Control of blood sugar levels improved among people with type 1 diabetes who stopped working during lockdown

23 September 2020

New research presented at this year's annual meeting of the European Association for the Study of Diabetes (EASD) shows that among people with type 1 diabetes who stopped working in the COVID-19 lockdown, blood sugar levels improved during the first week of lockdown despite having reduced opportunities for exercise and heightened psychological stress. The study was undertaken by Dr. Federico Boscari and colleagues at the Department of Medicine, University of Padova, Italy.

During lockdown, outpatient clinics were closed, while hospitals worked to deal with thousands of patients infected with SARS-CoV-2. As a result, the combination of the virus and the measures imposed to control it not only caused morbidity and mortality among infected patients, but also imposed a heavy burden on societal and population health. The impact of this is expected to be greatest among individuals with chronic diseases such as diabetes, due to outpatient clinics and services being scaled back or closed altogether.

Flash glucose monitoring (FGM) devices, widely used by individuals with T1D, have enabled healthcare professionals (HCPs) to maintain interaction with their patients throughout the lockdown, by providing real-time blood glucose level data to the clinic.

The team used data from 33 individuals with T1D who were selected using the following criteria: they attended the diabetes outpatient clinic of the University Hospital of Padova; lived in the area; had used the FreeStyle Libre FGM system (Abbott Diabetes Care, Rome, Italy) to monitor their glucose levels for at least 3 months; were sharing sensor data with the clinic, and had returned >90% of readings.

The time periods upon which the study was based were defined as follows: the 3 months before the start of measures to control the outbreak; the week immediately prior to the introduction of controls; the 14 days between the start of restrictions and full lockdown, and the first week of lockdown when everyone apart from essential workers was requested to 'stay at home'.

Patients were divided into 2 groups based on whether they stopped working during lockdown or continued to work due to being classed as an essential worker (such as those in healthcare or food supply), with the latter serving as the control group. The 20 who stopped working had an average age of 37 years, 60% were male, and had been living with diabetes for 15 years on average. The 13 who continued to work had an average age of 45 years, 53.8% were male, and their average diabetes duration was 5 years. Eight members of this second group were on insulin pump therapy which continuously supplies insulin and largely replaces the need for the patient to inject themselves multiple times per day.

The authors say: "In the 20 patients who stopped working, overall glycaemic control improved during the first 7 days of lockdown as compared to the weeks before SARS-CoV-2 spread."

Average blood glucose concentration decreased in these individuals from 177mg/dL in the week before lockdown to 160mg/dL during lockdown itself; the proportion of time spent 'within the safe range' increased from 54.4% to 65.2%; and time spent in hyperglycaemia (glucose level too high) decreased from 42.3% to 31.6%, while there was no significant change in time spent in hypoglycaemia (glucose level too low).

In contrast, the 13 patients who continued working

during lockdown exhibited no improvement or deterioration in any of the measures of glycaemic control compared with before lockdown.

The researchers speculate that the improvement in patients who stopped working occurred due to them having more time to focus on diabetes control and a more regular lifestyle, including the timing and composition of meals. They also suggest: "In addition, the knowledge that diabetes worsens the outcomes of COVID-19 may have improved patients' awareness and compliance to diabetes management."

They acknowledge that participants had relatively good blood sugar control to begin with, so it is unclear whether the same results would apply to patients with worse glucose control or less frequent sensor scans. Lastly, only one week of lockdown was studied due to subsequent weeks introducing potential bias from patients having been contacted by the clinic with advice on diabetes management. Despite this, the data collected after this first week of lockdown suggests that this better blood sugar control continued in the patients who stopped working. Furthermore, other research from Spain backs the findings of this study. (see link below)

The authors conclude: "Despite the psychological stress and very limited opportunities for exercise, the study found that glucose control was significantly improved in patients with T1D who stayed at home during the first week of the COVID-19-induced lockdown in Italy. This observation suggests that slowing down routine activities can have beneficial effects on T1D control in the short term. However, the long-term effects of lockdown and the factors that affect glucose control in this particular situation deserve future investigation."

More information: Elsa Fernández et al. Impact of COVID-19 lockdown on glycemic control in patients with type 1 diabetes, *Diabetes Research and Clinical Practice* (2020). DOI: 10.1016/j.diabres.2020.108348

Provided by Diabetologia