

Two clinical trials use low-dose radiation to treat COVID-19 infections

June 17 2020



Credit: CC0 Public Domain

Previous studies have shown that low-dose, whole lung radiation in the form of X-rays can effectively treat severe pneumonia, with minimal side effects. Two clinical trials are applying a modern version of this

concept to test patients who have acute respiratory distress syndrome (ARDS) as a result of COVID-19 infection.

For these trials, patients will undergo a single treatment of whole [lung](#) radiation to target and reduce pulmonary inflammation associated with COVID-19 infection in two separate phase II clinical [trials](#). The studies are led by Arnab Chakravarti, MD, chair of the Department of Radiation Oncology at The Ohio State University and member of the Translational Therapeutics Program at Ohio State's Comprehensive Cancer Center—Arthur G. James Cancer Hospital and Richard J. Solove Research Institute (OSUCCC—James).

Some patients diagnosed with COVID-19 pneumonia will experience worsening disease that can become very serious, requiring the use of a ventilator. This is caused by inflammation in the lungs from the virus caused by over-reaction of the immune system.

For this study, researchers will give a form of radiation therapy that uses high-energy X-ray beams to target the lungs and reduce inflammation caused by the COVID-19 virus. Usually, it is given at considerably higher doses to treat cancers.

"We believe adding a single treatment of low-dose X-rays to the lungs might reduce the amount of inflammation in the lungs from a COVID-19 infection, which could help a patient to breathe without use of a ventilator," says Chakravarti.

The first trial—called PREVENT—is a national trial for COVID-19+ pneumonic patients who do not yet require mechanical breathing intervention (ventilator) but are experiencing severe respiratory distress. Chakravarti serves as the national principal investigator of this study, which will involve up to 20 additional hospitals across the United States. The second trial, VENTED, is for patients who are critically ill and on a

ventilator. This study is also led by Chakravarti and will be conducted exclusively at Ohio State. Treatments will be administered in a COVID-19-only containment area and with a single machine not used for standard oncology care.

Chakravarti notes that decades of science have shown that low-dose radiation can elicit an anti-inflammatory immune response from the immune system.

"There is a substantial overlap between proinflammatory cellular reactions that occur in COVID-19 patients and those suppressed by low-dose radiation. Hitting that infection with low-dose [radiation](#) could be an effective anti-inflammatory therapy to reduce inflammation and improve respiratory challenges associated with COVID-19 pneumonia, providing patients with critical symptom relief and giving them a better opportunity to recover from these sometimes life-threatening infections," says Chakravarti.

Patients will be monitored before and after treatment to better understand the molecular biology behind disease treatment and response. Scientists will use results from this study to determine if there is sufficient evidence of clinical benefit to warrant a substantial phase II randomized clinical trial.

These studies are made possible through a research collaboration between Varian and the OSUCCC—James. For more information about [clinical trials](#) at the OSUCCC—James, visit cancer.osu.edu/clinicaltrials or call 614-293-5066.

Provided by Ohio State University Medical Center

Citation: Two clinical trials use low-dose radiation to treat COVID-19 infections (2020, June 17)

retrieved 26 April 2024 from

<https://medicalxpress.com/news/2020-06-clinical-trials-low-dose-covid-infections.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.