

Letter to the Editor

Letter to the Editor From Gregory and Moore: “Age and Hospitalization Risk in People With Type 1 Diabetes and COVID-19: Data From the T1D Exchange Surveillance Study”

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We welcome the new information from Demeterco-Berggren and colleagues from their ongoing work to characterize excess COVID-19 risk among patients living with type 1 diabetes (T1DM). In their article (1), the authors conclude data from the Type 1 Diabetes Exchange registry show hospitalization is infrequent in pediatric patients. The presented data appear to contradict this conclusion, however.

The investigators report that 19% of patients age <18 with T1DM and COVID-19 required hospitalization. This hospitalization rate for T1DM patients contrasts markedly with patients who do not have diabetes, as recently reported by the American Academy of Pediatrics and the Children’s Hospital Association (2). In the 24 states reporting data, the percentage of all pediatric COVID-19 cases resulting in hospitalization ranged between 0.1% and 1.9% (as of September 30, 2021). Thus, the data from the Type 1 Diabetes Exchange registry infer a best-case unadjusted risk ratio of approximately 10 for hospitalization between pediatric COVID-19 patients with vs without T1DM. This risk is even higher than a recent cross-sectional study by Kompaniyets et al, which was specifically designed to quantify excess risk for severe COVID-19 among pediatric patients with underlying medical conditions (3). In

the latter study, investigators examined electronic health records of 43 465 patients in over 800 U.S. hospitals and found T1DM was the single strongest risk factor for hospitalization and severe COVID-19, with adjusted risk ratios of 4.60 and 2.38, respectively. Collectively, these data compellingly show a substantial relative risk for COVID-19 among pediatric patients with T1DM. As case numbers rise in children, these data also foreshadow substantial absolute risk in the pediatric T1DM community.

The analysis presented in Demeterco-Berggren et al’s paper focused on comparing the odds of hospitalization between patients older than 40, which comprised only 15% of the registry, and those younger than 18 (1). After calculating an adjusted odds ratio of 4.2 for hospitalization between these 2 age groups, the investigators concluded this information indicates a need for age-tailored clinical management and immunization of individuals living with T1DM. We agree that physicians should likely have even greater urgency to employ these interventions in older patients. We propose, however, that these data persuasively show there remains considerable urgency to mitigate excess risk in younger patients.

We agree with our Type 1 Diabetes Exchange colleagues that much of COVID-19 morbidity in youth appears to

stem from diabetic ketoacidosis (DKA), not from severe respiratory illness (4-6). Although we are unaware of any study quantifying the ability of vaccination or monoclonal antibodies per se to reduce risk for COVID-19-related DKA, mitigating the severity of COVID-19 using these therapies could also reduce the likelihood of DKA, as viral inflammation and illness drive a sympathoadrenal response, insulin resistance, and lipolysis. Because the balance of information—along with this study—indicates substantial morbidity including DKA in young people with COVID-19 and T1DM, we suggest interventions such as immunization, monoclonal antibodies, and sick-day rule education are comparably important whether the patient is young or old.

Additional Information

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Disclosures: J.M.G. has consulted for vTv Therapeutics and has participated as an advisory board member to Eli Lilly, Dompe, Mannkind, and Medtronic. D.J.M. has nothing to declare.

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