Antibodies may predict transplant rejection risk

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The presence of certain antibodies in patients may suggest a higher risk of transplant rejection across multiple organ types, including the kidney, liver, heart and lungs, according to a new study published in *PLOS*

Medicine.

"The field of transplantation will benefit from this study by being able to better determine the risk of rejection in some transplant patients," said co-author John Friedewald, MD, professor of Medicine in the Division of Nephrology and Hypertension and of Surgery in the Division of Organ Transplantation.

Despite immunosuppressive therapies, organ rejection remains a significant challenge in transplantation, with thousands of transplanted organs failing each year.

In previous studies, a group of antibodies called anti-human leukocyte antigen donor-specific antibodies (anti-HLA DSAs) have been increasingly recognized as an important contributor to rejection and long-term failure of transplanted organs, especially of kidneys. However, it has remained unclear whether anti-HLA DSAs are associated with poor outcomes in transplantation consistently across patient populations, and across multiple organ types.

In the current study, investigators performed a meta-analysis of 37 publications, which included data from close to 8,000 patients who had received either kidney, liver, heart or lung transplants.

The scientists discovered that organ recipients with circulating complement-activating anti-HLA DSAs had a three-fold increased risk of long-term transplant loss—compared to patients without anti-HLA DSAs or with those anti-HLA DSAs that were considered non-complement-activating. Beyond survival, the antibodies were also associated with an increased risk of organ rejection.

The findings were consistent across all organ types and across different tests and times of evaluation.

Overall, the results suggest that complement-activating anti-HLA DSAs could potentially serve as a biomarker to stratify the risk of organ rejection and failure in transplant patients.

"The clinical implication will be better donor selection and improved monitoring for people needing a transplant and after transplant," Friedewald said.

The authors also note that further research is needed in order to investigate whether the antibodies might also represent a route to therapeutics interventions. "Eventually, this could lead to improved treatment protocols for rejection," Friedewald said.

More information: Antoine Bouquegneau et al. Complement-activating donor-specific anti-HLA antibodies and solid organ transplant survival: A systematic review and meta-analysis, *PLOS Medicine* (2018). DOI: 10.1371/journal.pmed.1002572

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