Decreased kidney function leads to decreased cognitive functioning

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Decreased kidney function is associated with decreased cognitive functioning in areas such as global cognitive ability, abstract reasoning and verbal memory, according to a study led by Temple University. This is the first study describing change in multiple domains of cognitive functioning in order to determine which specific abilities are most affected in individuals with impaired renal function.

Researchers from Temple, University of Maine and University of Maryland examined longitudinal data, five years apart, from 590 people. They wanted to see how much kidney function had changed over that time period, and whether it was associated with how much cognitive functioning had changed. They were interested in the overall change, but also in specific abilities such as abstract reasoning and verbal memory.

"The brain and kidney are both organs that are affected by the cardiovascular systems," said the study's lead author, Adam Davey, associate professor of public health in Temple's College of Health Professions and Social Work. "They are both affected by things like blood pressure and hypertension, so it is natural to expect that changes in one organ are going to be linked with changes in another."

What the researchers found was the greater a person's decrease in renal functioning, the greater the decrease in overall cognitive functioning, particularly abstract reasoning and verbal memory.

"Those two tracked together, so this study provides us with evidence that

the rate of cognitive decline is associated with deterioration in kidney function" said Davey.

Davey said that this information emphasizes two important points: the importance of diagnosing and managing chronic kidney disease and the extent of decrease in cognitive functioning.

"As we get older, our kidney function tends to decrease naturally, so if there's an extra issue involved in renal function like chronic kidney disease, we need to know about it as soon as possible," he said. "That is something that needs to be managed, just like you would manage hypertension."

Davey also noted that the decrease in cognitive functioning found in the study—when compared to people with dementia or cognitive impairment—is not so great that it would interfere with people being able to assist in their treatment of kidney disease.

"Patients are still going to be able to take their medicine on time and without assistance, as well as understand the information that their physician is sharing with them about their disease," he said.

Provided by Temple University