

Acute Hyperglycemic Crises with Coronavirus Disease-19: Case Reports (*Diabetes Metab J* 2020;44: 349-53)

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We would like to thank Professor Ja Young Jeon for their interest in and comments regarding our case report, entitled “Acute hyperglycemic crises with coronavirus disease-19: case reports” which was published in *Diabetes & Metabolism Journal* [1].


We agree with Professor Jeon’s opinion that diabetes is closely related to poor outcomes, treatment responsiveness, and serious acute diabetic complications in severe coronavirus disease-2019 (COVID-19).


First, we will briefly describe the progress of the second patient, who showed hyperglycemic hyperosmolar state (HHS) along with COVID-19, since our case report was published. Unfortunately, the patient’s fever relapsed with a re-positive result on COVID-19 polymerase chain reaction (PCR) test on the 47th hospital day. At that time, this was thought to indicate re-infection requiring quarantine, but according to a recent announcement by the Korean Centers for Disease Control and Prevention, this situation was caused by the limitations of PCR testing, actual activity of coronavirus is unknown. For COVID-19 diagnosis using PCR, genetic material of the virus is amplified and it is possible to detect both live virus and fragments of dead virus that can take months to clear from recov-

ered patients. Based on this knowledge, the result of re-positivity on PCR test is considered false-positive but not active infectivity [2]. The patient was treated with antibiotics (carbapenem) for 7 days and her fever subsided. In addition, the mechanical ventilator was removed on the 61st hospital day. She was moved from the intensive care unit to the general ward on the 71st hospital day.

Regarding the first case, as mentioned in the article, the patient halted antidiabetic medications a few months ago and was taking only calcium channel blockers as an antihypertensive drug.

In the second case, the patient took metformin and glimepiride as oral hypoglycemic agents but were not taking medications for hypertension and dyslipidemia, which had previously been diagnosed by a doctor. When the patient was admitted, initial blood pressure and heart rate were 114/72 mm Hg, and 71 beats/min, respectively. Lipid profile was also within normal range (total cholesterol 126 mg/dL, high-density lipoprotein cholesterol 50.1 mg/dL, triglyceride 158 mg/dL, and low-density lipoprotein cholesterol 44.3 mg/dL). Continuous intravenous insulin injection was initiated immediately for treatment of HHS and switched to subcutaneous injections after stabil-

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zation. Interestingly, this patient showed high blood pressure after moving to the general ward so she was prescribed antihypertensive medications (losartan, bisoprolol, furosemide, and spironolactone).

Angiotensin-converting enzyme 2 (ACE2) acts as a cellular receptor for severe acute respiratory syndrome coronavirus (SARS-CoV) and severe acute respiratory syndrome coronavirus 2 (SARS-CoV2) [3]. There is some evidence that the use of drugs that increase ACE2 expression, such as renin-angiotensin system (RAS) inhibitors and thiazolidinediones, may accelerate the development of COVID-19 [4]. In addition, glucagon-like peptide-1 receptor agonist [5] and statin [6] can up-regulate ACE2. However, insulin administration attenuates ACE2 expression [7]. In recent studies [8,9], RAS inhibitors did not exacerbate the course of COVID-19, so the medications mentioned by Professor Jeon did not have a significant effect of COVID-19 severity. We suggest that patients do not need to stop taking these medications.

Thank you again for your interest in our research and for your thoughtful comments.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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