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Effect of COVID-19-associated lockdown on the metabolic control of patients with type 2 diabetes



Dear editor

Previous studies have shown that disasters usually have detrimental effects on the metabolic control of patients with chronic conditions. Coronavirus disease-19 (COVID-19) represents an epidemic that results from the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). Since no vaccine or effective treatments for the disease have been developed, most countries used the measure of lockdown to limit the transmission of the disease

The duration of total lockdown in Greece was 42 days. The aim of our study was to prospectively assess the effect of the COVID-19-associated lockdown on the metabolic control of patients with type 2 diabetes. For this reason, we compared the post-lockdown values of various metabolic indices with those of the most recent visit before lockdown in 380 consecutive patients with type 2 diabetes. Researchers were not involved in the arrangement of patients' appointments which were set centrally by an electronic system. The measurement of all anthropometric and laboratory parameters was performed at the outpatient clinics for all patients.

The age of patients was 62.5 ± 11.9 years and 62% were males. The median time between the two visits was 18 weeks (range 8–30 weeks). Surprisingly, we found that HbA1c, body mass index (BMI) and total cholesterol values decreased during the lockdown, while those of the other metabolic indices remained constant (Table 1). These beneficial effects on glycemia were unrelated to baseline HbA1c concentration or BMI and was not affected by baseline glucose-lowering treatment except for sulfonylureas. Patients receiving sulfonylureas before lockdown ($n = 16$) exhibited a non-significant increase in HbA1c (from 7.18 ± 0.57 to 7.43 ± 0.87).

The rather unexpected findings could be attributed to several reasons. Patients who had a labor-consuming work schedule pre-lockdown had now the opportunity to work from their home. The latter led to a better eating behavior (home-prepared meals which are better than take-aways at the office), a chance for more exercise (the 30-minute daily time allowed could be better than nothing since heavily working patients had now some more time for themselves). Additionally, none of our patients was personally affected by COVID-19 infection and likely many of them were not affected indirectly either (aside from the need to lockdown) and thus the physical and emotional stress were low.

In conclusion, we found that during lockdown most patients with type 2 diabetes exhibited a small but significant improvement in glycemia, body weight and total cholesterol while the other metabolic parameters remained stable.

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Table 1
Effect of lockdown on metabolic control in patients with type 2 diabetes.

	Before lockdown	After lockdown	P
BMI (Kg/m ²)	30.6 ± 5.8	30.3 ± 5.6	0.01
Systolic blood pressure (mmHg)	138 ± 19	137 ± 16	NS
Systolic blood pressure (mmHg)	80 ± 12	82 ± 46	NS
Heart rate (bpm)	75 ± 13	75 ± 11	NS
Glucose (mg/dl)	127 ± 42	123 ± 35	NS
HbA1c (%)	6.9 ± 1.3	6.7 ± 0.9	0.015
Total Cholesterol (mg/dl)	160 ± 35	154 ± 35	0.04
Triglycerides (mg/dl)	138 ± 74	132 ± 67	NS
HDL-Cholesterol (mg/dl)	49 ± 13	49 ± 13	NS
LDL-Cholesterol (mg/dl)	82 ± 29	80 ± 30	NS
Aspartate aminotransferase (IU/l)	20 ± 9	20 ± 9	NS
Alanine aminotransferase (IU/l)	23 ± 14	22 ± 13	NS
Gamma-glutamyltransferase (IU/l)	23 ± 12	22 ± 12	NS

NS: non-significant.