

# Euglycemic Diabetic Ketoacidosis induced by SARS-COV-2 infection

*Angelos Liontos<sup>1</sup>, Sempastian Filippas-Ntekouan<sup>1</sup>, Dimitrios Mpiros<sup>1</sup>, Rebecca Konstantopoulou<sup>1</sup>, Theodora Maniatopoulou<sup>1</sup>, Georgios Kalambokis<sup>1</sup>, Haralampos Milionis<sup>1</sup>*

*<sup>1</sup>1<sup>st</sup> Division of Internal Medicine & Infectious Diseases Unit, University Hospital of Ioannina, Ioannina, Greece*

**Background:** The novel coronavirus (SARS-CoV-2) pandemic which has infected more than 30.000.000 people and has caused more than 1.000.000 deaths globally by October 2020 is reported to cause a pleiad of extrapulmonary complications. Various case reports and case series around the globe have shown that COVID-19 may induce diabetic ketoacidosis both in patients with either type 1 or type 2 diabetes mellitus and in previously healthy persons. Herein, we report the case of euglycemic diabetic ketoacidosis induced by COVID-19.

**Case report:** An 81-year-old man presented to the emergency department (ED) of our hospital due to decreased level of consciousness, agitation and sleepiness. The patient's history was notable for type 2 diabetes mellitus not adequately controlled by metformin and gliclazide. The patient's medications were recently (7 days before presentation) changed to metformin/empagliflozin 1000/12.5 mg twice daily, gliclazide 60 mg daily and linagliptin 5 mg daily. During evaluation at the ED, a high anion gap metabolic acidosis was evident with near-normal glucose values (180 mg/dl). The patient was admitted to the internal medicine ward for further management.

A chest X-Ray (CXR) admission revealed bilateral ground glass opacities. The patient and his family reported no fever, cough or other infection-related symptoms. A rapid RT-PCR nasopharyngeal swab tested positive for SARS-COV-2. Standard diabetic ketoacidosis management protocol was applied with adequate subsequent response regarding both his mental status and laboratory abnormalities. During hospitalization, the patient neither experienced fever nor did he need oxygen supplementation. He had an uneventful recovery and was successfully discharged.

## Laboratory values during hospitalization

	Day1	Day2	Day3	Day7	Day10	Day15
pH	7.18	7.48	7.52	7.48	7.44	7.42
pCO <sub>2</sub> (mmHg)	25	25	28	32	35	38
HCO <sub>3</sub> (meq/l)	9	18	22	23	23	24
Lac (mmol/l)	1.8	1	0.8	0.6	0.7	0.5
Ketones (mmol/l)	5.7	1.1	0.5			0.3
CRP (mg/dl)	99	97	58	32	15	10

**Conclusion:** This is a rare case of COVID-19 induced euglycemic ketoacidosis following recent SGLT-2 inhibitor administration suggesting that detection of ketoacidosis in diabetic patients should prompt towards testing for COVID-19 even in the absence of classic symptoms.