

Does SARS-COV-2 Outbreak Increase Diabetic Ketoacidosis in New Onset T1DM

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INTRODUCTION

Diabetic ketoacidosis (DKA) is a life-threatening acute complication of type-1 DM and infection is the most common precipitating factor for DKA and is responsible for more than 50% of cases.

AIM

We evaluated the frequency and severity of DKA in children with type 1 DM, before and during the coronavirus disease 2019 (COVID-19) outbreak, in order to identify its indirect effects on DKA incidence.

METHOD

- A single-center, retrospective study;
- The COVID-19 pandemic group comprised those presenting from March 2020 to March 2021.
- The control groups included those newly diagnosed with type 1 DM from March 2016 to March 2020.
- DKA was defined according to ISPAD;
 - blood glucose >11 mmol/L,
 - venous pH <7.3 or bicarbonate <15 mmol/L,
 - ketonemia and ketonuria
- DKA severity categorized as follows:
 - mild, venous pH <7.3 or bicarbonate <15 mmol/L;
 - moderate, pH <7.2, bicarbonate <10 mmol/L
 - severe, pH <7.1, bicarbonate <5 mmol/L.

RESULTS

- Whole study group consists of 199 newly onset type 1 DM.
- Demographics and clinical characteristics of patients were specified in table 1.
- The rate of DKA at presentation was similar during the pandemic period compared to the pre-pandemic years (58,3% in 2020 vs 55.3% in 2019, 45.5% in 2018, 44.8% in 2017, 64.3% in 2016, p =0. 393).
- Although the percentage of DKA was similar, that the rate of severe DKA in the last 2 years was higher than previous years (30.4% in 2020 vs 45.7% in 2019, 24.2% in 2018, 18.5% in 2017, 17.1% in 2016, p =0. 027).
- Although statistically insignificant, there was an increase in patients with onset of symptoms more than 30 days in pandemic.

		2020-2021	2019-2020	2018-2019	2017-2018	2016 -2017
Type 1 DM	(n)	48	47	33	29	42
Age (yr)	Mean± SDS	8,94± 4.65	7,62± 4,54	9,53± 4.27	8,88± 4,16	9,21± 4.86
Age group (n)	<5 y	11 (23.4%)	14 (30.4%)	6 (18.2%)	6 (20.7%)	12 (28.6%)
	6-11	19 (40.4%)	21 (45.7%)	14 (42.4%)	14 (48.3%)	12 (28.6%)
	12-18 y	17 (36.2%)	11 (23.9%)	13 (39.4%)	9 (31.0%)	18 (42.9%)
Sex	Male	28 (58,3%)	24 (51,1%)	14 (42,4%)	15 (51,7%)	24 (57,1%)
	Female	20 (41,7%)	23 (48,9%)	19 (57,6%)	14 (48,3%)	18(42,9%)
Duration of Symptoms (day)	Mean	32.26	17.31	17.73	22.65	23.72
	Median	30	10	10	8.5	20
Weight SDS		-0.24 ± 1.21	-0.08 ± 1.30	0.14 ± 1.11	-0.18 ± 1.39	-0.11 ± 1.29
Height SDS		0.60 ± 1.18	0.45 ± 1.27	0.51 ± 1.07	0.91 ± 1.45	0.13 ± 1.32
BMI SDS		-0.78 ± 1.69	-0.51 ± 1.59	-0.25 ± 1.25	-0.52 ± 1.72	-0.21 ± 1.34

CONCLUSIONS

- No increase in DKA percentage and severity was detected during pandemic period when compared to previous 5 years.
- We thought that pandemic measures and lock-down did not delay the diagnosis of diabetes and did not cause disruption in the functioning of the healthcare system.

REFERENCES

1. Boddu SK, et al. New onset diabetes, type 1 diabetes and COVID-19. *Diabetes Metab Syndr Clin Res Rev* 2020 Nov [cited 2021 Mar 2];14(6):2211–7.
2. Unsworth R, et al. New-Onset Type 1 Diabetes in Children During COVID-19: Multicenter Regional Findings in the U.K. *Diabetes Care* 2020 Nov [cited 2021 Feb 12];43(11):e170–1
3. Tittel SR, et al. Did the COVID-19 Lockdown Affect the Incidence of Pediatric Type 1 Diabetes in Germany? *Diabetes Care* [2020 Nov [cited 2021 May 9];43(11):e172–3.

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