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Diabetes & Metabolic Syndrome: Clinical Research & Reviews

Letters to the Editor

Clinical considerations for patients with diabetes in times of COVID-19 pandemic

Dear Sir,

As of today's reports, the global number of confirmed cases of COVID-19 has surpassed 150,000. The number of known cases is increasing by several thousand every day. On March 11, 2020, WHO publicly characterized COVID-19 as a pandemic. The issue is of serious concern and deserves momentous attention.

Coronaviruses are a family of viruses that cause respiratory illnesses. Most of them cause illness in animals, but seven known types of coronaviruses cause illness in humans. The coronavirus SARS-CoV-2 (Severe Acute Respiratory Syndrome-Coronavirus-2) is one of those viruses − it causes the illness currently known as Coronavirus Disease-2019 (COVID-19).

Though we are still learning what exactly puts someone at greater risk of developing a severe illness with COVID-19, early information indicates older patients and those with chronic medical conditions such as hypertension, diabetes and cardio-cerebrovascular diseases may be at higher risk [1–3]. Infection caused by COVID-19 is likely to disturb metabolic regulation. Diabetic patients with COVID-19 may face an altered immune response on the background of an already compromised health status owing to the diabetes-related complications and/or aging.

The most important findings in patients with hyperglycemia and a viral infection were significant worsening of symptoms, which implies greater morbidity in these patients when compared to those without diabetes [3]. However, the pathophysiology of this association remains uncertain. It is not known whether hyperglycemia changes the virulence of the infection, or if the virus modifies the glycemic metabolism. What we know is that diabetic patients are more susceptible to infection, and this can impact on glucose metabolism [4]. DM is not just a disorder of glucose metabolism, but a chronic inflammatory condition characterized by multiple changes in lipid, carbohydrate and protein profiles [5]. Such inflammatory processes are due to hyperglycemia which leads to increased synthesis of glycosylation end products (AGEs), activates macrophages and other cells of the immune system, increase oxidative stress and promote the synthesis of pro-inflammatory cytokines, besides stimulating the synthesis of adhesion molecules that facilitate inflammation in the tissues [5]. The inflammatory process and its complications might provide a higher propensity to infections or a greater severity of these conditions. Another important issue is how this inflammatory and immune response occur in diabetic patients who acquire a viral infection, as well as whether the virus itself interferes with insulin secretion or the glycemic control.

At this stage, the biological mechanism of the relationship between COVID-19 and diabetes is not known, but the association for the severity of cases and death is pronounced. We need to develop a hypothesis to explain the causal path underlying the more severe clinical presentation of COVID-19 infection and subsequent death in diabetic patients. Biochemical tests are also essential to clarify the molecular pathophysiology involved.

The association of COVID-19 and DM is of substantial public health importance and deserves proper attention, since a large and diverse population is being affected globally. Nowadays this co-morbidity poses a relevant threat to human health, and prospective well-designed studies to elucidate the biological mechanism and the best clinical management of this association are urgently needed.

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