

Level of glycemic control in pediatric patients with type 1 diabetes in Bern: a cross-sectional study

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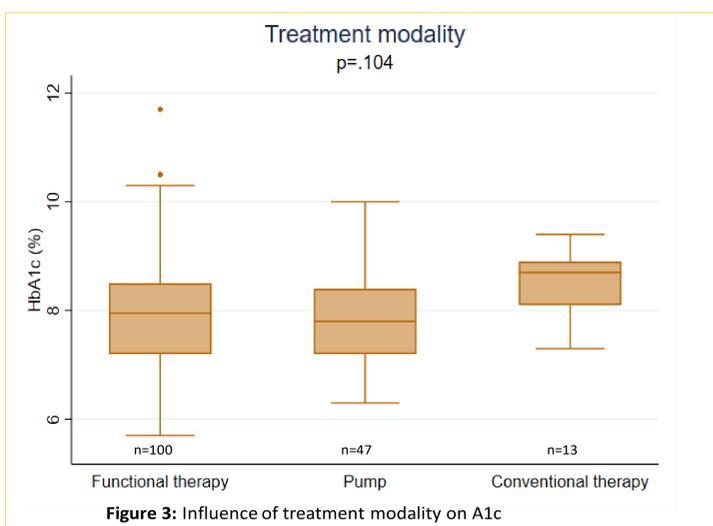
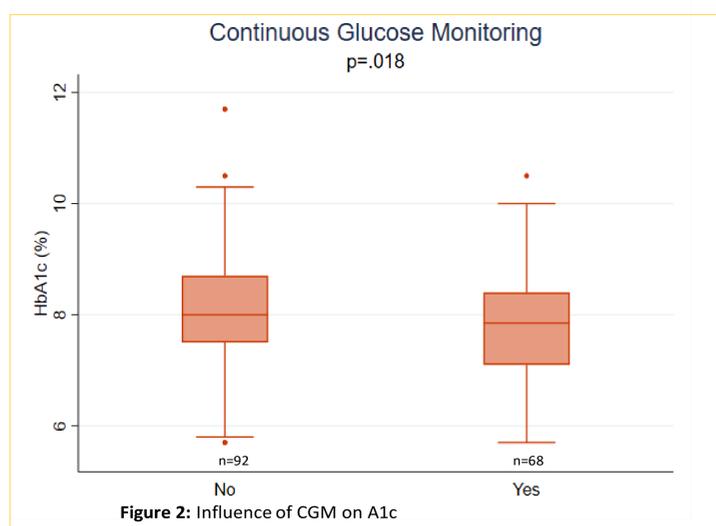
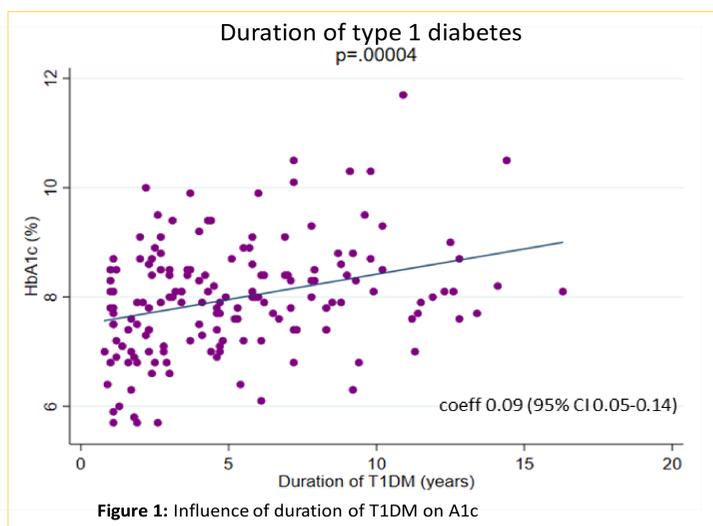
Introduction

Good glycemic control prevents long-term complications of microvascular and macrovascular diseases in type 1 diabetes (T1DM). We aimed to investigate whether our patients had A1c values <7.5% as recommended by ISPAD¹ and how duration of diabetes, therapy modality and use of continuous glucose monitoring (CGM) affected the metabolic control of our patients. We also set out to compare our quality of care with our results of 2008² and with other published data.

Methods

In 2017/18, we enrolled all patients with T1DM who were followed by the outpatient clinic of the University Children's Hospital Bern over a period of 6 months in an observational cross-sectional study. Each patient was assessed once during the observational period, including demographic and clinical data (sex, age, diabetes duration, pubertal status, insulin treatment modality, use of continuous glucose monitoring (CGM), A1c levels).

Results



	All patients N=160		Boys N=82		Girls N=78	
	n	%	n	%	n	%
Age at consultation (years)						
<5	7	4	4	5	3	4
5 to <10	35	22	21	26	14	18
10 to <15	84	52	43	52	41	53
15 to <18	34	21	14	17	20	26
Age at T1DM manifestation (years)						
<5	54	34	24	29	30	38
5 to <=10	72	45	47	57	25	32
10 to 16	34	21	11	13	23	29
Duration of T1DM (years)						
<2	31	19	13	16	18	23
2 to <5	59	37	33	40	26	33
5 to <10	53	33	31	38	22	28
>=10	17	11	5	6	12	15
Modality of insulin therapy						
Functional	100	63	48	59	52	67
Insulin Pump	47	29	26	32	21	27
Conventional	13	8	8	10	5	6
Continuous Glucose Monitoring						
No	92	57	46	56	46	59
Yes	68	43	36	44	32	41
HbA1c (%)						
<7.5	46	29	23	28	23	29
>=7.5	114	71	59	72	55	71

	All patients N=160		Boys N=82		Girls N=78	
	Mean	SD	Mean	SD	Mean	SD
Age at consultation (years)	11.9	3.5	11.5	3.6	12.4	3.3
Body Mass Index (SDS)	0.3	0.9	0.1	0.9	0.4	1.0
Age at T1DM manifestation (years)	6.7	3.5	6.5	3.3	6.9	3.8
Duration of T1DM (years)	5.2	3.5	5.0	3.0	5.5	3.9
HbA1c (%)	8.0	1.0	8.0	1.0	7.9	1.0
Mean number of consultations						
With a physician	4.2	0.9	4.2	0.8	4.1	0.9
With a nurse	4.5	3.4	4.2	2.9	4.7	3.9
With physician and/or nurse	8.6	3.7	8.4	3.2	8.8	4.2

Table 1. Characteristics of patients with Type 1 Diabetes Mellitus treated at the Children's Hospital in Bern

Conclusion

The overall glycemic control was poorer 2017/2018 than in our study from 2008². This may be due to the higher percent of patients with diabetes duration >2 years, thus with more patients out of the remission phase. Patients wearing CGM devices performed better. Unfortunately, our patients in Berne did not reach the target A1c set by ISPAD, similar to results to other diabetes centres in Europe and the United States. This highlights the importance of regular consultations and extended use of CGM.

References
[1] International Society for Pediatric and Adolescent Diabetes. 2018. ISPAD Clinical Practice Consensus Guidelines 2018. John Wiley & Sons Ltd.
[2] Paolo Tonella, Christa E. Flück, Primus E. Mullis. Metabolic control of type 1 diabetic patients followed at the University Children's Hospital in Bern: Have we reached the goal? Swiss Med Wkly. 2010;140:w13057