

Relative Limited Impact of COVID-19 on Diabetes: A Personal View

Bastiaan E. de Galan, MD, PhD^{1,2} 

Keywords

COVID-19, diabetes, glucose control, self-management, education

I have learned that thus far coronavirus disease 2019 (COVID-19) has had little effect on the diabetes community as a whole. That may sound strange, as—if anything—we know from studies performed in China, Italy, and elsewhere, that diabetes is one of the most prevalent comorbidities among patients with COVID-19, in particular among those admitted to the intensive care units.^{1,2} Indeed, diabetes is a recognized risk factor for severe pneumonia due to viral infections in general and due to COVID-19 in particular, contributing to fatal outcomes, which has been linked to hyperglycemia-induced overexpression of angiotensin-converting enzyme 2 on cells, thus facilitating viral cell entry.³ Many people with diabetes and their families are understandably concerned about their chances of becoming infected and the higher risks of the potentially life-threatening course the disease may take or the complications it may cause in them. However, my impression is that this knowledge alone or the consequent fear for severe disease have not caused major alterations in how the majority of people with type 1 or insulin-treated type 2 diabetes manage their diabetes. They have continued to take care of themselves by using insulin, monitoring glucose, and sticking to dietary plans as they are used to do and have been doing in the past.

This is remarkable and appears to contrast with other chronic conditions, such as cardiovascular disease, psychiatric conditions, and malignancies. Since the COVID-19 outbreak and particularly after many countries instituted lock-down procedures, outpatient consultations with patients not suffering from COVID-19 were done by remote forms of contact, to prevent vulnerable people from becoming infected and to reduce the pressure on the health care system. The, perhaps unintended, messages of this policy were that the hospital is a dangerous place and that health care professionals have no time for you when you do not have COVID-19, which may have scared off people from coming to the hospital or seeking medical advice. Indeed, the number of presentations at emergency departments of people with acute coronary syndromes, psychiatric emergencies, or non-COVID-19 related infections has plummeted, raising concerns that these events may add to the death toll of the outbreak that is in essence avoidable. Although direct deleterious effects of COVID-19 on the

pancreatic beta-cell have been suggested as a cause of diabetic ketoacidosis or severe insulin resistance,⁴ in the absence of COVID-19, we also seem to be seeing fewer people with such metabolic complications of hyperglycemia.

I hypothesize that the overall glucose control has suffered little from the COVID-19 outbreak, which, I believe, is due to the following factors. First, people with (insulin-treated) diabetes are well aware of their increased risk for severe COVID-19 disease. As a result, they may be motivated more than ever to endeavor optimal glycemic control to reduce this risk as much as possible. As cynical as this may sound, the lock-down may give people more time and less distraction (from work or travel for instance) to focus on optimizing glucose control. Second, I assume that people with diabetes are more inclined to comply with social distancing recommendations to minimize the risk of contacting the virus, in particular by staying at home. Apart from potential deleterious effects of altered household dynamics on glucose metabolism, staying at home in itself may be associated with more stability in daily glucose profiles, due to less travel and engagement in physical activity or sport. Finally, and most importantly, people with diabetes are already highly experienced in and have the resources to managing their diabetes, also under difficult circumstances. For dozens of years, people with diabetes on insulin have been taught how to deal with highs and lows, and this education now pays off for the good. Obviously, continuous glucose monitoring has become invaluable to further facilitate diabetes management, but unfortunately these devices have still not become standard care.

In the future, I predict that we will respond quicker and more effectively to emerging pandemics. At the same



¹Department of Internal Medicine, Maastricht University Medical Centre+, The Netherlands

²Department of Internal Medicine, Radboud University Medical Centre, Nijmegen, The Netherlands

Corresponding Author:

Bastiaan E. de Galan, MD, PhD, Department of Internal Medicine, Maastricht University Medical Centre+, Room 5.A2.037, P. Debyelaan 25, 6229 HX, Maastricht, PO Box 5800, 6202 AZ, Maastricht, The Netherlands.

Email: Bastiaan.de.galan@mumc.nl

time, the current COVID-19 pandemic teaches us that we need to simultaneously engage the diabetes community so as to avoid messages that diabetes (or any other chronic medical condition) has become any less important and to ensure that people will continue to receive the best of care. Although people with diabetes in general were reasonably well-prepared, it is vital that all of those on intensive insulin treatment will be given access to some form of (semi-) continuous glucose monitoring to further optimize such preparedness.

Declaration of Conflicting Interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support for the research, authorship, and/or publication of this article.

ORCID iD

Bastiaan E. de Galan  <https://orcid.org/0000-0002-1255-7741>

References

1. Guan W, Ni Z, Hu Y, et al. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med.* 2020;382(12):1708-1720.
2. CDC COVID-19 Response Team. Preliminary estimates of the prevalence of selected underlying health conditions among patients with coronavirus disease 2019—United States, February 12–March 28, 2020. *MMWR Morb Mortal Wkly Rep.* 2020;69(13):382-386.
3. Bindom SM, Lazartigues E. The sweeter side of ACE2: physiological evidence for a role in diabetes. *Mol Cell Endocrinol.* 2009;302(2):193-202.
4. Bornstein SR, Rubino F, Khunti K, et al. Practical recommendations for the management of diabetes in patients with COVID-19. *Lancet Diabetes Endocrinol.* 2020;8(6):546-550.