



GLYCEMIC CONTROL DURING PREGNANCY IN WOMEN WITH TYPE 1 DIABETES MELLITUS TREATED THE PREDICTIVE LOW-GLUCOSE SUSPEND INSULIN PUMP (640G) – A CASE REPORT.

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Background:

Excellent glycemic control before and during pregnancy complicated by type 1 diabetes (T1DM) are important to limit number of poor obstetric and neonatal outcomes [2; 3].

Aim:

The aim of the study was to assessed metabolic control of pregnant T1DM women treated a predictive low-glucose suspend insulin pump (640G) during pregnancy.

Materials and Methods:

We analyzed data of planned pregnancy of 29-years old T1DM women treated continuous subcutaneous insulin infusion (CSII) using insulin pump Paradigm 722 since 2 years. Insulin in pump – LisPro analogue. She changed pump therapy during pregnancy and switched from Paradigm 722 to a predictive low-glucose suspend insulin pump 640G in 15 week of pregnancy.

We analyzed of glycemic control as assessed by:

- Weight and weight gain
- the HbA1c level in each trimester,
- mean blood glycaemia (MBG) measured by sensor,
- the percentage of the value below (70mg/dl) and above (120mg/dl) glycemic target in each trimester
- Suspension time

Figure 1. Glycemic target during pregnancy according Polish Diabetes Association [1]

Glycemic target	
Fasting and pre-meal glycaemia	70-90mg/dl (3,9-5,0mmol/l)
Max. Post-meal glycaemia – 1h	< 120mg/dl (6,7mmol/l)
02.00-04.00 at night	> 60mg/dl (3,3mmol/l)
Mean daily glycaemia	95mg/dl (5,3mmol/l)
HbA1c	< 6,0% (42mmol/mol)

Figure 2. Selective patients characteristics of the patient

Characteristics	Parameter
Age [years]	29
Duration of diabetes [years]	2
Weight before pregnancy [kg]	83
BMI before pregnancy [kg/m ²]	26.5
Retinopathy (any form)	no
Nephropathy	no
HbA1c at the 1 st pregnancy visit [%]	5.9 41mmol/mol
MBG [mg/dl]	130±38
Week of first pregnancy visit	6
Switch of insulin pump - week of pregnancy	15

Figure 3. Selective patient results during each trimester

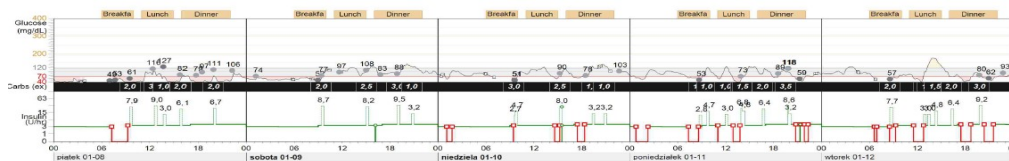
Parameter	I Trimester	II Trimester	III Trimester
Weight before pregnancy	84.4	90.2	96.8
HbA1c [%]	5.9 41mmol/mol	5.3 34mmol/mol	5.7 39mmol/mol
MBG [mg/dl]	105±33	83.0±29	91.3±29
% value below 70mg/dl	12.0	20.3	19.7
% value above 120mg/dl	18.0	19.3	21.8
Suspension time [min]	-	226.3	130
DDI [U]	30.0	70.3	107.5
Base [%]	78.5	63.5	69.8
Carbs	15	13.3	12
Number of SMBG measurements	13.5	8.7	5.9*

Results:

We did not observed sever hypoglycemic episodes.

The women delivered in 38+4 week of pregnancy, healthy daughter with birth weight 3410g, height 54 cm, Apgar score in 1st min. 9, and 5th min. 10

Figure 4. The use of predictive low-glucose suspend personal pump - III trimester – 35 week of pregnancy, DDI



Conclusions:

This case providing real-live observation on predictive low-glucose suspend pump therapy.

The described case shows the effectiveness of the predictive low-glucose suspend (640G) insulin pump during pregnancy in diabetic women in achieving the glycemic target without hypo and hyperglycemic episodes.

References:

1. Polish Diabetes Association. The clinical guidelines in patients with diabetes. Diabet Prakt 5, Supl. A: A49-A52 (2016).
2. Temple RC, Aldridge V, Murphy HR. Prepregnancy Care and Pregnancy Outcomes in Women With Type 1 Diabetes. Diabetes Care 29, 1744-1749 (2006).
3. Maresh MJ, Holmes VA, Patterson CC, Young IS, Pearson DW, Walker JD, McCance DR. Diabetes and Pre-eclampsia Intervention Trial Study Group. Glycemic targets in the second and third trimester of pregnancy for women with type 1 diabetes. Diabetes Care 38, 34–42 (2015).

Pump Use	Per Day
Insulin TDD	107,7 ± 11,4U
Basal/Bolus Ratio	70 / 30
Manual Boluses	0,0U (0,0 boluses)
Bolus Wizard	32,2U (6,0 boluses)
Food	34,0U (6,0 boluses)
Correction	-1,5U (2,9 boluses)
Override (+)	0,3U (0,1 boluses)
Override (-)	-0,4U (0,1 boluses)
Total Suspend	2h 39m (4,0 events)
Suspend On Low	2h 39m (3,3 events)
Suspend Before Low	--