



RESPONSE TO COMMENT ON PIETROPAOLO ET AL.

Incidence of an Insulin-Requiring Hyperglycemic Syndrome in SARS-CoV-2-Infected Young Individuals: Is It Type 1 Diabetes? Diabetes 2022;71:XXXX-XXXX

Massimo Pietropaolo,¹ Peter Hotez,² and Nick Giannoukakis³*Diabetes* 2022;71:e1 | <https://doi.org/10.2337/db22-0347>

In their letter regarding our recently published article in *Diabetes* (1), Hsu and Lai (2) raised the possibility that, given its implementation as standard of care in many treatment centers, corticosteroid use during the prevaccine period of coronavirus disease 2019 (COVID-19) could underlie a virus-positive subpopulation-specific increase in diabetes incidence reported as insulin-requiring diabetes, possibly portending type 1 diabetes. Furthermore, they recommended that we reanalyze our data to adjust not only for corticosteroid use but also for thiazide diuretic, β -blocker, antipsychotic, and statin use implemented immediately following confirmation of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in a population where type 1 diabetes is most prevalent (<30 years of age).

In our reanalysis, the Epic Cosmos database was polled for data covering the same period reported in our article (1), and we looked at the incidence of type 1 diabetes in SARS-CoV-2-positive patients <30 years of age who received the drugs indicated by Hsu and Lai within 1 day of PCR positivity for virus up to 30 days from PCR positivity. We did not find a substantial difference between type 1 diabetes incidence among the treated subjects (within 6 months of PCR positivity) and the incidence of type 1 diabetes in the non-SARS-CoV-2 population (or compared

with the World Health Organization and International Diabetes Foundation general epidemiology data).

According to our analysis, these agents were used acutely in a very small number of patients <30 years of age who were hospitalized (<26,000/138 million), and <40 of these patients were subsequently diagnosed with type 1 diabetes. Thus, even if we were to adjust our outcomes on the variables recommended by Hsu and Lai (2), our conclusion, as presented in our article, remains the same, at least for those individuals <30 years of age and as concerns the specific incidence of insulin-requiring type 1 diabetes.

Duality of Interest. P.H. is a developer of a COVID-19 vaccine construct, which was licensed by Baylor College of Medicine to Biological E, Ltd., a commercial vaccine manufacturer, for scale-up, production, testing, and licensure. No other potential conflicts of interest relevant to this article were reported.

References

- Pietropaolo M, Hotez P, Giannoukakis N. Incidence of an insulin-requiring hyperglycemic syndrome in SARS CoV-2-infected young individuals: is it type 1 diabetes? *Diabetes* 2022;71:XXXX-XXXX
- Hsu C-K, Lai C-C. Comment on Pietropaolo et al. Incidence of an insulin-requiring hyperglycemic syndrome in SARS-CoV-2-infected young individuals: is it type 1 diabetes? *Diabetes* 2022;71:XXXX-XXXX (Letter). *Diabetes* 2022;71:XXXX

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