

New-Onset Type 1 Diabetes in Children and COVID-19

Diabetes Tipo 1 Inaugural em Idade Pediátrica e COVID-19

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Palavras-chave: COVID-19; Criança; Diabetes Mellitus Tipo 1; SARS-CoV-2

Dear Editor,

During the COVID-19 pandemic, a lower rate of health-care care usage has been reported, like for example admissions to Pediatric Emergency Departments. This can lead to the delayed diagnosis of potentially severe diseases, like type 1 diabetes mellitus (DM). Previous studies from Italy and Germany found an increase in severe diabetic ketoacidosis (DKA) at the time of DM diagnosis in children during the COVID-19 pandemic.^{1,2}

In our observational and retrospective study, we evaluated the frequency and severity of new-onset DM in children, at a tertiary hospital in Lisbon, during the first year of the COVID-19 pandemic (April 2020 – March 2021) and compared them with a similar period, prior to the COVID-19 outbreak in Portugal (April 2019 – March 2020). The independent *t*-test, Mann-Whitney test and the chi-square test were used, where appropriate. Statistical significance was predetermined as $p < 0.05$. SPSS® 26 was used for statistical analysis. Ethical approval was not required by the Ethics Committee of Centro Hospitalar Lisboa Norte-Hospital de Santa Maria (Lisbon, Portugal) for the present study, since it was based on retrospective data collection. The results are shown in Table 1.

Between April 2020 and March 2021, 20 children were diagnosed with type 1 DM, a lower number than in previ-

ous years. The median age was similar between the two groups, as well as glycemia and symptoms at presentation. Only one child presented simultaneously with SARS-CoV-2 infection.

A significantly higher proportion of children presented with severe DKA during the COVID-19 pandemic. Arterial blood gas parameters such as pH, bicarbonate, and base excess were also worse in this group of patients. Consequently, more children were admitted to the intensive care unit. Nonetheless, the reported median duration of preceding symptoms of DM was not statistically different between the two groups and was, in fact, shorter in the COVID-19 pandemic group.

In conclusion, during the first year of the pandemic, we observed a significant increase in severe cases of DKA. The notion of delay in healthcare seeking to explain this increase could not be established. However, the duration of symptoms was self-reported, which may limit the conclusions. It is also likely that complex psychosocial factors related with social isolation could have changed the perception of symptoms of the disease.³ Recent studies suggest that SARS-CoV-2 can act as an infectious trigger and precipitate DKA in patients with new-onset DM.^{4,5} However, in our cohort, only one patient had SARS-CoV-2 infection and patients had not been tested for previous exposure through serological tests.

Further research into the causes of the increase in DKA during the pandemic is required. Additionally, strategies to educate parents about timely attendance at the emergency department remain crucial.

AUTHORS CONTRIBUTION

MIA: Data acquisition, draft of the paper.

ARH, LR: Data acquisition, critical review of the paper.

Table 1 – Comparison of clinical and biochemical parameters between the COVID-19 group and the non-COVID-19 group

	April 2020 - March 2021 (COVID-19 pandemic)	April 2019 - March 2020	<i>p</i> value
Number of patients	20	27	-
Age, years	10.0 (7.0)	12.3 (5.2)	0.220
Sex	45% male	63% male	0.221
Days of preceding symptoms	18.0 (88.0)	30.0 (147.0)	0.266
Reported symptoms	Polydipsia	90%	0.383
	Polyuria	85%	0.038
	Polyphagia	35%	0.163
	Weight loss	90%	0.417
Mean % of weight loss	-10.5% ± 8.85	-10.0% ± 6.42	0.826
ICU stay	30%	3.7%	0.012
Blood tests at admission	Glycemia, mg/dL	458 (195.0)	0.426
	pH	7.1 (0.315)	0.007
	Bicarbonate, mmol/L	9.4 (11.0)	0.03
	Excess base, mmol/L	-21.1 (18.2)	0.01

ICU: intensive care unit

Values are given as n or %, mean ± standard deviation or median (interquartile range)

DC, SC: Data acquisition, statistics analysis.
BR, CP, MLS: Critical review of the paper.

use at their working center regarding patients' data publication.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in 2013.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in

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Maria Inês ALEXANDRE✉^{1,2}, Ana Raquel HENRIQUES¹, Daniela CAVACO^{1,3}, Luís RODRIGUES^{1,4}, Sara COSTA¹, Brígida ROBALO¹, Carla PEREIRA¹, Maria de Lurdes SAMPAIO¹

1. Unidade de Endocrinologia Pediátrica. Serviço de Pediatria Médica. Departamento de Pediatria. Hospital de Santa Maria. Centro Hospitalar Universitário Lisboa Norte. Lisboa. Portugal.

2. Serviço de Endocrinologia, Diabetes e Metabolismo. Hospital de Santa Maria. Centro Hospitalar Universitário Lisboa Norte. Lisboa. Portugal.

3. Serviço de Endocrinologia. Instituto Português de Oncologia de Lisboa Francisco Gentil. Lisboa. Portugal.

4. Serviço de Pediatria. Departamento da Mulher e da Criança. Hospital do Espírito Santo de Évora. Évora. Portugal.

Autor correspondente: Maria Inês Alexandre. mariaines.f.alexandre@gmail.com

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