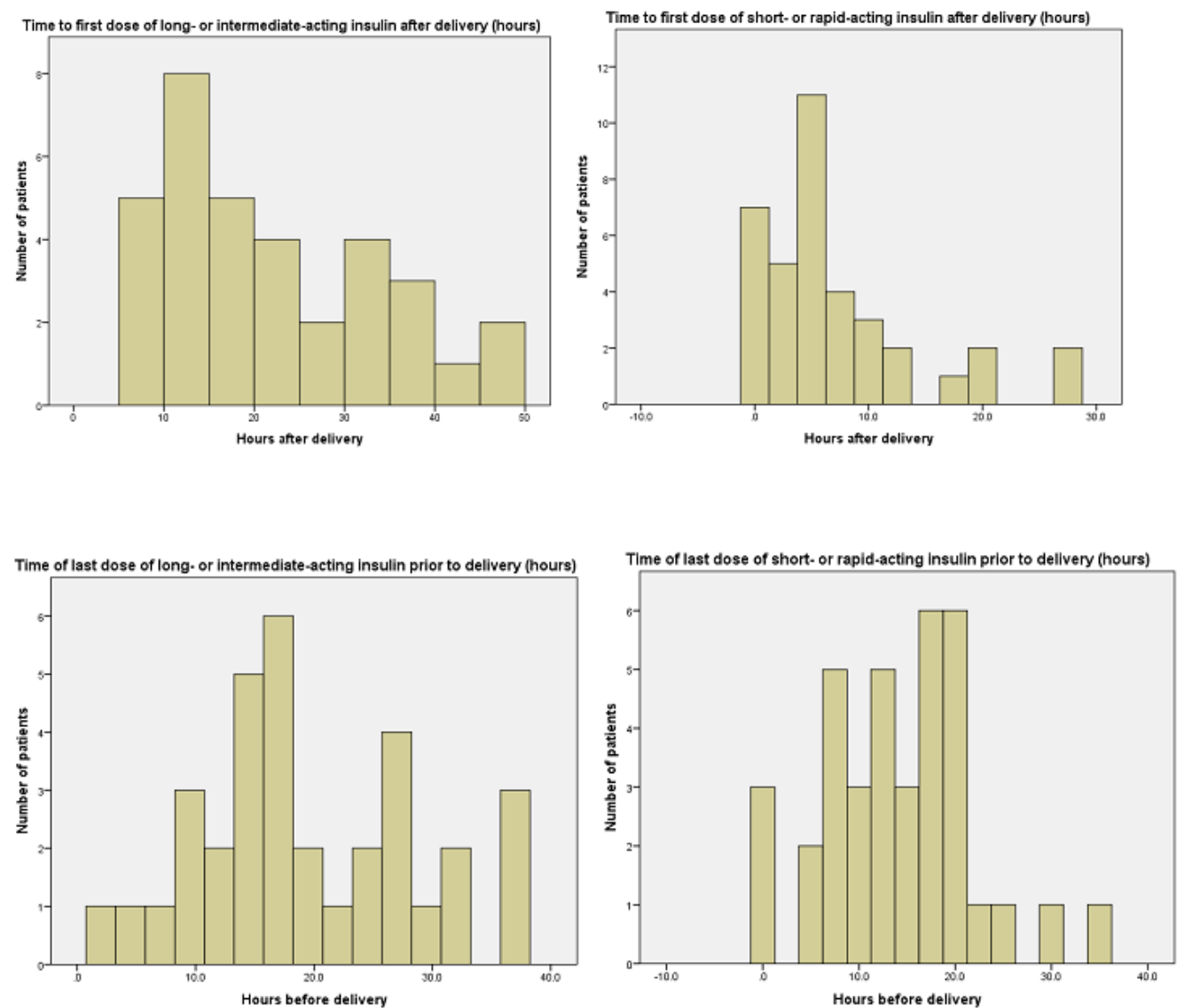
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Supplementary Table 4. Characteristics of patients not requiring insulin for >12 hours after delivery.

Pre-pregnancy characteristics	Patient 1	Patient 2	Patient 3	Patient 4
Maternal age in years	25	22	29	26
BMI at pre-pregnancy	27	20.3	23.1	23.8
Duration diabetes in years	7	3	18	24
Gravida, Parity	1, 0	4, 1	1, 0	1, 0
HbA1c at diagnosis, %	8.2	7.6	6.4	6.5
Hba1c at diagnosis, mmol/mol	66.1	59.6	46.4	47.5
Microvascular disease	No	No	Yes	Yes
Pregnancy characteristics				
Weight gain at term, kg	17	10.5	17	9
HbA1c at term, %	8.0	7.7	5.3	6.5
HbA1c at term, mmol/mol	63.9	60.7	34.4	47.5
Change in HbA1c at term, %	-0.2	0.1	-1.1	0
Delivery characteristics				
Gestation at delivery	37+2	35+6	28+5	32+4
Betamethasone within 72hrs of delivery	No	No	No	Yes
Mode of delivery	Emergency caesarean section (fetal indication)	Induction of labour and vaginal delivery	Spontaneous vaginal delivery	Emergency caesarean section (maternal indication)
Maternal complications	Pre-eclampsia	Nil	Nil	Hypertension
Peripartum insulin/glycaemia				
Last dose of intermediate or long-acting insulin prior to delivery, hrs	12	18	17	17
Magnitude of last dose of intermediate or long-acting insulin prior to delivery, units	30	22	18	7
Form of intermediate or long-acting insulin administered prior to delivery	Insulin glargine	Isophane insulin	Insulin glargine	Insulin glargine
Insulin infusion peripartum	Yes	Yes	Yes	Yes
Insulin infusion ceased at delivery	Yes	Yes	Yes	Yes
Time to first dose of intermediate or long-acting SC insulin after delivery, hrs	13	35	29	31
Time to first dose of short or rapid-acting SC insulin after delivery, hrs	13	18	27.5	28
Time to first oral intake after delivery, hrs	5	4	3	7

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Supplementary Figure 1. Insulin administration in the peripartum period



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Supplementary Figure 2. Insulin recommencement (as percentage pre-pregnancy requirement)

