

# New urine test detects common cause of kidney transplant failure

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A new and simple urine test can detect polyomavirus nephropathy, a relatively new and serious complication that affects up to 9% of kidney transplant recipients, according to a study appearing in the February 2009 issue of the *Journal of the American Society Nephrology (JASN)*. The advance could lead to better diagnosis and treatment of patients with this condition.

While polyomaviruses are normally occurring viruses that harmlessly infect many adults, they can pose serious health problems for individuals who become immunocompromised. Such is the case for many kidney transplant recipients who must take immunosuppressive medications to safeguard against organ rejection. Some of these patients develop a damaging condition called polyomavirus nephropathy that can lead to chronic kidney failure and the need to re-initiate dialysis or undergo another transplant.

Because there are no effective therapies to treat polyomavirus nephropathy, it is important to diagnose the condition as early as possible, before it becomes serious. Therapy normally consists of lowering the dose of immunosuppressive drugs and hoping for natural viral clearance.

Unfortunately, there currently is no definitive way to accurately diagnose polyomavirus nephropathy. Physicians rely mostly on invasive and expensive kidney biopsies, which sometimes give false negative results. But now Volker Nickleleit, MD, of the University of North Carolina in

Chapel Hill, North Carolina and his colleagues have discovered a new and noninvasive way to test for the condition. The test measures "Haufen"—a German term meaning stack or pile—in the urine. Haufen are tightly clustered viral aggregates that form within the kidneys in patients with polyomavirus nephropathy and are excreted in the urine. Testing for Haufen is fast (three hours), inexpensive (less than \$400), and easy to perform with current laboratory equipment.

Through their investigation, the researchers found Haufen in urine samples from all 21 patients with early or late stages of polyomavirus nephropathy, but not in any of the 139 individuals without the condition.

According to Dr. Nickleit, the new test could help physicians identify and monitor patients with polyomavirus nephropathy and could guide them as they design new therapeutic strategies. "An early and accurate diagnosis of polyomavirus nephropathy will result in a better understanding of the disease and ultimately improve treatment," he said. "Our diagnostic test is unique and could have a tremendous clinical impact," he added.

While their findings look promising, the authors stress that additional studies—particularly large prospective clinical trials—are needed to verify the test's potential before it can become available for widespread use in patients with suspected polyomavirus nephropathy.

Source: American Society of Nephrology

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