Medical Xpress

Clinical trial reveals new treatment option for COVID-19

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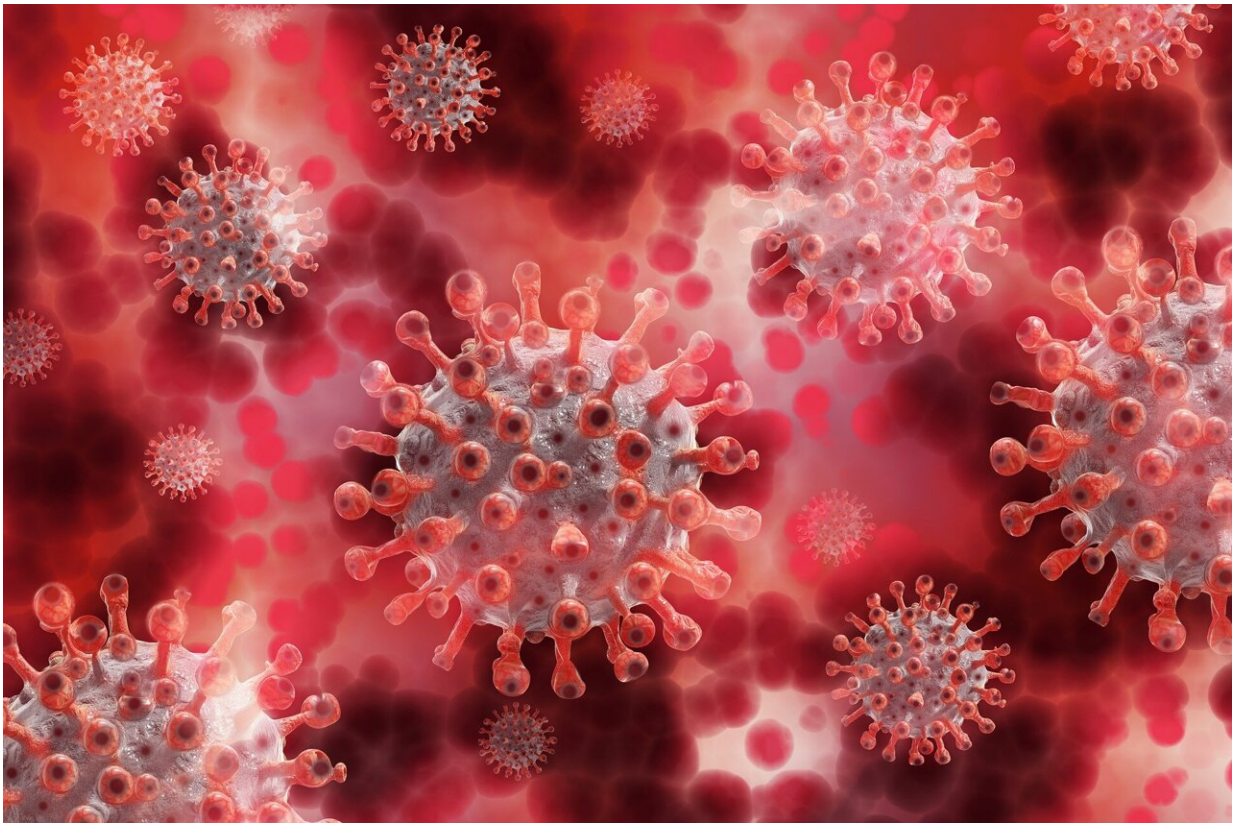

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A clinical trial conducted by researchers from RCSI University of Medicine and Health Sciences and Beaumont Hospital Dublin has indicated an effective treatment for critically ill COVID-19 patients.

The study, published today in *Med*, investigates the effects of using an anti-inflammatory protein, alpha-1 antitryspin (AAT), to treat COVID-19 patients who have progressed to acute respiratory distress syndrome (ARDS).

ARDS is a highly inflammatory state hallmarked by airway damage, respiratory failure and increased risk of death. Treatment options for COVID-19 patients who have ARDS are particularly limited.

AAT is a naturally occurring human protein produced by the liver and released into the bloodstream which normally acts to protect the lungs from the destructive actions of common illnesses.

In this randomized controlled trial, AAT that had been purified from the blood of healthy donors was administered to patients with COVID-19-associated ARDS, with the aim of reducing inflammation.

The results indicated that treatment with AAT led to decreased inflammation after one week. The study also found that the treatment was safe and well tolerated, and did not interfere with patients' ability to generate their own protective response to COVID-19.

This discovery suggests a potentially important role for AAT in the treatment of ARDS and other inflammatory diseases associated with COVID-19.

The study's co-lead author, Dr. Oliver McElvaney from the RCSI Department of Medicine and Beaumont Hospital, commented on these novel findings: "We know that patients who are critically ill with COVID-19 are more prone to developing severe inflammation throughout the body, with a disproportionately high rate of progression to ARDS and other serious respiratory issues. We think AAT might be able to provide some protection against the more harmful types of

inflammation that arise in severe COVID-19 and other conditions with a similar inflammatory profile."

Natalie McEvoy, Senior Clinical Research Nurse in the Department of Critical Care and Anaesthesia at the RCSI and Beaumont Hospital and the paper's co-lead author, commented: "This study is the first randomized control trial of AAT for acute respiratory distress syndrome, the first randomized control trial of AAT in the intensive care unit and the first such trial of a COVID-19 therapeutic in Ireland."

Senior author on the paper, Professor Ger Curley from the RCSI Department of Anaesthetics and Critical Care and Beaumont Hospital, noted the national significance of the study: "It is only through clinical trials we will be able to determine if new treatments are effective and safe in critically ill patients with COVID-19. This study is the first Irish-led clinical trial of a medicine for COVID-19. The rationale for the study, its design and the recruitment of critically ill patients was all carried out by researchers from RCSI, Beaumont Hospital and St James's Hospital on patients here in Ireland."

Professor Gerry McElvaney, RCSI Department of Medicine and Beaumont Hospital, and senior author on the paper, commented: "These early results are encouraging, and will we hope form the basis for a larger trial to see how much of an effect reducing inflammation using AAT has on clinical outcomes such as mortality."

The study was a collaboration between RCSI University of Medicine and Health Sciences, Beaumont Hospital, Dublin and St James's Hospital, Dublin.

More information: Oliver J. McElvaney et al, A randomized, double-blind, placebo-controlled trial of intravenous alpha-1 antitrypsin for acute respiratory distress syndrome secondary to COVID-19, *Med*

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