New treatment for polycystic kidney disease

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A new technique for treating polycystic kidney disease has been identified by researchers at The University of Manchester and UCL.

Published in the *Journal of the American Society of Nephrology*, the treatment, which involves targeting tiny blood and lymphatic vessels inside the kidneys, is shown to improve renal function and slow progression of disease in mice.

Polycystic kidney disease (PKD) is a genetic disorder where fluid filled cysts grow in kidneys and destroy normal renal tissue. It is the world's most common inherited kidney disease, affecting between 1 in 400 and 1 in 1000 people worldwide – around 12.5 million individuals. A rarer form of the disease, which occurs in about one in every 20,000 live births in the UK, leads to a third of these babies dying before or just after birth.

Treatment for the condition has traditionally targeted proteins which are thought to play a role in causing the condition and are located in hair-like structures and tissue that line the inside of cysts. These treatments can help alleviate some of the symptoms of PKD but they can't currently cure the condition.

Researchers have now discovered that the blood and lymphatic system surrounding cysts may also be important in the development of the condition and could be a new target for treating the disease.

By looking at mouse models of both the common and rarer form of the

disease, the team noticed that tiny blood vessels surrounding the cysts were altered very early in cyst development. They therefore treated the mice with a potent 'growth factor' protein called VEGFC, and found that patterns of blood vessels normalised and the function of the kidneys improved. In the mice with the rare form of the condition, it also led to a modest but significant increase in lifespan.

David Long, lead researcher and Principal Research Associate at the ICH, explains: "With further testing, treatments that target blood vessels surrounding the kidney cysts, perhaps in combination with currently used drugs, may prove to be beneficial for patients with polycystic kidney disease."

Adrian Woolf, Professor of Paediatric Science at the University of Manchester and co-author of the study added: "If we could target these blood vessels early in the development of the condition it could potentially lead to much better outcomes for patients."

Elaine Davies, Research Director at Kidney Research UK confirmed that: "This is an exciting piece of work we are extremely proud to be supporting."

More information: "Vascular Endothelial Growth Factor C for Polycystic Kidney Diseases," *Journal of the American Society of Nephrology*.

Provided by University of Manchester