The GLOW Study does not light up the true Pediatric Endocrine Society recommendations for management of hypoglycemia in newborns

To the Editor:

Using intermittent plasma glucose testing combined with continuous interstitial glucose monitoring, Harris et al[1] demonstrate with unprecedented clarity, patterns of glucose concentrations in the first days of life in healthy term newborns. After a transitory decline following separation from the placenta, glucose concentrations increase in the first 18 hours, remaining stable at 59 ± 11 mg/dL for 48 hours, then rising to a new plateau of 83 ± 13 mg/dL by day 4. The authors report that by 72 hours a significant proportion of normal babies had at least one glucose concentration below the Pediatric Endocrine Society (PES) thresholds for managing at-risk babies.[2] We emphasize that the PES recommendations were not intended for normal, healthy asymptomatic infants; such infants do not require routine screening for hypoglycemia. This distinction is important because the data in Harris et al might be erroneously misinterpreted as demonstrating that the glucose thresholds in the PES recommendations are not applicable to at risk infants.

Comparing glucose thresholds developed for at-risk babies with glucose concentrations in normal healthy babies is inappropriate. At-risk babies in the PES recommendations include those with family history of hypoglycemia disorders, high or low birth weight, maternal diabetes, fetal distress in utero, pre-eclampsia, and possibly signs of hypoglycemia in newborns. Additionally, whereas the normal infants described by Harris et al were able to raise beta hydroxybutyrate to levels above 2 mmol/L[3] at-risk infants are typically unable to raise ketone concentrations to this level.[2,3] A low glucose concentration in such at-risk infants should prompt vigilance, possible investigations and treatment as outlined.[2]

We respectfully recommend to those caring for at risk infants that the report by Harris et al does not justify lowering the level of glucose that triggers concern leading to investigation of the etiology of hypoglycemia, nor does it justify lowering glucose treatment targets for at risk babies.

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2. Thornton PS, Stanley CA, De Leon DD, Harris D, Haymond MW, Hussain K, et al. Recommendations from the Pediatric Endocrine Society for evaluation and management of persistent hypoglycemia in neonates, infants, and children. J Pediatr 2015;167:238-45.
3. Harris DL, Weston PJ, Harding JE. What are the blood concentrations of alternative cerebral fuels in healthy babies? The GLOW Babies Study, E-PAS2019:3855.488.

Reply

To the Editor:

We appreciate the interest of Thornton et al in the findings of the GLOW study. We entirely agree that our study reports findings from healthy babies, and that these cannot be extrapolated to drawing conclusions about management of babies at risk of hypoglycemia. Although we have placed our findings about glucose concentrations in the context of several international guidelines for treatment of at-risk babies, including those from the Pediatric Endocrine Society,[1] and have noted that low glucose concentrations are common in healthy babies, we do not suggest this might indicate a change in the care of at-risk babies. This is why we have stated that, "We are unable to determine if … low glucose concentrations in healthy babies … may be associated with impairments in later childhood." Until additional data are available, clinicians should continue to rely on existing guidelines for management of babies at risk of neonatal hypoglycemia.

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Severe coronavirus disease 2019 in children and young adults

To the Editor:

DeBiasi et al[1] report that 3% of the pediatric patients who tested positive with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at their center had a history of diabetes. Diabetes is currently listed by the Centers for Disease Control and Prevention as an underlying condition that places individuals at higher risk for severe illness. Two of the 5 patients with diabetes required hospitalization. Of the 2 patients, 1 patient with type 1 diabetes and brain injury required intensive care unit-level care. It would be informative to know the type of diabetes, duration of diagnosis, and glycemic control for those patients. Would the authors be able to provide these data, as well as whether the patients presented with symptoms related to diabetes vs symptoms related to SARS-CoV-2? Were any of the patients with SARS-CoV-2 newly diagnosed with diabetes?

At the Mount Sinai Kravis Children's Hospital, during the height of the pandemic in New York City, 10 pediatric patients (average age, 14.5 years; 8 female; 5 with new-onset diabetes) were treated in the emergency department or hospitalized with diabetes related complications. Eight were found to be in diabetic ketoacidosis when presenting to the emergency department. Three patients tested SARS-CoV-2 positive, and 3 patients had symptoms suggestive of SARS-CoV-2 and were in contact with sick family members. Compared with the prior 3 years at our children's hospital, no significant difference was noted in the number of patients with type 1 diabetes admitted or treated in the emergency department. There were also no significant differences in the number of newly diagnosed patients or severity of diabetic ketoacidosis.

To date, as part of the ongoing Type 1 diabetes COVID-19 Surveillance Study (www.t1dexchange.org/COVID19) coordinated by the T1D Exchange, there have been more than 20 reported cases of SARS-CoV-2 nationally in pediatric patients with type 1 diabetes.

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Reference

1. DeBiasi RL, Song X, Delaney M, Bell M, Smith K, Pershad J, et al. Severe coronavirus disease-2019 in children and young adults in the Washington, DC, Metropolitan Region. J Pediatr 2020;223:199-203.e1.

Reply

To the Editor:

In our interim report describing the first 177 severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)-positive symptomatic pediatric patients presenting for care at our institution, 5 patients (3%) had an underlying diagnoses of diabetes. All 5 of these patients were female, ranging from 13 to 20 years of age. Four of the 5 patients had type 2 diabetes and only 1 patient had type 1 diabetes. All of the patients had been diagnosed with diabetes from 1.5 to 9.0 years before their SARS-CoV-2 infection; none of these patients had new-onset diabetes and none presented in diabetic ketoacidosis.

Two of the 5 patients did not require hospitalization and both presented with symptoms referable to respiratory infection, rather than any exacerbation related to their underlying type 2 diabetes. One patient presented primarily with minor upper respiratory symptoms without hypoxia. This patient did not present with hyperglycemia or hypoglycemia, but had a history of poor glycemic control despite metformin therapy with consistently and markedly elevated A1C documented as recently as 3 months before infection with SARS-CoV-2. The second patient, who also had asthma as