

Editorial
Pediatrics



Impact of COVID-19 Pandemic on Pediatric Diabetes Mellitus

Choong Ho Shin

Department of Pediatrics, Seoul National University College of Medicine, Seoul, Korea



► See the article “Comparison of Initial Presentation of Pediatric Diabetes Before and During the Coronavirus Disease 2019 Pandemic Era” in volume 37, number 22, e176.

Received: May 26, 2022
Accepted: May 27, 2022
Published online: May 31, 2022

Address for Correspondence:

Choong Ho Shin, MD, PhD
Department of Pediatrics, Seoul National University College of Medicine, 101 Daehak-ro, Jongno-gu, Seoul 03080, Korea.
Email: chshinpd@snu.ac.kr

© 2022 The Korean Academy of Medical Sciences.

This is an Open Access article distributed under the terms of the Creative Commons Attribution Non-Commercial License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ORCID iD

Choong Ho Shin
<https://orcid.org/0000-0002-9813-1134>

Disclosure

The author has no potential conflicts of interest to disclose.

In Korea, type 1 diabetes mellitus (T1DM) occurs in about 3.19 cases per 100,000 children under 15 years of age (2012–2014),¹ and type 2 diabetes mellitus (T2DM) is steadily occurring in adolescents as obesity increases. The Coronavirus Disease-2019 (COVID-19) pandemic has many implications for patients' lifestyles and healthcare access, including delays in diagnosing or managing chronic conditions such as T1DM. In the face of the COVID-19 pandemic, we continue to monitor the short-term impact of isolation on the onset and course of diabetes, changes in the new outbreak of T1/T2DM after SARS-CoV-2 infection, and the impact of lifestyle changes due to isolation on the occurrence and management of diabetes. By analyzing short-term and long-term effects, it is possible to wisely establish countermeasures against the pandemic of similar infectious diseases and long-term quarantine measures in the future.

1) Effect of Isolation on Diabetes Severity

Numerous studies have reported that long-term isolation and limited access to health care systems delay the DM diagnosis, thereby increasing the incidence of ketoacidosis and the severity of ketoacidosis and hyperglycemia. Lee et al.² collected data from new diabetic patients (aged < 18 years) who occurred in the early phase of the pandemic (2020) from 4 university hospitals located in the metropolitan area where society had implemented mandatory social distancing. During the pandemic, T1DM patients had higher rates and biochemical severity of DKA and T2DM patients were diagnosed later after the onset of symptoms. Patients with established T1DM did not show a higher risk of developing DKA during the pandemic,³ because diabetic patients responded appropriately to hyperglycemia before DKA.

2) Effect of Isolation on New Diabetes Incidence

The risk of T1DM was reported differently depending on the pandemic period in which the investigation was conducted. To know the impact of the pandemic, we need an extensive diabetes study corrected for isolation and SARS-CoV-2 infection.

3) Effect of COVID-19 Infection on Diabetes

The SARS-CoV-2 virus is known to decrease pancreatic insulin secretion, cause beta-cell damage, and increase insulin resistance. In 2022, the U.S. CDC reported new cases of diabetes 30 days after infection with COVID-19 in people under 18 years of age.⁴ They reported that people infected with COVID-19 were more likely to develop new diabetes than those who did not have COVID-19 or had an acute respiratory infection. They recommend that it is important for caregivers and health care providers to be aware of the need to monitor persons following a SARS-CoV-2 infection for new diabetes onset.

4) Effect of Increased Obesity

During the pandemic, children and adolescents showed an increase in body mass index,⁵ which carries the risk of metabolic syndrome, including T2DM. For now, proper weight management through various lifestyle modifications at home and school is essential for improving the health of the Korean people in the future.

The COVID-19 pandemic is not over yet. If isolation is necessary for the future, it is essential to support children and adolescents in maintaining a healthy lifestyle, improving the medical system, providing adequate medical access to patients, and appropriately monitoring diseases after isolation and infection. We hope to learn more from this pandemic in the future.

REFERENCES

1. Kim JH, Lee CG, Lee YA, Yang SW, Shin CH. Increasing incidence of type 1 diabetes among Korean children and adolescents: analysis of data from a nationwide registry in Korea. *Pediatr Diabetes* 2016;17(7):519-24.
[PUBMED](#) | [CROSSREF](#)
2. Lee Y, Kim M, Oh K, Kang E, Rhie YJ, Lee J, et al. Comparison of initial presentation of pediatric diabetes before and during the coronavirus disease 2019 pandemic era. *J Korean Med Sci* 2022;37(22):e176.
[CROSSREF](#)
3. Alfayez OM, Aldmasi KS, Alruwais NH, Bin Awad NM, Al Yami MS, Almohammed OA, et al. Incidence of diabetic ketoacidosis among pediatrics with type 1 diabetes prior to and during covid-19 pandemic: a meta-analysis of observational studies. *Front Endocrinol (Lausanne)* 2022;13:856958.
[PUBMED](#) | [CROSSREF](#)
4. Barrett CE, Koyama AK, Alvarez P, Chow W, Lundeen EA, Perrine CG, et al. Risk for newly diagnosed diabetes >30 days after SARS-CoV-2 infection among persons aged < 18 years — United States, March 1, 2020–June 28, 2021. *MMWR Morb Mortal Wkly Rep* 2022;71(2):59-65.
[PUBMED](#) | [CROSSREF](#)
5. Kang HM, Jeong DC, Suh BK, Ahn MB. The impact of the coronavirus disease-2019 pandemic on childhood obesity and vitamin d status. *J Korean Med Sci* 2021;36(3):e21.
[PUBMED](#) | [CROSSREF](#)