Removing Disparities in Transplantation Referral and Outcomes: A Call to Action

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K idney transplantation is the renal replacement therapy (RRT) of choice for most patients with ESRD because it is associated with improved survival and improved quality of life, and it is less expensive than dialysis. The process leading to transplantation is complex, with multiple necessary steps that must be completed before transplantation. Despite improvement in outcomes, disparity across the board in the transplantation process continues to be a major problem.

Barriers to cadaveric renal transplantation among blacks and women

Alexander and Sehgal (1) found that African Americans, women, and the financially disadvantaged have lower rates of completion of each step of the transplantation process required for listing and eventual transplantation, suggesting that many systemic socioeconomic and educational issues prevent this population from progressing in the transplantation process.

Survey results demonstrate that nephrologists consider preemptive transplantation to be the optimal treatment modality for eligible patients; however, late referral, health insurance status, and delayed evaluation by transplantation centers are perceived as major barriers to preemptive transplantation (2). Of the 95,456 patients on the waitlist in 2016, 36.4% were white and 33.2% were African Americans—a gap that has narrowed over the years (3). The rate of transplantation in patients on the waitlist continues to be higher in whites than in African Americans (4) (vs. 2.8/100 patient years). A major barrier is the difference in the rates of living donor kidney transplantation (LDKT), which are higher in whites than in African Americans (1.5% vs. 0.4%).

Progress in reducing the disparity gap in deceased donor kidney transplantation

There is no significant difference in the rates of deceased donor kidney transplantation (DDKT) between whites and African Americans (2.4% vs. 2.3%) (4), in part because of changes in the allocation system and changing the date of withdrawn to the date of start of ESRD therapy (5, 6). Disparities in deceased organ donor rates have also disappeared because of significant increases in deceased organ donor rates in African Americans from 4 to 7.8 donors per 100 deaths compared with whites (73 donors per 1000 deaths). The gap in graft survival at 5 years has also narrowed and is currently at 85% for whites and 92% for African Americans.

Racial disparities in renal allograft outcomes

Purnell et al. (7) found that the 5-year graft loss after DDKT improved from 51.4% to 30.6% for African Americans and from 37.3% to 25.0% for white adults who received a first-time renal transplant during 1990 to 2012. During the same time period, the 5-year graft loss after DDKT improved from 37.4% to 22.2% for African Americans and from 20.8% to 15.9% for whites. Among DDKT recipients in the earliest cohort, African Americans were 58% more likely than whites to experience 5-year graft loss. There were no statistically significant differences in 1-year or 3-year graft loss after DDKT or DDKT in the most recent cohorts. Patient survival at 5 years after DDKT improved from 89.6% to 92.1% for whites and from 87.9% to 90.9% for African Americans, and patient survival at 5 years after DDKT improved from 78.8% to 81.2% for whites and from 79.9% to 84.2% for African Americans.

Using U.S. transplant registry data, Taber et al. (8) reported, in kidney recipients undergoing transplantation between 1990 and 2009, that the absolute risk difference between African Americans and whites for 5-year graft loss significantly declined over time (0.92% decrease per 5 years), whereas the relative risk difference significantly increased (3.4% increase per 5 years).

In the 2016 data from the United Network for Organ Sharing (UNOS) and the Organ Procurement and Transplantation Network (OPTN), 5-year living donor graft survival was lower for African American recipients than for any other racial or ethnic group, at 82.0% compared with 92.3% for Asian, 89.9% for Hispanic, and 85.7% for white recipients, respectively. Patient survival in living donor allografts did not show this trend (3). Higher immunologic risk resulting from HLA mismatches, higher panel reactive antibodies and genetic polymorphisms in cytokine production, APOI gene variants, lower bioavailability of calcineurin inhibitors associated with cytochrome P450 3A5 polymorphism, higher pretransplantation diltiazem vial age, lower socioeconomic status income, reduced access to healthcare, and nonadherence have been suggested as possible reasons for inferior renal allograft outcomes (8–10). Overall, advances in immunosuppression and transplant management may have helped improve these disparities in renal allograft outcomes.

The gender gap

Gender disparity in access to hemodialysis (HD) and kidney transplantation has created a public health crisis in the United States. Women have a lower chance of receiving HD and a kidney transplant than men, but they constitute the majority of living kidney donors (11). Kemph et al. (12) suggested that mothers might be more willing to donate, followed by fathers and siblings. Women are at a triple disadvantage: a reduced probability of receiving HD and hence being considered for transplantation; poorer access to transplantation by not completing a pretransplantation workup, moving up a waitlist and receiving a transplant; and higher sensitization to HLA antigens. Women also donated more living-related and unrelated kidneys but received fewer living kidneys than did men. Research is indicated to enable an understanding of the underlying societal gender bias in kidney transplantation (13).

The way forward

Despite several campaigns at the national level, disparity in living kidney transplants has not improved since 1995 (14). Recommendations from a consensus conference (15) to improve living kidney donation in minority populations included 1) removal of financial disincentives to living kidney donation; 2) implementing culturally tailored, community-based educational programming at multiple stages of the referral process; 3) engaging a transplant liaison in community nephrology practices and dialysis; and 4) developing a research strategy to better understand LDKT disparities and donor differences. Obviously, increasing awareness about these disparities and differences among community nephrologists, dialysis providers, and transplantation professionals is a critical first step toward improving the rates of LDKT in African Americans (16).

More importantly, addressing the social determinants of health at the population level is critical in reducing health disparities. In a recent study published in the Clinical Journal of the American Society of Nephrology (July 2018), Harhay et al. (17) used the UNOS/OPTN database to examine whether expanding Medicaid under the Affordable Care Act in the United States was associated with differences in individual and group differences; the authors found that 24 states that fully implemented Medicaid expansion had a 59% relative increase in Medicaid-covered preemptive listings compared with an 8.8% relative increase among the 19 states that did not expand the program, with larger increases in Medicaid coverage among racial and ethnic minority listings than among white listings. This study clearly illustrates the potential to eliminate health disparities when social determinants of health such as health insurance coverage are addressed at the population level.

References


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