

Press release, April 23, 2020

Pulmonary Embolism: A Primary Cause of Death with COVID-19?

A study conducted by University Hospital Zurich involving 338 patients from a Milan university hospital has revealed the occurrence of pulmonary embolism among many COVID-19 patients. COVID-19 causes a noticeably sharp increase in blood coagulation factors resulting in blood clots. Blood thinners may therefore save the lives of COVID outpatients. A major Swiss study aims to shed light on this theory.

Three hundred and thirty-eight symptomatic patients were examined who had tested positive for COVID-19, had an average age of 66 and were admitted to a university hospital in Milan between mid-February and mid-April. In cumulative terms, 21% of them were found to have blood clots, half of which were diagnosed within the first 24 hours after being admitted to the hospital. It must therefore be assumed that many patients had already developed these blood clots before going to the hospital. A closer examination revealed that pulmonary embolism were by far the most common form of blood clot and were found to exist in one third of the patients examined with imaging tests.

Severe pulmonary embolism, i.e. pulmonary vessels blocked by blood clots, can quickly lead to death due to heart failure if left untreated.

Targeted hemodilution could save lives

In view of the many blood clots diagnosed in the Milan study within 24 hours and given the small sample of persons examined, a considerably larger number of people must therefore be expected to sustain severe pulmonary embolism as a result of COVID-19 as most COVID-19 patients remain in home quarantine during their illness. "But if these people then suffer pulmonary embolism at home, they may no longer make it to the hospital," explains Prof. Nils Kucher, Director of the Department of Angiology at University Hospital Zurich. "That means we could potentially prevent many deaths through the use of the commercially available blood thinner enoxaparin."

Nils Kucher also speculates that up to 70% of the 1,393 COVID-19 patients who have died so far could have done so in quarantine at home or in retirement and care homes and justifies this suspicion with the fact that so far only 206 COVID-19 deaths have been recorded at the five large university hospitals (as of April 20, 2020).

A team led by Prof. Nils Kucher and Dr. Stefano Barco now therefore intends to carry out a study to see whether a targeted thrombosis prophylaxis for COVID-19 outpatients can reduce

the number of complications leading to death. The study is currently under review by the Cantonal Ethics Committee and is scheduled to start around the end of April.

Publication

[Venous and arterial thromboembolic complications in COVID-19 patients admitted to an academic hospital in Milan, Italy.](#)

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