THE METHOD OF INSULIN ADMINISTRATION AND PERINATAL OUTCOMES IN PREGNANT WOMEN WITH TYPE 1 DIABETES

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Introduction

During pregnancy usually used multiple insulin injections (MDI). Alternative is a constant subcutaneous infusion of insulin (CSII). CSII has important benefits, but there is no conclusive evidence that insulin pump therapy preferable to MDI in pregnant women.

Materials and Methods

Prospective comparative study included 32 pregnant women with type 1 diabetes. Depending on the method of insulin administration, patients were divided into 2 groups. In group 1 (n = 13) insulin was administered by continuous subcutaneous insulin infusion (CSII). In group 2 (n = 18) used the mode of multiple insulin injections (MDI). Maternity groups did not differ in age, social status, parity, body mass index before pregnancy, the level of blood pressure, duration of diabetes type 1, the presence of vascular complications of diabetes, levels of hemoglobin A1c (Table 1).

Table 1 - Characteristics for pregnant women with type 1 diabetes

Parameter	CSII (n=13)	MDI(n=18)	p
Age, years	29.0 [26.0;30.0]	26.0 [24.0;28.0]	>0.05
Onset of Diabetes, years	18.0 [15.0;21.0]	19.0 [12.0;22.0]	>0.05
Diabetic Retinopathy	10 (76.9)	15 (83.3)	>0.05
Diabetic Nephropathy	9 (69.2)	16 (88.9)	>0.05
Diabetic Neuropathy	10 (76.9)	12 (70.8)	>0.05
Hb A1c, % (first trimester)	6.6 [5.9;7.7]	6.4 [6.1;7.7]	>0.05
Hb A1c, % (second trimester)	6.3 [5.8;7.0]	6.4 [5.9;7.2]	>0.05
Hb A1c, % (third trimester)	6.1 [5.8;6.5]	6.1 [5.8;6.6]	>0.05
Dose of Insulin, units / kg / day	0.8 [0.7;0.9]	0.8 [0.6;1.0]	>0.05
Body Mass Index, kg /m^2	22.6 [19.3;23.7]	22.9 [22.1;27.2]	>0.05
Weight Gain,kg	11.0 [11.0;15.0]	11.0 [8.5;14.5]	>0.05

Data are presented as n (%) or median [25th;75th percentiles]

Results

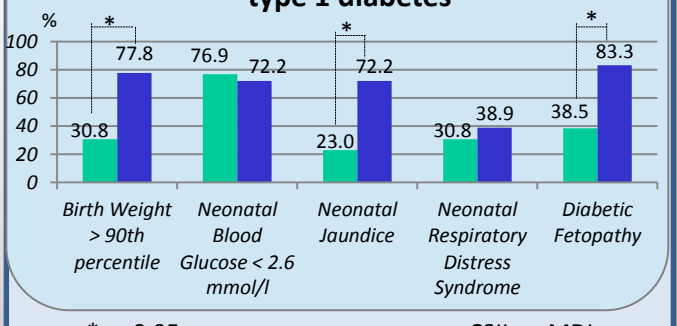
Table 2 - Perinatal outcome in women with type 1 diabetes

Parameter	CSII (n=13)	MDI (n=18)	p
Delivery Term, weeks	37.0 [35.5;37.5]	36.0 [35.5;37.5]	>0.05
Cesarean Delivery	13 (100.0)	18 (100.0)	>0.05
Birth Weight, g	3080 [2790;3530]	3430 [3160;3630]	>0.05
Birth Length, sm	50.0 [47.0;52.0]	51.0 [50.0;52.0]	>0.05
1 min Apgar < 7	9 (69.2)	12 (67.7)	>0.05
5 min Apgar < 7	0 (0.0)	1 (5.6)	NA
Neonatal Blood Glucose, mmol/l	2.3 [1.9;2.5]	2.2 [1.6;2.6]	>0.05
Malformations	0 (0)	0 (0)	NA
Perinatal Death	0 (0)	0 (0)	NA

Data are presented as n (%) or median [25th;75th percentiles]. NA - Not Available

Preterm delivery occurred more frequently in patients with MDI (66.7% vs. 46.2%, p> 0.05). Birth weight > 90th percentile are more common in newborns from mothers with MDI (77.8% vs. 30.8%, p = 0.025). Neonatal jaundice was more common in children from mothers with MDI (72.2% vs. 23.0%, p = 0.02). Diabetic fetopathy was detected in 38.5% of infants from CSII group and 83.3% from MDI group (p = 0.048).

Neonatal outcome for women with type 1 diabetes



* p<0.05 CSII MDI

Conclusions

The results of our study have shown that using CSII compared MDI decreases the incidence of preterm delivery, macrosomia, neonatal jaundice and diabetic fetopathy in pregnant women with type 1 diabetes with the same level of hemoglobin A1c.

References

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