

AI tool predicts which coronavirus patients get deadly 'wet lung'

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ARDS is a severe complication of COVID-19 that requires patients to be placed on ventilators to help them breathe

Researchers in the US and China reported Monday they have developed an artificial intelligence tool that is able to accurately predict which newly infected patients with the novel coronavirus go on to develop severe lung disease.

Once deployed, the algorithm could assist doctors in making choices about where to prioritize care in resource-stretched health care systems, said Megan Coffee, a physician and professor at New York University's Grossman School of Medicine who co-authored a paper on the finding in the journal *Computers, Materials & Continua*.

The tool discovered several surprising indicators that were most strongly predictive of who went on to develop so-called acute respiratory disease syndrome (ARDS), a severe complication of the COVID-19 illness that fills the lungs with fluid and kills around 50 percent of coronavirus patients who get it.

The team applied a [machine learning algorithm](#) to

data from 53 coronavirus patients across two hospitals in Wenzhou, China, finding that changes in three features—levels of the liver enzyme alanine aminotransferase (ALT), reported body aches, and hemoglobin levels — were most accurately predictive of subsequent, severe disease.

Using this information along with other factors, the tool was able to predict risk of ARDS with up to 80 percent accuracy.

By contrast, characteristics that were considered to be hallmarks of COVID-19, like a particular pattern in lung images called "ground glass opacity," fever, and strong immune responses, were not useful in predicting which of the patients with initially mild symptoms would get ARDS.

Neither age nor sex were useful predictors either, even though other studies have found men over 60 to be at higher risk.

"It's been fascinating because a lot of the data points that the machine used to help influence its decisions were different than what a clinician would normally look at," Coffee told AFP.

Using AI in medical settings isn't a brand new concept—a tool already exists to help dermatologists predict which patients will go on to develop skin cancer, to give just one example.

What makes this different is that doctors are learning on the fly about COVID-19, and the tool can help steer them in the right direction, in addition to helping them decide which patients to focus on as hospitals become overwhelmed, said co-author Anasse Bari, a computer science professor at NYU.

The team is now looking to further refine the [tool](#) with data from New York and hope it is ready to deploy sometime in April.

More information: Xiangao Jiang et al. Towards

an Artificial Intelligence Framework for Data-Driven
Prediction of Coronavirus Clinical Severity *CMC-*
Computers, Materials & Continua, Vol.63, No.1, pp.
537-551, 2020, [DOI: 10.32604/cmc.2020.010691](https://doi.org/10.32604/cmc.2020.010691)

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