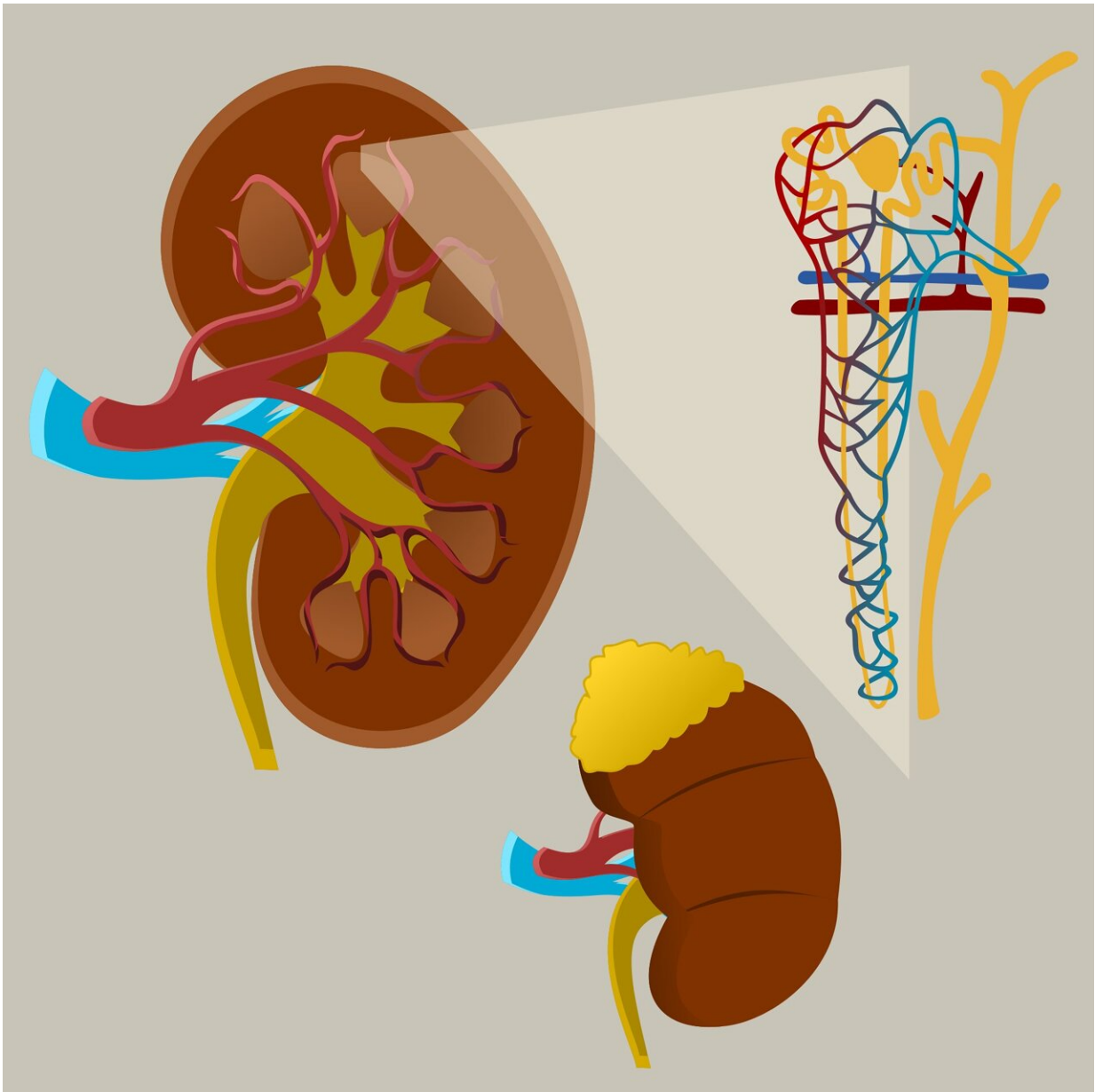


COVID kidney injury may be twice as common as diagnosed

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A University of Queensland-led study has found millions of COVID-19 patients may have undiagnosed acute kidney injury (AKI).

AKI is a condition where the kidneys suddenly fail to filter waste from the blood, which can lead to serious illness or even death.

Existing data indicates approximately 20 percent of patients admitted to hospital with COVID-19 develop AKI, rising to roughly 40 percent for those in intensive care.

But UQ Ph.D. candidate and [kidney](#) specialist Dr. Marina Wainstein said the true numbers could be double those figures.

"Doctors look at the amount of urine a patient passes and the level of a compound called [creatinine](#) in the blood, which rises when the kidneys aren't working well," she said.

"However, if that creatinine rise occurs before a patient presents to hospital, we can miss the AKI diagnosis and fail to manage the patient appropriately in those early, critical days of hospitalization."

Dr. Wainstein said when researchers also measured the fall in creatinine levels, which often follows the initial rise, the rate of AKI diagnosis in COVID-19 patients doubled.

"That was a pretty shocking finding," she said.

Dr. Wainstein said "missing" AKI in COVID-19 patients is dangerous.

"Even though the AKI is already starting to improve in hospital, our research shows that these patients have worse in-hospital outcomes and are more likely to die compared to patients with no AKI," she said.

Dr. Wainstein said treatment for AKI can be as simple as checking a patient's hydration level and stopping medications that can be toxic to the kidneys.

Study supervisor Dr. Sally Shrapnel, from UQ's School of Mathematics and Physics, said collecting and analyzing data for the project during the pandemic proved challenging.

"Typically [data scientists](#) work with complete, well curated registry data, but in this project it was collected by [hospital staff](#) working under extremely onerous conditions in a variety of different resource settings," she said.

"Curating and cleaning the data turned out to be a significant part of the project."

Dr. Shrapnel said the researchers were able to include data from resource-poor countries, where community-acquired AKI is also more common.

"These people have limited access to healthcare and are more likely to present late in the disease process."

Dr. Shrapnel said a more comprehensive definition of AKI—one which can detect cases that develop in the community—needs to be implemented as soon as possible.

"Now we have the data showing a large gap in AKI diagnosis exists, it's time to test this definition in a clinical trial so we can identify all AKI

patients early and hopefully prevent these awful outcomes."

The research is published in *PLOS Medicine*.

More information: Marina Wainstein et al, Use of an extended KDIGO definition to diagnose acute kidney injury in patients with COVID-19: A multinational study using the ISARIC–WHO clinical characterisation protocol, *PLOS Medicine* (2022). [DOI: 10.1371/journal.pmed.1003969](https://doi.org/10.1371/journal.pmed.1003969)

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