HOW DOES CONTINUOUS GLUCOSE MONITORING SYSTEM EFFECT METABOLIC CONTROL IN TYPE 1 DIABETES: SINGLE CENTER EXPERIENCE

E. Arslan ,E.Er, G. Demir[1], H. Işıklar , Y.Atik Altınok , S. Özen , Ş. Darcan, D.Gökşen
, Department of Pediatric Endocrinology and Diabetes, Faculty of Medicine, Ege University, İzmir, Turkey

ESPE 2021
The 59th Annual Meeting Online
22-26 September 2021

INTRODUCTION

- Continuos Glucose Monitoring (CGMS) takes place increasingly in the daily routines of diabetic patients.

- It has been shown that metabolic control improves when CGMS is used consistently.

AIM

We aimed to show the effect of CGMS in patients using MDI therapy.

METHOD

- All patients using multiple-dose insulin therapy at our center and continued their regular follow-up and using CGMS for at least three months were screened through their files. Eight of the 71 patients were excluded from the study because they switched to insulin pump therapy, 17 patients were on their honeymoon period, one patients was diagnosed with MODY, three patients were diagnosed with type 2 diabetes who only used metformin, and six patients were using for less than three months, so 36 patients were included in the study.
- Anthropometric measurements, insulin doses, HbA1c and sensor data of all cases were compared with the data of the last two weeks when they were actively using the sensor.
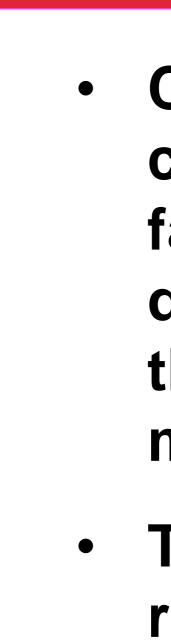
RESULTS

Twenty (55%) of 36 patients included in the study were female and 16 (45%) were male. During the study, the median age was 13.4 years (5.2-27.13), and the median follow-up period with the diagnosis of Type 1 Diabetes was 2.9 years (1.05-16.2)

It was shown that patients' weight, weight SDS increased with the use of sensors, and a statistically significant decrease was achieved in HbA1c (Table 1).

In addition, the increase in the duration of sensor use correlated with a decrease in glucose variability, an increase in TIR, and a decrease in TAR (Table 2).

While a decrease of 8.6% is observed in TIR with the use was less than 15 months, the benefit of using the sensor >15 months is clearly seen, and a 7.2%increase is observed in TIR (p:0.016). However, a significant decrease in TBR was not detected.

After using the sensor, the awareness of the patients about hyperglycemia raised, they intervened more to reduce their blood glucose values and probably they consume more food because they can monitor glucose levels more closely.

Table 2. Correlation with Sensor Lifetime and Glycemic Control Parameters

	Pearson Correlation Coefficient	p
Glucose Variability (CV)	0,599	0,001
Time Between 70-180 mg/dl	-0,41	0,014
Time Between 180-250 mg/dl	0,373	0,027
>250 mg/dl elapsed time	0,345	0,046

Table 1. Comparison of the first 2 weeks after sensor insertion and the last 2 weeks of sensor use

	Beginning	After	p
Weight (kg)	44,6	51,7	<0,001
Weight SDS	0,22	0,47	0,034
BMI SDS	-0,03	0,26	0,072
HbA1C	8,02	7,4	0,01

CONCLUSIONS

- CGMS provides significant convenience for patients and their families, and provides much more data for healthcare professionals than capillary blood glucose measurement.

- The real benefit of CGMS comes in regular and long-term use

REFERENCES

1. **Battellino T et al.** Clinicals Target for Continous Glucose Monitoring Data Interpretation: Recommendation From The International Consenseus on Time In Range. Diabetes Care 2019 Aug.42(8): 1593-1603
2. **DeSalvo DJ**, et al. Continuous glucose monitoring and glycemic control among youth with type 1 diabetes: international comparison from the T1D exchange and DPV initiative. Pediatr Diabetes 2018;19(7):1271–5.
3. **Aleppo, G et al.**Continuous glucose monitoring integration in clinical practice: a stepped guide to data review and interpretation. *Journal of diabetes science and technology*, 13(4), 664-673.
4. **Desrochers, H. R.,et al..** Use of Diabetes Technology in Children: Role of Structured Education for Young People with Diabetes and Families. *Endocrinology and Metabolism Clinics*, 49(1), 19-35.
5. **March, C. A., et al.** Modern diabetes devices in the school setting: Perspectives from school nurses. *Pediatric Diabetes.*

CONTACT INFORMATION

Correspondence:

Emrullah ARSLAN

Department of Pediatric Endocrinology and Diabetes, Faculty of Medicine, Ege University, 35100, Izmir, Turkey.

Email: dremrullaharslan@gmail.com

Phone: +90-232-3901230
.

Diabetes and insulin
Emrullah Arslan

P2-166