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Rapid testing for gene variants in kidney donors may optimize transplant outcomes

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Kidney transplantation outcomes from deceased African-American donors may improve through rapid testing for apolipoprotein L1 gene (APOL1) renal risk variants at the time of organ recovery, according to a new study led by researchers at Wake Forest Baptist Medical Center.

Variation in the APOL1 gene is associated with up to 40 percent of all kidney diseases in African-Americans who undergo dialysis or kidney transplantation, and APOL1 kidney disease risk variants are only present on the chromosomes of individuals who possess recent African ancestry, such as African-Americans, according to the researchers.

The study, published in the March 24 issue of the *American Journal of Transplantation*, found that renal risk variants in the APOL1 gene in deceased African-American kidney donors were linked with shorter survival of transplanted kidneys.

"Our findings may assist physicians in decisions on which patients should receive higher-risk-for-failure donor kidneys," said Barry Freedman, M.D., professor of nephrology at Wake Forest Baptist and senior author of the study. "This research again demonstrates that APOL1 high-genetic-risk kidneys failed more quickly after transplantation than did low-risk kidneys without two APOL1 gene renal risk variants."

The research team analyzed a total of 675 kidney transplantations from deceased African-American organ donors. Outcomes were assessed in

subsequent kidney transplants that were performed at 55 U.S. centers, adjusting for factors known to influence the outcomes of kidney transplantation.

The survival analysis revealed that kidneys from donors with two APOL1 gene renal risk variants failed more rapidly than did those from donors with fewer than two risk variants. The majority of these kidney transplant failures occurred early, many within two to three years after transplantation, the study reported.

Results from the study confirmed that two APOL1 gene variants in donor kidneys were associated with more than a two-fold increased risk of organ failure after transplantation.

"These results warrant consideration of rapidly genotyping deceased African-American kidney donors for APOL1 renal risk variants at the time of organ recovery," Freedman said. "APOL1 genotype data should be incorporated in the organ allocation and informed-consent processes for deceased donor transplantation."

Provided by Wake Forest University Baptist Medical Center

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