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Obesity in four out of ten adults with COVID-19 in intensive care

People with obesity were overrepresented among adults in Sweden receiving intensive care for COVID-19 during the first wave of the pandemic. Just over 39 percent had obesity, compared with some 16 percent in the population. The risks of prolonged hospitalization and death in intensive care units (ICUs) was also higher for patients with obesity, as a study from the University of Gothenburg shows.

The aim of the study, published in the journal PLOS One, was to assess whether a high body mass index (BMI) affects the risk of death or prolonged length of hospital stay in patients with COVID-19 during intensive care in Sweden.

Using the Swedish Intensive Care Registry (SIR), the researchers identified all patients with COVID-19 who were admitted to ICUs in Sweden during the initial wave of the pandemic, in spring and summer 2020. However, their height and weight were not always reported in SIR.

For individuals whose height and weight particulars were missing from SIR, the information available was supplemented, first, directly from the ICUs and, second, through the Nationwide Passport Register. The latter, of course, contains height particulars. Current BMI was thus verified all the subjects included in the study.

Accordingly, the study is based on data that have not previously been available. Although people with obesity were identified early on as a risk group that was affected especially severely by COVID-19, a new, more detailed picture is now emerging.

Greater vulnerability with obesity

A total of 1,649 individuals with COVID-19 from intensive care units (ICUs) at university, county, and local hospitals around Sweden were included. All the participants were aged 18 and over; three-quarters were men; and pregnant women were excluded.

The results show that patients with obesity, i.e., a BMI of 30 kg/m2 or more, were overrepresented among those with COVID-19 receiving intensive care in Sweden. The proportion in the study was 39.4 percent, while the corresponding figure for the population is approximately 16 percent.

A high BMI raised the risks both of serious illness with long stays in intensive care and of death. A link was found between BMI over 30 and a 50 percent increase in mortality risk, compared with the normal-weight group. Among those who survived, a BMI over 35 proved to be linked with a risk of intensive care for over 14 days that was twice as high as the risk for patients of normal weight. These analyses have been adjusted for age, gender, comorbidity, and how poorly the patient's state of health was on arrival at the ICU.

Vigilant monitoring vital

Lovisa Sjögren, researcher at Sahlgrenska Academy, University of Gothenburg, and pediatrician at Sahlgrenska University Hospital and Halland Hospital Halmstad, is the study's first author.

"For individuals with COVID-19 who are in intensive care, obesity means an increased risk of death, and among those who survive, obesity boosts the risk of intensive care lasting more than 14 days. Based on our results, obesity should be included as an important risk factor in COVID-19. Patients with obesity who suffer from COVID-19 should be monitored closely," she states.

The study is based on the Swedish Intensive Care Register, and Sjögren points out that high-quality registers are a basic precondition for studies of this type to be feasible.

Jenny M Kindblom, Associate Professor at Sahlgrenska Academy, University of Gothenburg, and Chief Physician at Sahlgrenska University Hospital, is the study's senior author.

"Some international studies have shown a connection between high BMI and the risk of becoming severely ill with COVID-19. We can now show this in a Swedish context, and with the advantage of having a fully up-to-date BMI value for every patient," she says.

At an early stage during the pandemic, the researchers who conducted the study were in touch with HOBS, a Swedish patient organization for people living with overweight and obesity. Many members were concerned that a high BMI would elevate the risk of serious illness resulting from infection with the SARS-CoV-2 coronavirus.

"At the time, there were no publications in the field, and the study was initiated to be enable us to answer patients' questions. We now hope as many people as possible will take the opportunity to get vaccinated, and that health services include BMI as a risk factor — and perhaps choose to exercise special vigilance in monitoring patients with obesity who are suffering from COVID-19," Kindblom says.

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