Study provides new insights on common post-transplant condition

March 14 2019

New research may help clinicians determine which patients with a condition that commonly arises after kidney transplantation are at high risk of transplant failure. The findings appear in an upcoming issue of the *Journal of the American Society of Nephrology* (*JASN*).

A condition known as transplant glomerulopathy was first described in transplanted kidneys decades ago but its features have not been well-characterized. The condition is common, is associated with a poor prognosis, and affects the transplanted kidney's glomeruli, the tiny ball-shaped structures composed of capillary blood vessels involved in the filtration of the blood to form urine. Transplant glomerulopathy affects 5% to 20% of kidney transplant recipients and up to 55% of those in high-risk groups, and some of its characteristics are present in several other disease processes, making its diagnosis difficult.

To provide some clarity, Olivier Aubert, MD, Ph.D., Alexandre Loupy, MD, Ph.D. (Paris Translational Research Center for Organ Transplantation, in France) and their colleagues performed an analysis of comprehensive pathology findings and clinical, immunological, and outcome data to identify and characterize distinct groups of patients with transplant glomerulopathy.

By applying their data-driven machine learning approach to 385 patients diagnosed with the condition based on post-transplant biopsies, the investigators identified 5 groups of patients with distinct features, as well as different outcomes in terms of survival rates of transplanted kidneys.

The team also developed a readily usable tool for clinicians that allows them to enter the clinical, histological, and immunological parameters of patients to categorize them into proper groups and predict their health outcomes. The tool may be useful for individualizing treatments for patients based on their risk of transplant failure.

"Our research shows how we could interrogate a multilevel highly annotated dataset with patients having the same disease, in order to distinguish different profiles of patients with different profiles of transplant organ survival," said Dr. Aubert.

"All patients with a given disease are not equal, and machine learning approaches can help us to identify different risk profiles of allograft loss within a population of patients," added Dr. Loupy.

More information: Olivier Aubert et al, Archetype Analysis Identifies Distinct Profiles in Renal Transplant Recipients with Transplant Glomerulopathy Associated with Allograft Survival, *Journal of the American Society of Nephrology* (2019). DOI: 10.1681/ASN.2018070777

Provided by American Society of Nephrology