



THE COMPARISON OF DIFFERENT BASAL RATE PROFILES IN INSULIN PUMP THERAPY IN MOSCOW REGION CLINICAL PRACTICE.

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Introduction

Nowadays continuous subcutaneous insulin infusion (CSII) has become more accessible in routine clinical practice. There are different basal rate profiles that can be used when initiating insulin pump therapy.

Aim: the aim of this study was to compare two basal rate profiles during the first two days after the start of insulin pump therapy in order to evaluate which of them is safer in use.

Materials and Methods

During the period from 2015 to 2017 407 patients with T1DM (92,1%) and T2DM (7,9%) with mean age of $33,1 \pm 10,5$ years and disease duration of $13,3 \pm 9,3$ years were switched from multiple daily injections (MDI) to insulin pump (Accu-Chek Spirit Combo, “Roche”) in the Endocrinology Department of Moscow Regional Research and Clinical Institute. Each patient was performed a continuous glucose monitoring with the use of iPro-2, “Medtronic” during first two days. Total daily insulin dose on pump was calculated according to the insulin dose each patient received on MDI. Basal and bolus rates were determined based on the protocol developed by Bode et al¹. Patients were then randomized according to the basal rate: a part of them had flat basal rate and the other – circadian basal rate that was calculated according to the Renner’s scale. We manage to receive data from 240 patients with T1DM (91,3%) and T2DM (8,7%). 160 of them started with circadian basal rate profile according to Renner’s scale and 247 patients used flat basal rate when switching on CSII. Changes in blood glucose levels were evaluated using CGM values.

Table 1 Group characteristics

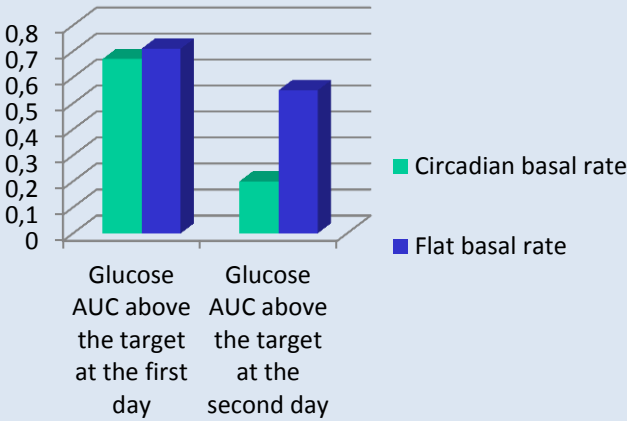
Index		Value
Type of Diabetes	Type 1, n (%)	219 (93,8%)
	Type 2, n (%)	21 (6,3%)
Age, years, \pm SD		$32,7 \pm 10,1$
Duration of diabetes , years \pm SD		$12,7 \pm 9$

Results

We haven’t found any variations in hypoglycemia frequency in first two days between patients starting insulin pump therapy with circadian basal rate as well as with flat basal rate. The average glucose AUC values both below and above the goal according to CGM in first two days also had no differences. The results are presented in the Table 2

Table 2. The dynamics of glycaemia levels according to CGM

Data of CGM	Circadian basal rate	Flat basal rate	p
Glucose AUC above the target at the first day	0,67 [0,15-1,52]	0,52 [0,13-1,61]	p>0,05
Glucose AUC above the target at the second day	0,71 [0,25-1,9]	0,55 [0,06-1,55]	p>0,05
Glucose AUC below the target at the first day	$1,2 \pm 1,6$	$1,12 \pm 1,51$	p>0,05
Glucose AUC below the target at the second day	0,01 [0-0,1]	0,02 [0-1,19]	p>0,05



Conclusion

During this study we have compared two basal rate profiles in patients during the first two days after starting insulin pump therapy. Basal rate profiles in CSII should be individually corrected in the following, but there is no significant difference between them when starting insulin pump therapy. It is important to note that the insulin dose variability significantly complicates glycaemia interpreting and thereby the insulin dose correction. To sum everything up, flat basal rate appears to be the most preferable when starting insulin pump therapy

References

1. Bode D.W. Pumping Protocol. A guide to insulin pump therapy initiation. – Georgia, Atlanta, 2008;