

Persistent Disparities in Preemptive Kidney Transplantation

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Established in 1984 by the US Congress through passage of the National Organ Transplant Act, the Organ Procurement and Transplantation Network (OPTN) governs the allocation of donated organs and the collection of transplant data nationwide. Effective December 4, 2014, the OPTN Kidney Allocation System (KAS) drastically changed deceased donor kidney allocation. The new KAS was designed in response to national calls to reduce discard rates of kidneys, retransplant rates, variability in deceased donor kidney transplantation for highly sensitized patients, and disparities in access to deceased donor kidney transplantation resulting from the way waiting time was previously calculated (1). A major allocation change of the new KAS is that waiting time for patients now includes time spent after starting treatment for ESKD before being registered on the transplant waitlist (1).

Since the implementation of KAS, a number of studies have used national registry data to compare kidney distribution, deceased donor kidney transplantation rates for waitlist registrants, and recipient characteristics. These studies concluded that overall access to deceased donor kidney transplantation improved for younger candidates, highly sensitized patients, and racial/ethnic minority patients, who were disadvantaged by the pre-KAS waiting time system because of well documented delays in referral for transplantation (2,3). In this issue of *CJASN*, King *et al.* (4) assessed trends in preemptive deceased donor kidney transplantation as a relative proportion of deceased donor kidney transplants, from 2000 to 2018, to identify whether the introduction of the new KAS affected disparities in preemptive transplantation, as this timing of transplantation has been associated with better transplant outcomes and other important benefits for patients. The authors used Scientific Registry of Transplant Recipients (SRTR) data from an adult cohort of 157,073 first-time, deceased donor kidney transplant recipients, including 111,153 patients who received a transplant before 2014 (pre-KAS) and 36,584 patients who received a transplant after 2014 (post-KAS). They found that although the overall proportion of preemptive transplants increased post-KAS from 9.0% to 9.8%, disparities in preemptive deceased donor kidney transplantation persisted after the 2014 KAS policy changes and were

exacerbated for black, Hispanic, and Medicare patients, compared with white and privately insured patients. The authors found that these worsening disparities were driven by a greater number of post-KAS preemptive transplants among white patients and those with private health insurance coverage. There were no appreciable changes in the number of black, Hispanic, or Medicare patients undergoing preemptive transplants, and there was no relation of the post-KAS era to preemptive living donor kidney transplant disparities.

The findings by King *et al.* are consistent with previous work suggesting that disparities in preemptive transplantation persist despite decades of recognition and efforts to improve equity in transplant access. In a prior study of SRTR data, Grams *et al.* (5) reported preemptive deceased donor kidney transplantation occurred most often among white patients and those with private insurance. In a retrospective study of 65,385 adult deceased donor kidney transplant recipients from 2011 to 2017, Harhay *et al.* (6) noted that compared with recipients without preemptive wait-listing, preemptively listed recipients were more likely to be white, have private insurance, and be college graduates. In a study assessing racial disparities in preemptive transplant referral in Georgia, Patzer *et al.* (7) found the odds of black patients being preemptively referred for transplant evaluation were 37% lower than white patients. King *et al.* examined data on deceased donor kidney transplant recipients, and therefore could not determine whether preemptive waitlisting for transplantation varied by sociodemographic groups after KAS. In a supplemental figure, however, the authors noted that in the most recent year examined (2018), those patients who ultimately received a preemptive transplant had spent, on average, about 1 year on the waitlist. This would have necessitated referral to general nephrology at least approximately 18 months before deceased donor kidney transplantation, to allow approximately 6 months to be referred to and complete the transplant evaluation process and ultimately be waitlisted. This timeline could be quite challenging to meet for uninsured or underinsured individuals, as well as persons with rapidly declining kidney function, which disproportionately affects racial/ethnic minorities. Notably, King *et al.* found that a large proportion

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(15.5%; 2264 out of 14,620) of preemptive transplant recipients had ESKD attributed to polycystic kidney disease, which tends to progress more slowly than kidney disease attributed to diabetes, hypertension, or GN, and its genetic origin may trigger earlier referral to nephrology, facilitating timely transplant evaluation. Furthermore, the post-KAS timeframe the authors examined coincided with the reversal of the decade-long trend toward earlier dialysis initiation (*i.e.*, at eGFR > 10 ml/min per 1.73 m²), which may have afforded patients being closely followed by a nephrologist more time to await a preemptive transplant.

With their focus on preemptive deceased donor kidney transplantation rates after a policy change, King *et al.* offer a timely analysis as United States policies surrounding kidney disease care come into sharper focus. Their findings suggest that, although KAS was not intended to specifically address disparities in preemptive transplantation, post-KAS increases therein primarily benefited patients who were white, older, female, more educated, held private insurance, and had an ESKD cause other than diabetes or hypertension (4). It is not entirely clear how KAS might have advantaged each of these groups; however, one could imagine that if the overall pool of available kidneys increased, those patient groups that were more likely to have been preemptively waitlisted, for both socially and clinically determined reasons, would have been best positioned to receive a preemptive transplant. On July 10, 2019, the US Department of Health and Human Services announced a new vision for kidney health that includes several goals surrounding kidney transplantation. Signed by executive order, “Advancing American Kidney Health” aims to double the number of kidneys available for transplant by 2030, and optional care models will include incentives for health care providers whose patients are preemptively transplanted (8). As the kidney care models aimed at achieving this and other goals of the order are launched, the potential effect on disparities in access to preemptive (and nonpreemptive) transplants should be a focus. Thoughtfully developed, executed, and monitored, the programs stemming from this initiative could offer an opportunity to mitigate disparities.

Achieving equity in preemptive deceased donor kidney transplantation will undoubtedly require health policy advances increasing access to high-quality health care, as well as multifaceted approaches addressing both upstream and downstream factors to remove barriers to transplantation among socially disadvantaged patients. Upstream factors, including earlier detection and communication of a CKD diagnosis in primary care, could support increased preparedness for transplantation. Tools for using the electronic health record to facilitate such detection are increasingly being examined (9). Downstream factors, such as timely, unbiased, shared decision making discussions about kidney treatment options for patients with clinical parameters indicating a likely need for kidney replacement therapy in the next year, might also lead to greater receipt of preemptive transplants. Promotion of a “Transplant First” culture in nephrology care, akin to the successful “Fistula First” campaign, might do well in this effort. Importantly, the role of patient preferences should be considered in policy development as well as future studies of preemptive transplantation, as some people approaching a

need for kidney replacement therapy may be most comfortable waiting “until it’s absolutely necessary,” which is difficult to align with the timing of the availability of a deceased donor kidney.

In summary, despite reported post-KAS improvements in overall access to deceased donor kidney transplantation for racial/ethnic minorities, younger candidates, and highly sensitized patients, additional work is needed to address barriers driving pervasive disparities in preemptive transplantation. Factors related to access to pre-ESKD nephrology care, quality, and timing of transplant education, assessment of transplant eligibility, and receipt of preemptive transplant referral, particularly for racial/ethnic minority patients and patients with lower socioeconomic status, likely stand at the forefront of barriers to eliminating these disparities.

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