



Commentary on "New-onset type 1 diabetes mellitus in the Paediatric Emergency Department: impact of the COVID-19 pandemic"

Minsun Kim

Department of Pediatrics, Jeonbuk National University Medical School, Korea Research Institute of Clinical Medicine of Jeonbuk National University-Biomedical Research Institute of Jeonbuk National University Hospital, Jeonju, Korea

See the article "New-onset type 1 diabetes mellitus in the Paediatric Emergency Department: impact of the COVID-19 pandemic" via <https://doi.org/10.6065/apem.2346088.044>.

Address for correspondence:

Minsun Kim
Department of Pediatrics, Jeonbuk National University Hospital, 20 Baekje-daero, Deokjin-gu, Jeonju 54907, Korea
Email: children@jbnu.ac.kr
<https://orcid.org/0000-0002-3617-7823>

The coronavirus disease 2019 (COVID-19) pandemic has irrevocably changed the way the world functions. In particular, the pandemic resulted in unspeakable horrors in the healthcare field. The incidence and severity of many diseases varied as a result, and many researchers have attempted to identify what changes occurred in society, health, and people's lives during this period. Research on adults and youth with type 1 diabetes mellitus (T1DM) has focused on its occurrence, causes, and clinical aspects. Until now, there has been controversy about whether the increased incidence of T1DM and/or the severity of clinical symptoms are directly related to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection.¹⁻⁴⁾ However, these articles proved that during the COVID-19 pandemic, the incidence of newly diagnosed T1DM in children increased, and clinically more severe symptoms appeared.^{1,5,6)} In addition, significant increases were observed in the global rates of diabetic ketoacidosis (DKA), severe DKA, high blood sugar, and glycosylated hemoglobin levels among children.^{6,7)} A possible cause is the poor accessibility of hospitals, as care for non-COVID-19-related diseases was reduced to control COVID-19 infection in healthcare institutions. Furthermore, many avoided hospitals to minimize exposure to SARS-CoV-2.^{6,8)} In addition, infection in children is potentially associated with pancreatic islet autoimmunity, promoting progression to apparent T1DM or precipitating stressors.⁹⁾ Therefore, some researchers have proposed that timely access to healthcare, an increase in public and healthcare providers' awareness of T1DM symptoms through public health education and screening campaigns, and proper diabetes management during pandemics or similar situations remain essential and key to avoiding similar increases in incidences of DKA or severe DKA in the future.¹⁰⁾

Recently, García Romero et al.⁶⁾ conducted a study on new-onset T1DM in the pediatric emergency department and assessed the impact of the COVID-19 pandemic. They determined the incidence and severity of newly diagnosed T1DM pediatric cases before and during the COVID-19 pandemic in Spain. They found that fewer new-onset T1DM patients presented with simple hyperglycemia, and the number of T1DM patients increased following the onset of the COVID-19 pandemic. Once the patients were stabilized and treatment established, the disease course was similar in the two periods. This cohort was characterized by increased consultations of the patients'/parents' volition rather than referrals from pediatricians. Although this article has some limitations, it will be a valuable resource for researchers who aim to research lockdown's influences on newly diagnosed T1DM patients, specifically children and adolescents, through larger samples and longer-term data. Additionally, these findings might suggest critical points for solving and preventing social health issues during quarantine states.

Conflicts of interest: No potential conflicts of interest relevant to this article were reported.

References

1. Salmi H, Heinonen S, Hästbacka J, Lääperi M, Rautiainen P, Miettinen PJ, et al. New-onset type 1 diabetes in Finnish children during the COVID-19 pandemic. *Arch Dis Child*

- 2022;107:180-5.
2. Finnish National Institute of Health. COVID-19 seroepidemiology weekly report [Internet]. Helsinki (Finland): Finnish National Institute of Health; [2020 Oct 20] Available from: https://www.thl.fi/roko/cov-vaestoserologia/sero_report_weekly.html.
3. Knip M, Simell O. Environmental triggers of type 1 diabetes. *Cold Spring Harb Perspect Med* 2012;2:a007690.
4. Prosperi S, Chiarelli F. COVID-19 and diabetes in children. *Ann Pediatr Endocrinol Metab* 2022;27:157-68.
5. Unsworth R, Wallace S, Oliver NS, Yeung S, Kshirsagar A, Naidu H, et al. New-onset type 1 diabetes in children during COVID-19: Multicentre regional findings in the U.K. *Diabetes Care* 2020;43:e170-1.
6. García Romero R, Baleta Riera L, Sanz Marcos N, Arias Constanti V, Trenchs Sainz de la Maza V, Luaces C. New-onset type 1 diabetes mellitus in the Paediatric Emergency Department: impact of the COVID-19 pandemic. *Ann Pediatr Endocrinol Metab* 2023;28:215-8
7. D'Souza D, Empringham J, Pechlivanoglou P, Uleryk EM, Cohen E, Shulman R. Incidence of diabetes in children and adolescents during the COVID-19 pandemic: a systematic review and meta-analysis. *JAMA Netw Open* 2023;6:e2321281.
8. Rahmati M, Keshvari M, Mirnasuri S, Yon DK, Lee SW, Il Shin J, et al. The global impact of COVID-19 pandemic on the incidence of pediatric new-onset type 1 diabetes and ketoacidosis: a systematic review and meta-analysis. *J Med Virol* 2022;94:5112-27.
9. Rewers M, Ludvigsson J. Environmental risk factors for type 1 diabetes. *Lancet* 2016;387:2340-8.
10. 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.