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THREE YEARS OF EXPERIENCE WITH CGM/FGM IN PREGNANT WOMEN WITH TYPE 1 DIABETES

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Introduction

Pregnancies in women with Type 1 diabetes (T1D) can be complicated by malformations, accelerated fetal growth, preeclampsia, premature delivery, shoulder dystopia, caesarean section and neonatal intensive care. A tight blood glucose control is vital to reduce complications during pregnancy and delivery. The aim of this study was to evaluate regular use of CGM and FGM during pregnancy in T1D.

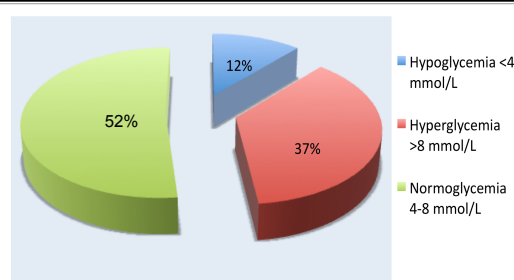
Results

The mean glucose value for all pregnancies was calculated to 7.5±0.9 mmol/L. 52% of the time women remained within glucose targets (4-8 mmol/L). HbA1c decreased from 56.8 to 44.1 mmol/mol. The median insulin dose rose from 43 to 84.5 E daily. Mean gestational length was 38 weeks. The rate of preeclampsia 8.7% and the rate of caesarean section was 38%. Mean birth weight was 3804 g.

Materials and Methods


All pregnant women with T1D at our hospital are offered a CGM or FGM system during pregnancy. Since 2014 we have had 46 women who have completed the pregnancy wearing a CGM or FGM. Freestyle Libre (Abbott) is the most used but with a history of non-awareness of hypoglycaemia, systems with alarms, such as Dexcom or Minimed are preferred. Glucose values were transferred every week via Diasend to the diabetologist. Insulin doses were adjusted by weekly phone calls to the patients. Levels between 4-8 mmol/L were targeted.

Percent of day spent in normo-, hyper- and hypoglycemia




Characteristics of pregnant women with T1D

Mean and SD are given except for values indicated with * where median and quartile range are presented

	At start of pregnancy	At end of pregnancy
 Age (yrs)	29.7±4.6	NA
Duration of diabetes (yrs)	16.1±7.3	NA
Insulin dose at start (E/d)	43 (35-63.5)*	84.5 (63.8-128.5)*
Body weight at start (kg)	71.9±12.8	86.6±12.5
BMI	26.0±3.9	31.6±4.8
Weight gain (kg)	14.9±6.1	
HbA1c (mmol/mol)	54 (46-63)*	43 (40-47)*
DCCT (%)	7.1 (6.4-7.9)*	6.1 (5.8-6.5)*

Outcome of pregnancies

Mean and SD are given except for values indicated with * where median and quartile range are presented

Outcome variable	
Gestational length (w)	37.7 (37.0-38.6)*
Weight gain (kg)	14.9±6.1
Mean glucose (mmol/L)	7.5±0.9
Preeclampsia	(4/46) 8.7%
Sectio (%)	(17/45) 37.8%
Birth weight (g)	3804±716
LGA >4000 g	(19/46) 41.3%
LGA >4500 g	(5/46) 10.9%
Apgar >7 at 1 min	(41/45) 91%
Apgar >7 at 5 min	(42/44) 95%
Apgar >7 at 10 min	(44/44) 100%
Neonatal hypoglycemia	(6/45) 13%
Intensive neonatal care	(12/46) 26%
Malformations	(1/46) 2%



Conclusions

It is possible to achieve almost **normoglycemia in pregnant women with T1D using new technology.** A CGM system is necessary to ensure a safe pregnancy without severe hypoglycaemia.