New rapid diagnostic test for peritonitis used for first time in patients

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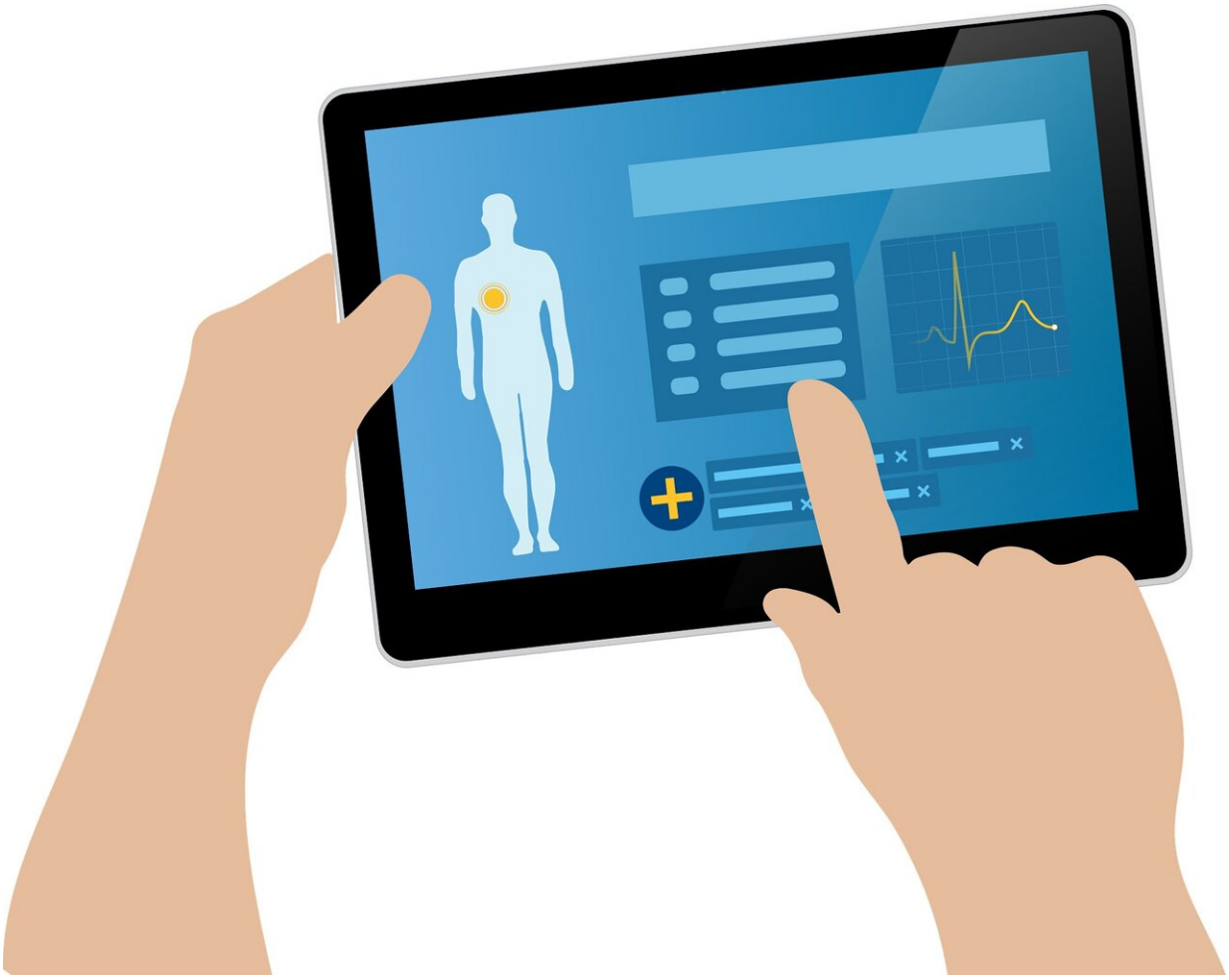

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A new diagnostic test for peritonitis underpinned by Cardiff University-led research has been used for the time in patients.

The Periplex test was trialled in more than 100 patients at the Royal Free Hospital in London in an independent study led by Dr. Cate Goodlad, with "promising" results that suggest it could have "significant clinical utility," say researchers.

The test is designed to detect—or rule out—peritonitis, a suspected infection of the inner lining of the abdomen and the most common complication of peritoneal dialysis (PD) for kidney failure.

Periplex works by quickly detecting elevated levels of infection-related molecules in dialysis effluent.

The tool was developed by Cardiff University and rapid diagnostics company Mologic, with funding from the National Institute of Health Research.

The researchers say it will eventually enable home-dialysis patients to take the test there to avoid unnecessary trips to hospital, which is particularly important during the coronavirus pandemic.

The test's first use in patients, outlined in a study published in *Kidney International*, showed a correct diagnosis of peritonitis in 84% of all people testing positively with Periplex.

Crucially, the Periplex test was positive in more than 97% of people who truly had peritonitis. These findings indicate that a negative test would almost completely rule out this diagnosis and allow the clinical team to focus on other potential causes of the person's symptoms.

Professor Matthias Eberl, from Cardiff University's School of Medicine,

said: "Current diagnosis of peritonitis is based on symptoms like abdominal pain, fever, a cloudy dialysis effluent and a high white blood cell count—but these symptoms are not always well developed and are not specific to peritonitis.

"A rapid, point-of-care diagnostic test is needed to accelerate and improve diagnosis, and improve early patient management, prescription and outcomes from infection."

There are currently around 300,000 patients worldwide on PD, which represents about 11% of the total dialysis population.

PD can be carried out at home and typically offers a better quality of life and certain clinical advantages compared to haemodialysis but peritonitis remains a big issue.

On average, patients undergoing PD get peritonitis once every two years, and some patients can die from this complication. Infection and inflammation can also lead to long-term treatment failure. If this happens, the only life-saving option for the patient is to switch to haemodialysis or receive a transplant.

Professor Eberl said: "We know that for some patients and doctors the risk of peritonitis is a decisive factor in not choosing PD and instead opting for haemodialysis, which is a more restrictive and impractical form of treatment.

"Our test will provide peace of mind for patients who are worried about peritonitis and will hopefully increase the acceptance of PD as a treatment choice. Once available, it will also mean fewer unnecessary trips to hospital for patients—which is absolutely key during a global virus pandemic."

A follow-on clinical trial to validate the results will take place at the Sir Charles Gairdner Hospital in Perth this year.

Professor Nick Topley, an emeritus professor at Cardiff University, said: "This will examine the implementation of the test in an acute clinical setting.

"It will lead to patient self-testing being introduced in the next 12 months. This will hopefully lead to the wider implementation of rapid testing for infection and improved patient outcomes."

More information: Catriona Goodlad et al. Measurement of innate immune response biomarkers in peritoneal dialysis effluent using a rapid diagnostic point-of-care device as a diagnostic indicator of peritonitis, *Kidney International* (2020). DOI: 10.1016/j.kint.2020.01.044

Provided by Cardiff University

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