

Risk factors for life-threatening COVID-19 in younger important in upcoming vaccinations

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People with cardiometabolic risk factors such as high blood pressure, obesity and diabetes have an increased risk of life-threatening COVID-19 requiring treatment with invasive ventilation in the intensive care unit. The risk factors are more important in younger people, but there are also clear links between severe COVID-19 and other diseases such as asthma and chronic inflammatory diseases.

Researchers at Karolinska Institutet have been able to show these connections by combining data from the Swedish Intensive Care Registry with other national registries. The results are published in the journal *BMJ Open*.

The study includes about 12,000 people of which 1,086 Swedish patients who were being on a ventilator for COVID-19. The researchers have combined data from the Swedish Intensive Care Registry with Statistics Sweden's population register to match control persons for age, gender

and place of residence. Subsequently, the National Board of Health and Welfare's National Patient Register and the Prescribed Drug Register have been used to obtain past medical history and drug treatments.

Risk factors more important at a younger age

"The study confirms previous findings that there is a strong link between metabolic risk factors and severe, intensive care-demanding COVID-19. New findings are that we see that the relative importance of these factors is significantly greater at younger ages and that the connection is independent of socio-economic factors," says the study's lead author Per Svensson, associate professor at the Department of Clinical Science and Education, Södersjukhuset and chief physician at Södersjukhuset.

"When we consider the patient's age and other diseases, we now see that [high blood pressure](#), diabetes and obesity are independent [risk factors](#) and that they are more important at younger ages," Per Svensson continues. Our data show that asthma, previous blood clots and systemic inflammatory diseases also increase the risk. One can speculate that common underlying factors are inflammation, disturbed endothelial function and microcirculation. Regardless of the mechanism, the findings are important to make evidence-based priorities for future vaccinations in younger age groups. The issues arose almost a year ago when the pandemic struck, says the study's senior author Per Nordberg, Post doc at the Department of Medicine, Solna and intensive care physician at MIVA at Södersjukhuset. The Swedish registers provide unique opportunities to link data for clinical research questions, which has meant that we have been able to obtain results relatively quickly. We saw early in the clinic a clear connection to

socio-[economic factors](#) and that people born outside Sweden often had a severe [disease](#). We have therefore studied these connections more specifically. We see that diabetes is even more overrepresented in that group, otherwise the risk profile looks quite similar. Further studies are underway here within the research group, where new results will soon be published."

More information: Per Svensson et al.

Association between cardiometabolic disease and severe COVID-19: a nationwide case–control study of patients requiring invasive mechanical ventilation, *BMJ Open* (2021). [DOI: 10.1136/bmjopen-2020-044486](#)

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