

Hospitalized COVID-19 patients fare worse when they have high blood sugar

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Patients hospitalized with COVID-19 have worse outcomes if they have high blood sugar, or hyperglycemia, regardless of whether they have diabetes, a new study finds. The researchers will present their results, of

the first known study of the impact of hyperglycemia on a largely Black patient population with the novel coronavirus, at ENDO 2021, the Endocrine Society's annual meeting.

The investigators found that [patients](#) with COVID-19 who had hyperglycemia on admission to the hospital were more likely than those with normal [glucose](#) (sugar) to require a breathing machine or admission to the [intensive care unit](#) (ICU). These patients also were reportedly likelier to have kidney injury and to die in the hospital.

"COVID-19 patients presenting to the hospital with hyperglycemia require closer observation, as they are likely to require more aggressive therapies," said the study's lead investigator, Samara Skwiersky, M.D., M.P.H., an internal medicine resident physician at the State University of New York (SUNY) Downstate Medical Center in Brooklyn, N.Y.

Although a few prior studies have identified hyperglycemia or diabetes as an [independent risk factor](#) for worse COVID-19 outcomes, Skwiersky said they did not take place in a predominantly Black population. The virus has disproportionately affected Black people, including higher rates of hospitalization and death than in white people, she noted.

Their study included 708 adults with COVID-19 admitted to SUNY Downstate Medical Center, 89 percent of whom were Black. About half were men, and 54 percent of patients had a history of either type 1 or type 2 diabetes on admission.

The researchers studied patient outcomes by the presence or absence of diabetes and by their blood glucose values on admission. Because guidelines recommend that hospitalized patients with diabetes maintain [blood glucose levels](#) between 140 and 180 milligrams per deciliter (mg/dL), the investigators divided patients into groups by [glucose levels](#) less than 140 and less than 180 mg/dL.

Patients with diabetes whose blood glucose values on admission exceeded 140 mg/dL had a 2.4-fold increased odds of ICU admission and intubation—needing a breathing machine—versus those whose glucose levels were lower, the researchers reported. Furthermore, patients with diabetes whose admission glucose levels were higher than 180 mg/dL had an approximately twofold increased odds of in-hospital death, their data showed.

However, Skwiersky said the odds of death also were increased twofold for patients who did not have diabetes and whose glucose values exceeded 140 mg/dL. Additionally, these patients had a 3.5-fold raised odds of ICU admission and a 2.3-fold higher odds of intubation and of experiencing acute kidney injury.

According to Skwiersky, patients without diabetes whose blood glucose levels topped 180 mg/dL had a fourfold greater death risk, a nearly threefold increased odds of ICU [admission](#), and a 2.7-fold higher odds of intubation.

"The results from our study," she said, "reiterate the importance of regularly monitoring blood glucose in patients hospitalized with COVID-19, even without a prior diagnosis of [diabetes](#)."

It is unclear whether hyperglycemia is the result of or a cause of more severe COVID-19 illness, Skwiersky stated. Still, she said their results suggest the need for intensive glucose control in hospitalized COVID-19 patients with [high blood sugar](#). This is consistent with the current Endocrine Society guidelines, which recommend that all patients with blood glucose above 140 mg/dL be monitored with point-of-care glucose testing and treated with appropriate therapies.

"More frequent glucose monitoring and treatment with insulin therapy to a target glucose value less than 140 mg/dL could improve outcomes in

these patients," Skwiersky said.

Provided by The Endocrine Society

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