

Metabolite secreted in urine may cause cognitive impairment in kidney failure patients

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Retention of certain metabolites in the blood may contribute to cognitive impairment in patients with kidney failure, according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN). The findings may lead to interventions to safeguard the mental health of patients with poor kidney function.

In patients with compromised kidney function, the retention of compounds that are normally removed from the body and excreted in urine may contribute to various health problems. To investigate a potential link between retained metabolites and [cognitive impairment](#), Manjula Kurella Tamura, MD, MPH (Stanford University and Veterans Affairs Palo Alto) and her colleagues analyzed the blood of 141 patients with [kidney failure](#) who took tests on cognitive function.

Levels of 4 metabolites in the blood—4-hydroxyphenylacetate, phenylacetylglutamine, hippurate, and prolyl-hydroxyproline—were associated with impaired cognitive function. The first 3 are primarily produced by bacteria that reside in the gut. When the researchers screened for the metabolites in an additional 180 patients with kidney failure, the association between 4-hydroxyphenylacetate and impaired cognitive function was replicated.

"This metabolite has been previously linked to cognitive impairment in patients with [liver failure](#) and in [patients](#) with inborn errors of urea

synthesis," said Dr. Tamura. "We believe these findings are timely, given recent interest in the role of the gut microbiome in human disease."

More information: Metabolic Profiling of Impaired Cognitive Function in Patients Receiving Dialysis, *Journal of the American Society of Nephrology*, [DOI: 10.1681/ASN.2016010039](https://doi.org/10.1681/ASN.2016010039)

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