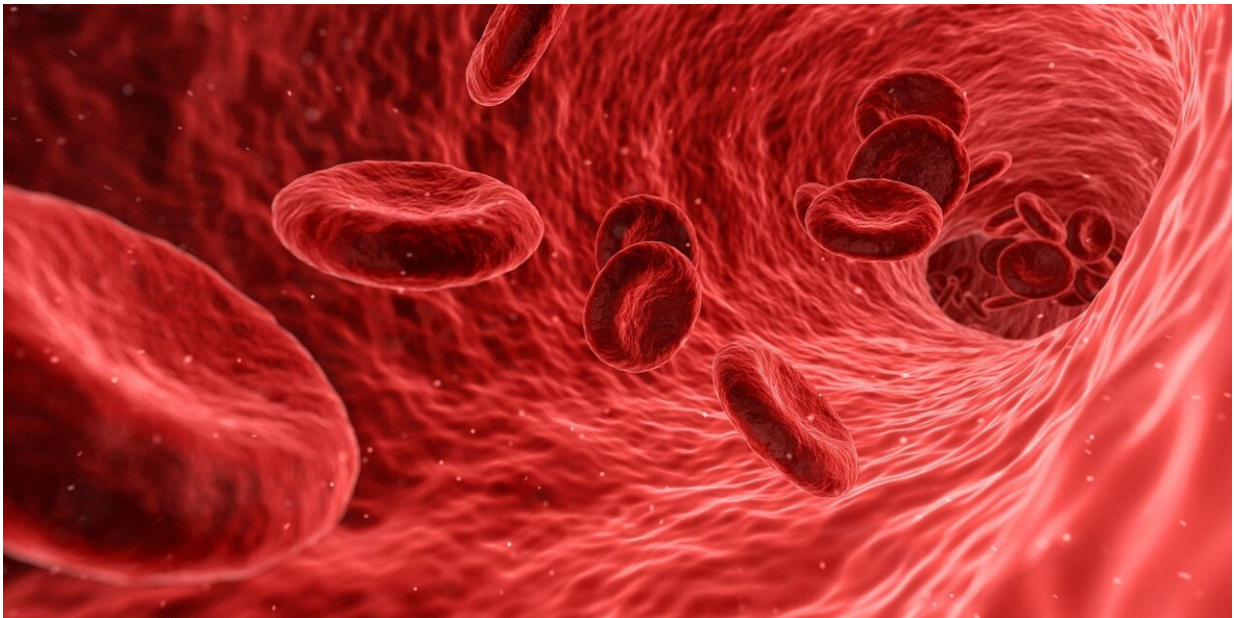# Medical Xpress

A full blood count of COVID-19 patients can predict disease severity

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International research led by the Radboud University Medical Center shows that a full blood count of COVID-19 patients predicts fairly accurately whether the infection will have a complicated course or not. This makes it easier for healthcare providers to estimate the expected clinical picture. This study, conducted in eleven hospitals, has now been published in the scientific journal *eLife*.

In patients presenting to hospitals with a COVID-19 infection, full [blood](#) count analysis (hemocytometry) are commonly performed at the emergency department and during hospitalization. COVID-19 is accompanied by specific changes in the circulating [blood cells](#) that are analyzed by a full blood count. These changes in the blood cells, especially those that can be identified using new techniques, are used to create an algorithm with a predictive value. The developed algorithm appears to predict the course of COVID-19 better than the value of the individual blood cells, as used so far. The reliability increases to 93% after six days.

Predicting disease progression

Using data generated by full blood count measurements, the researchers wanted to know whether it is possible to predict whether a hospitalized COVID-19 patient will become seriously ill and needs treatment at the Intensive Care. For this purpose, they examined the data of 982 adult patients in eleven different hospitals across Europe. And this turned out to be possible: specific changes in the circulating blood cells of COVID-19 patients proved to be of use as indicators whether a serious course of events was expected. New laboratory techniques make it possible to detect whether [immune cells](#) in the blood are activated and it turned out that especially these activated cells were more present of COVID-19 patients with a severe course, including during the early course of the disease. In a second study population the researchers were able to confirm the value of the prognostic score.

Cheap and available

Internist-infectiologist and principal investigator André van der Ven of Radboud university [medical center](#) explains: "A full blood count is a fully automated, inexpensive, immediately available measurement and

one of the most requested laboratory determinations in the world. Full blood count measurements are also routinely requested from COVID-19 patients who present to the hospital. By using certain techniques, the character of certain blood cells can be better determined and by using these new techniques, we have been able to develop a reliable prognostic score. This score gives a good insight into whether a serious course of events can be expected and can help healthcare professionals to make treatment decisions".

More information: Joachim Linssen et al, A novel haemocytometric COVID-19 prognostic score developed and validated in an observational multicentre European hospital-based study, *eLife* (2020). DOI: 10.7554/eLife.63195

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