

Has the COVID-19 Pandemic increased the frequency and severity of DKA cases amongst paediatric patients with T1DM: A systematic review and meta-analysis

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Objectives: The COVID-19 pandemic's impact on healthcare is undisputed. Reports suggest the pandemic may have increased the risk and severity of diabetic ketoacidosis (DKA) among paediatric patients with existing and new-onset type 1 diabetes mellitus (T1DM) (McGlacken, 2021). This systematic review and meta-analysis aims to estimate the incidence and severity of DKA during the COVID-19 pandemic compared to the pre-pandemic period among paediatric patients with T1DM.

Methods: EMBASE, Medline and Web of Science were searched for studies investigating the risk of DKA and severe DKA during the COVID-19 pandemic and pre-pandemic period, among paediatric patients (<21 years) with T1DM. A random-effects meta-analysis was conducted to compare the relative risk of DKA and severe DKA.

Results: Using PRISMA flowchart methodology 24 papers were identified from a pooled sample of 344, with a total of 22,045 paediatric patients with T1DM. The majority of studies investigated DKA risk in new-onset diabetic patients. Random-effects meta-analysis demonstrated a statistically significant increase in the risk of DKA among T1DM patients occurred during the pandemic compared to the pre-pandemic period. Of these 24 papers, 18 investigated risk of severe DKA, with random-effects meta-analysis demonstrating a statistically significant increase in the risk of severe DKA among T1DM patients occurring during the pandemic compared to the pre-pandemic period.

Conclusion: This review demonstrates that globally during the COVID-19 pandemic the risk of DKA and severe DKA amongst children with T1DM has significantly increased. This increase is independent of temporal trends in DKA incidence. Whether that is linked to government restrictions, parental fear, or a diabetogenic effect of the virus, cannot yet be determined. Further research is needed to explore these hypotheses with measures bringing this issue to the public and clinicians' attention; especially given the morbidity and mortality of DKA and the associated healthcare demands.

References

McGlacken-Byrne SM, Drew SEV, Turner K, Peters C, Amin R. The SARS-CoV-2 pandemic is associated with increased severity of presentation of childhood onset type 1 diabetes mellitus: A multi-centre study of the first COVID-19 wave. *Diabet Med*. 2021; 38:e14640. <https://doi.org/10.1111/dme.14640>

