



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



Contents available at [ScienceDirect](#)

Diabetes Research and Clinical Practice

journal homepage: www.elsevier.com/locate/diabres



**International
Diabetes
Federation**



Editorial

Diabetes, SARS-CoV-2/COVID-19 vaccines and glycemic control: Call for data



The prognosis of people with diabetes affected by COVID-19 is particularly bad [1].

There are several possible pathophysiological explanations, including the direct damaging effect of hyperglycemia [2], but, certainly, and hampered immune response, often present in this population, also plays a key role [3,4].

This reality raises the claim for prioritizing the vaccination against SARS-CoV-2/COVID-19 in people with diabetes [5].

The question, however, might be more complex. The goal of the vaccination is to obtain a sustained and effective immune response. In the case of diabetes the data is controversial, suggesting that not always this result is obtained [6,7]. Evidence suggests that the glycemic control has a strong impact on the efficiency of the immune response [8,9]. Therefore, it seems reasonable wondering whether it is not appropriate to improve glycemic control before administering the vaccine to optimize the response to it. Data is needed not to waste this important opportunity to get out of the pandemic for people with diabetes.

Funding

None.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

REFERENCES

- [1] Caballero AE, Ceriello A, Misra A, Aschner P, McDonnell ME, Hassanein M, et al. COVID-19 in people living with diabetes: an international consensus. *J Diabetes Complications* 2020;34. <https://doi.org/10.1016/j.jdiacomp.2020.107671> 107671.

- [2] Ceriello A. Hyperglycemia and COVID-19: What was known and what is really new? *Diabetes Res Clin Pract* 2020;167. <https://doi.org/10.1016/j.diabres.2020.108383>.
- [3] Pérez-Galarza J, Prócel C, Cañadas C, Aguirre D, Pibaque R, Bedón R, et al. Immune response to SARS-CoV-2 infection in obesity and T2D: literature review. *Vaccines (Basel)* 2021;9:102. <https://doi.org/10.3390/vaccines9020102>.
- [4] Turk Wensveen T, Gašparini D, Rahelić D, Wensveen FM. Type 2 diabetes and viral infection; cause and effect of disease. *Diabetes Res Clin Pract* 2021;172. <https://doi.org/10.1016/j.diabres.2020.108637> 108637.
- [5] Powers AC, Aronoff DM, Eckel RH. COVID-19 vaccine prioritisation for type 1 and type 2 diabetes. *Lancet Diabetes Endocrinol* 2021;9:140–1. [https://doi.org/10.1016/S2213-8587\(21\)00017-6](https://doi.org/10.1016/S2213-8587(21)00017-6).
- [6] Goeijenbier M, van Sloten TT, Slobbe L, Mathieu C, van Genderen P, Beyer WEP, et al. Benefits of flu vaccination for persons with diabetes mellitus: a review. *Vaccine* 2017;35:5095–101. <https://doi.org/10.1016/j.vaccine.2017.07.095>.
- [7] Huijts SM, van Werkhoven CH, Bolkenbaas M, Grobbee DE, Bonten MJM. Post-hoc analysis of a randomized controlled trial: diabetes mellitus modifies the efficacy of the 13-valent pneumococcal conjugate vaccine in elderly. *Vaccine* 2017;35:4444–9. <https://doi.org/10.1016/j.vaccine.2017.01.071>.
- [8] Hostetter MK. Handicaps to host defense. Effects of hyperglycemia on C3 and *Candida albicans*. *Diabetes* 1990;39:271–5. <https://doi.org/10.2337/diab.39.3.271>.
- [9] Sakowicz-Burkiewicz M, Kocbuch K, Grden M, Maciejewska I, Szutowicz A, Pawelczyk T. High glucose concentration impairs ATP outflow and immunoglobulin production by human peripheral B lymphocytes: involvement of P2X7 receptor. *Immunobiology* 2013;218:591–601. <https://doi.org/10.1016/j.imbio.2012.07.010>.

Antonio Ceriello
IRCCS MultiMedica, Via Gaudenzio Fantoli, 16/15, 20138
Milan, Italy
E-mail address: antonio.ceriello@hotmail.it