Simple blood test could better predict both kidney disease and cardiovascular risk

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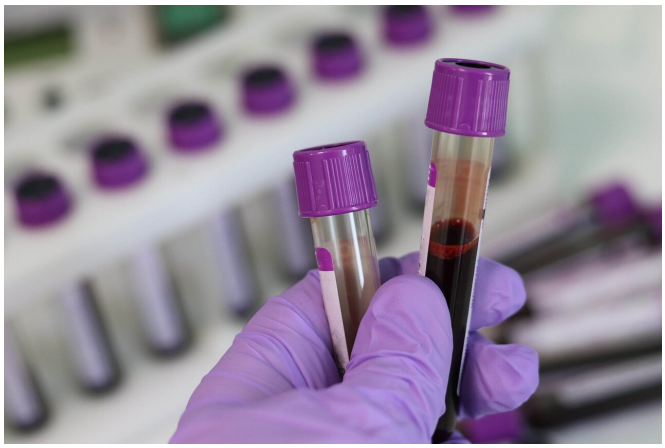

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Researchers have found a better way to test for kidney disease using a simple blood test that is affordable and although it is available in NHS laboratories is not yet widely used.

In a study, published today in *Nature Medicine* and led by the University of Glasgow, researchers have highlighted that a simple blood test—which could easily be adopted routinely in the NHS—is a better way of measuring both kidney and cardiovascular disease risk, as it offers a more precise diagnosis and could lead to better patient outcomes.

Chronic kidney disease characterised by gradual loss of kidney function over time, is common, affecting around 10% of the population. It is also associated with premature cardiovascular disease and mortality and more rarely progresses to the point where patients need dialysis or a kidney transplant.

Amongst patients with Chronic Kidney Disease reducing the risk of cardiovascular disease relies on accurate diagnosis, recognition of risk and early identification and treatment of risk factors.

Dr. Jennifer Lees, from the University of Glasgow's Institute of Cardiovascular and Medical Sciences, said: "Our study emphasises how important renal function is for our general health, given that suboptimal renal function can lead to an increased risk of a cardiovascular event.

"Our findings indicate that patients would benefit from the added predictive value of using a test called the cystatin C test. We would hope to see it adopted as the primary method for diagnosis of Chronic Kidney Disease—particularly for those patients with cardiovascular disease risk factors such as diabetes, hypertension or obesity."

Paddy Mark, Professor of Nephrology, added: "For a relatively low cost—about £2.50 per test—doctors can use this test to gain a much clearer understanding of a patient's kidney health, as well as cardiovascular risk. With this knowledge, doctors can identify and treat risk factors earlier and, hopefully, save more lives in the process."

The study used data from over 400,000 patients in the UK Biobank and looked at three different kidney function tests for eGFR—estimated glomerular filtration rate—to determine which was the most clinically informative for predicting cardiovascular disease and mortality.

Using statistical models to compare the results, the researchers determined the cystatin C formula to be the best at predicting cardiovascular risk as compared to the traditionally-used serum creatinine method.

Cystatin C testing has been available in the NHS for over 10 years, and has a number of potential advantages over serum creatinine and is thought to be a more sensitive measure to estimate kidney function. However, cystatin C is around 10 times more expensive than serum creatinine at £2.50 per test, compared with £0.25 for serum creatinine. Currently cystatin c is only used in highly

specialised settings and is not available in all hospitals.

Dr. Lees added: "Despite being recommended by the National Institute for Health and Care Excellence (NICE), measurement of cystatin C has not been widely adopted in clinical practice, presumably relating to uncertainty around the added value of a more expensive test.

"We hope our study shows that the adoption of this simple test would provide doctors with a precision medicine diagnosis for kidney disease and cardiovascular risk."

The study, 'Glomerular filtration rate by differing measures, albuminuria and prediction of cardiovascular disease, mortality and end-stage kidney disease', is published in *Nature Medicine*.

More information: Jennifer S. Lees et al. Glomerular filtration rate by differing measures, albuminuria and prediction of cardiovascular disease, mortality and end-stage kidney disease, *Nature Medicine* (2019). DOI: 10.1038/s41591-019-0627-8