

Diabetes during the COVID-19 pandemic: A global call to reconnect with patients and emphasize lifestyle changes and optimize glycemic and blood pressure control

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Individuals with diabetes, obesity, and hypertension are at heightened risk of adverse outcome of coronavirus-associated disease 2019 (COVID-19). Data from many studies show that patients with diabetes have increased risk of admission in intensive care units and of mortality.¹ Hypertension is highly prevalent in patients with COVID-19² and was the most common cardiovascular comorbidity in a meta-analysis, contributing to increase in mortality.³ Further, in a retrospective analysis of French patients with COVID-19, obesity (BMI >30 kg/m²) and severe obesity (BMI >35 kg/m²) were present in 47.6% and 28.2% of cases, respectively. In this study, patients with higher BMI values were at greater risk for invasive mechanical ventilation than those who were nonobese.⁴ These data show high mortality risk in COVID-19 patients with diabetes, hypertension, and obesity. COVID-19 prevalence is likely to vary with different ethnic groups, country, socio-economic stratum, and healthcare support.⁵

Many countries or parts of countries are under “lockdown,” restricting movements of individuals. Such approaches are likely to have undesirable effects on patients with diabetes: on exercise, on diet, on obtaining adequate supplies of medicines, insulin, and glucose-testing reagent strips, and on interaction with healthcare providers (HCPs). In addition, psychological impacts of the COVID-19 pandemic including anxiety and depression affect more than half of the population.⁶ All these factors may destabilize glycemic and blood pressure

control and may worsen obesity. A recent analysis from mathematical modeling in India predicts that lockdown will cause substantial increase in glycosylated hemoglobin (HbA1c) and future diabetes-related complications.⁷ Patients with diabetes having poorly controlled glycemia may in turn be at greater risk for COVID-19 complications and mortality.

Patients with diabetes often have insufficient health education to modify drug/insulin dosages when it is difficult to communicate with or visit their primary HCPs, particularly in disadvantaged and marginalized populations, and in elderly without support.^{8,9} Increases in blood glucose or blood pressure levels with little expert help and inadequate knowledge to control them is likely to further increase psychological stress in patients.

Fortunately, we have reached a threshold of use of telemedicine services, including video chats, telephone calls, and short messaging services to impart advice and guide treatment.¹⁰ Telemedicine studies before the COVID-19 pandemic show that these communication strategies can effectively lower HbA1c.¹¹ In a 4-year follow-up of a study of nearly 1000 persons with diabetes randomized to a telemedicine self-management behavioral intervention, all-cause and diabetes-related hospitalizations were reduced by 11% and 17%, respectively, with consequent cost-savings.¹² The call for “an immediate digital revolution to face this crisis” of COVID-19¹³ seems eminently appropriate.

Importantly, there is good evidence to emphasize control of glycemia and hypertension as telemedicine goals, and reasonable strategies have been outlined.¹⁴ Approaches to exercise within confined spaces and to healthy diets can be encouraged. Patients should try to maintain their previous schedule of meal timings and should adhere to their medication regimens. Education about changes in doses of drugs and insulin can be imparted to empower patients in self-management of their diabetes and hypertension, emphasizing use of self-monitoring of glucose and blood pressure levels and ongoing communication with HCPs. An emphasis on the potential of improved outcome of COVID-19 when diabetes and hypertension are under good control is reasonable. In developing countries, keeping financial implications in mind, low-cost therapies and simple treatment regimens should be prescribed to underprivileged and underserved populations. Efforts should be made to reconnect with patients and impart appropriate prevention and management advice.

In our clinical practices, we already have begun such efforts and have seen benefit.¹⁵ We encourage all our readers to follow such approaches.

REFERENCES

- Roncon L, Zuin M, Rigatelli G, Zuliani G. Diabetic patients with COVID-19 infection are at higher risk of ICU admission and poor short-term outcome. *J Clin Virol*. 2020;127:104354.
- Singh AK, Gupta R, Misra A. Comorbidities in COVID-19: outcomes in hypertensive cohort and controversies with renin angiotensin system blockers. *Diabetes Metab Syndr*. 2020;14:283-287.
- Zuin M, Rigatelli G, Zuliani G, Rigatelli A, Mazza A, Roncon L. Arterial hypertension and risk of death in patients with COVID-19 infection: systematic review and meta-analysis. *J Infect*. 2020.
- Simonnet A, Chetboun M, Poissy J, et al. High prevalence of obesity in severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) requiring invasive mechanical ventilation. *Obesity (Silver Spring)*. 2020.
- Pareek M, Bangash MN, Pareek N, et al. Ethnicity and COVID-19: an urgent public health research priority. *Lancet*. 2020;395:1421-1422.
- Wang C, Pan R, Wan X, et al. Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *Int J Environ Res Public Health*. 2020;17.
- Ghosal S, Sinha B, Majumder M, Misra A. Estimation of effects of nationwide lockdown for containing coronavirus infection on worsening of glycosylated haemoglobin and increase in diabetes-related complications: a simulation model using multivariate regression analysis. *Diabetes Metab Syndr*. 2020;14:319-323.
- Myers AK, Gulati N, Pascarelli B, et al. Perceptions of insulin pen use and technique in black and Hispanic/Latino patients with type 2 diabetes: a qualitative study. *J Racial Ethn Health Disparities*. 2020.
- Eliaschewitz FG, de Paula MA, Pedrosa HC, et al. Barriers to insulin initiation in elderly patients with type 2 diabetes mellitus in Brazil. *Diabetes Metab Syndr*. 2018;12:39-44.
- Ghosh A, Gupta R, Misra A. Telemedicine for diabetes care in India during COVID19 pandemic and national lockdown period: guidelines for physicians. *Diabetes Metab Syndr*. 2020;14:273-276.
- Zhai YK, Zhu WJ, Cai YL, Sun DX, Zhao J. Clinical- and cost-effectiveness of telemedicine in type 2 diabetes mellitus: a systematic review and meta-analysis. *Medicine (Baltimore)*. 2014;93:e312.
- Tabaei BP, Howland RE, Gonzalez JS, et al. Impact of a telephonic intervention to improve diabetes control on health care utilization and cost for adults in south Bronx, New York. *Diabetes Care*. 2020;43:743-750.
- Keesara S, Jonas A, Schulman K. Covid-19 and health care's digital revolution. *N Engl J Med*. 2020.
- Crossen S, Raymond J, Neinstein A. Top 10 tips for successfully implementing a diabetes telehealth program. *Diabetes Technol Ther*. 2020.
- Bloomgarden Z. Telemedicine & diabetes - a new frontline of treatment. <http://thejewishvoice.com/2020/04/telemedicine-diabetes-a-new-frontline-of-treatment/>. Accessed 11 April, 2020.