Imatinib shows improved outcomes for patients with severe COVID-19 in the CounterCOVID clinical trial

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Patients with severe COVID-19 who were given imatinib had lower mortality rates at 90-day follow-up, according to research published at

the ATS 2022 international conference.

The study investigated the long-term efficacy of imatinib in hospitalized COVID-19 patients in the Netherlands as part of the randomized, double-blind, placebo-controlled CounterCOVID study. A tyrosine kinase inhibitor, imatinib is currently an oncology drug as it blocks an abnormal protein that signals cancer cells. The drug also blocks potentially deadly leakage of the small blood vessels in the lungs under inflammatory conditions, as is often seen in severe SARS-CoV-2 infections. The researchers wanted to find out whether imatinib can treat severe COVID-19 patients by improving their clinical outcomes.

According to presenting author Job R. Schippers, MD-Ph.D. candidate, pulmonary medicine, Amsterdam University Medical Centers, the Netherlands, "Imatinib was considered as a therapeutic option when it became evident that patients with severe COVID-19 had CT scan abnormalities suggestive of pulmonary edema (a condition in which excess fluid accumulates in the lungs and impairs oxygen uptake) as a result of vascular leakage." The researchers found that in addition to reduced mortality rates at 90 days, critically ill patients required a shorter duration of invasive ventilation and less supplemental oxygen. Mr. Schippers and colleagues believe these findings imply that ICU patients with COVID-19 benefit from treatment with imatinib.

"In this ongoing pandemic, this could result in lower mortality rates and shorter intensive care admissions," said Erik Duijvelaar, co-first author and MD-Ph.D. candidate at Amsterdam UMC. He also pointed out that there are currently three other clinical trials evaluating the efficacy of imatinib for COVID-19. Over the past decade, much preclinical research has been done by the Amsterdam UMC on the ability of imatinib to treat vascular leakage.

The researchers were able to determine clinical outcomes for all 385

patients—both for the imatinib and placebo groups. At day 90, 18 (9.1 percent) patients in the imatinib group and 31 (16.5 percent) patients in the placebo group had died. This result remained significant after adjusting for baseline imbalances (sex, obesity, diabetes and heart disease). Patients admitted to the ICU who were treated with imatinib had a median of 84 [54-88] ventilator-free days versus 64 [0-85] in patients treated with a placebo. The median duration of invasive ventilation was 7 [3-15] days in the imatinib group and 12 [6-22] days in the placebo group. The median length of ICU admission was 9 [5-16] days in the imatinib group and 13 [7-21] days in the placebo group. Invasively ventilated patients treated with imatinib had a more favorable course of FiO2 (a measure for the concentration of oxygen that a person inhales).

At the time of the study, participants also received other drugs to treat COVID-19. The most frequently used drug was dexamethasone (72 percent), a corticosteroid. The use of these therapies was similar between the imatinib and placebo groups.

"We hypothesize that imatinib confers benefit by reducing pulmonary edema in acute respiratory distress syndrome (ARDS)," the authors stated. Additionally, they emphasized "that if other studies confirm our findings, imatinib can make a very meaningful contribution to the treatment of COVID-19. In the future, we hope to evaluate the efficacy of imatinib in non-COVID ARDS (severe acute lung injury due to other causes)."

More information: Abstract: 90-Day Clinical Outcome of Hospitalized Covid-19 Patients Treated with Imatinib

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