At the end of 2014, a new deceased donor kidney allocation system (KAS) was introduced, with the goal of improving organ equity and graft-recipient longevity matching. A series of simulations suggested that the KAS is expected to meet at least some of those goals—while cutting the average waiting list time by about six months.

Data from the first months of the “post-KAS” era suggest improved access to deceased donor kidney transplantation (DDKT) for racial/ethnic minorities, younger patients, and highly sensitized patients. But the evidence also raises concerns about delayed graft function, potentially leading to poorer long-term outcomes.

Bekir Tanriover, MD, MPH, of the University of Texas Southwestern Medical Center, Dallas, and colleagues, performed a series of simulations to evaluate the new KAS by using the Kidney-Pancreas Simulated Allocation Model—the same software used by the Organ Procurement and Transplant Network to evaluate policy change. The study appeared in Transplantation Proceedings.

The results suggested that the KAS might lead to decreased waiting times for DDKT: from a median of 2.3 to 1.8 years. The estimates also indicated that more patients may undergo transplantation within the first year: from 20.7 to 31.3%.

The simulations also suggested an increased number of transplantations in patients with more than 5 years on dialysis, longevity matching, blood group B, and highly sensitized patients with a calculated panel reactive antibody (CPRA) of 98% or greater. The chances of transplantation would increase for African American and Hispanic patients. Other groups would see a decrease, including patients older than 65, those with less than 3 years on dialysis, and those with diabetes.

“We projected that estimated median waiting time among transplant recipients might be decreased six months (22%) under KAS,” Dr. Tanriover and coauthors conclude. “These changes may reflect a ‘bolus effect’ related to points awarded for previous dialysis time and priority points based on CPRA. Because the new allocation system is not expected to increase the number of available organs, the decrease in waiting time may diminish over time.”

“Mixed record” in first months of post-KAS era

How are those projections playing out in the real world? In a study published in the Journal of the American Society of Nephrology, Dorry L. Segev, MD, of Johns Hopkins University analyzed DDKT allocations during the first 9 months after the KAS was introduced—from December 2014 through August 2015.

The proportion of regional imports increased from 8.8 to 12.5% from the pre-KAS to post-KAS era, while national imports increased from 12.7 to 19.1%. Consistent with the simulation finding of increased longevity matching, the percentage of recipients more than 30 years older than their donors decreased from 19.4 to 15.0%. Highly sensitized patients were also more... Continued on page 7
likely to receive organs—the percentage with CPRA of 100 increased from 1.0 to 10.3%.

After adjustment for candidate characteristics and wait time, there was no overall change in the DDKT rate under the new system. But some subgroups were more likely to receive a kidney, with incidence rate ratios of 1.19 for black candidates, 1.13 for Hispanic candidates, and 1.47 for those aged 18 to 40 years. In contrast, incidence rate ratios were 0.93 for candidates aged 51 to 60 and 0.90 for those over 70.

The data also suggested an increase in delayed graft function after introduction of the KAS: from 24.8 to 29.9%. This finding was “partly explained” by increases in cold ischemia time: from a median of 15.0 to 16.4 hours. There was also a 10% increase in the odds of organ discard, limited to kidneys with a Kidney Donor Profile Index of 79 or higher.

Dr. Segev and coauthors note that changes in organ allocation policy are an “appropriate tool” to address disparities in access to organ transplantation—but they cannot solve the problem of organ shortages, and “can easily lead to unintended consequences.” The authors conclude, “The mixed record of KAS in its first nine months of implementation underscores the need to increase the deceased donor organ pool, as well as to reduce the reliance on DDKT by improving access to and understanding of live donor kidney transplantation.”

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