Racial Disparities Exist in the Transplant Process among Hispanic Patients on Dialysis

Adam G. Walker, PhD[1]; Carey Colson, MBA[1]; Danelle Radney, MBA[2]; Unini Odama, MD, MPH, MBE[2]; Will Maixner, MHA[2]; Francesca Tentori, MD, MS[1]; Steven M. Brunelli, MD, MSCE[1]

[1]DaVita Clinical Research, Minneapolis, Minnesota; [2]DaVita Inc., Denver, Colorado

Introduction and Objective

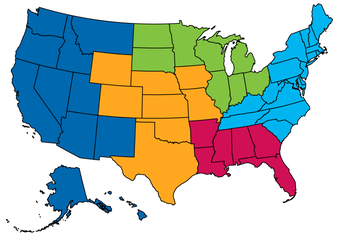
- Kidney transplantation is considered the best long-term treatment for individuals with end-stage kidney disease (ESKD).
- Previous results revealed that African American individuals requiring dialysis are 54% less likely to receive a kidney transplant than White patients.[1]
  - African American individuals were more likely to be referred for kidney transplantation (23%) but less likely to be waitlisted (19%) or receive a transplant (52%) compared with white individuals, suggesting potential disparities in later steps of the transplant process.
- We sought to examine if any disparities exist for Hispanic dialysis-dependent individuals.

Methods

- This retrospective study used electronic health records and county-level indices of socioeconomic deprivation at the time of dialysis initiation at a kidney care organization.
- Individuals included in the study (n=50,102) were those who initiated dialysis between July 2015 and June 2018, were 18-80 years old, either Caucasian or Hispanic, and began care with a kidney care organization within 30 days of first ever dialysis.
- Individuals with prior transplant or transplant evaluation/listing were excluded. Individuals were followed from date of first eligibility until June 30, 2022 or until censoring for death, transfer, withdrawal from dialysis, renal recovery, or loss to follow up.
- Outcomes included transplant referral, waitlisting, or receipt and were compared using time-to-event models.
- Models were adjusted for differences in demographic factors, comorbidities, laboratory values, and socioeconomic factors across exposure categories.

Results

Figure 1. US and Organ Procurement Organization Regions



- West (OPO 5 & 6: AZ, CA, NM, NV, UT, AK, HI, ID, MT, OR, WA)
- Middle America (OPO 4 & 8: OK, TX, CO, IA, KS, MO, NE, WY)
- Upper Midwest (OPO 7 & 10: IL, MN, ND, SD, WI, IN, MI, OH)
- East (OPO 1, 2, 9, & 11: CT, MA, ME, NH, RI, VT, DC, DE, MD, NJ, WV, NY, KY, NC, SC, TN, VA)
- Southeast (OPO 3: AL, AR, FL, GA, LA, MS, PR)

Table 1: Patient Characteristics

	Caucasian N = 36,277	Hispanic N = 13,825
Age, years, mean ± SD	64.3 ± 11.8	58.3 ± 13.5
Female, %	42.0%	40.8%
BMI, kg/m², mean ± SD	30.4 ± 8.3	28.6 ± 7.3
Etiology of ESKD, %		
Diabetes	38.5%	49.6%
Hypertension	19.5%	16.5%
Other/ Unknown	42.0%	33.9%
Modality/Access, %		
HD-AVF,	16.5%	12.2%
HD-AVG,	2.4%	1.7%
HD-CVC/Other/Unknown,	72.9%	80.5%
PD	8.2%	5.6%
Diabetes, %	72.2%	83.1%
Heart Failure, %	2.4%	1.3%
Coronary Artery Disease, %	9.5%	9.1%
Amputation, %	1.5%	1.6%
CCI score, mean ± SD	5.3 ± 1.4	4.9 ± 1.5
Insurance Type, %		
Medicare	68.8%	44.8%
Medicaid	11.4%	32.9%
Commercial	17.8%	16.4%
Other	2.0%	5.9%
US Region, n (%)		
West (OPO 5 & 6)	17.1%	47.1%
Middle America (OPO 4 & 8)	16.3%	26.4%
Upper Midwest (OPO 7 & 10)	21.3%	4.9%
East (OPO 1, 2, 9, & 11)	28.5%	12.0%
Southeast (OPO 3)	16.9%	9.5%

AVF, arteriovenous fistula; AVG, arteriovenous grafts; BMI, body mass index; CCI, Charlson comorbidity index; CVC, central venous catheter; ESKD, end-stage kidney disease; HD, hemodialysis; OPO, organ procurement organization; PD, peritoneal dialysis

Figure 2. Socioeconomic Factors

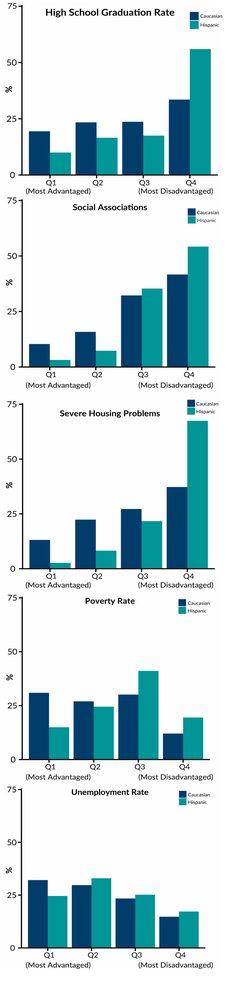


Figure 3. Transplant Pathway Outcomes among Incident Dialysis Patients

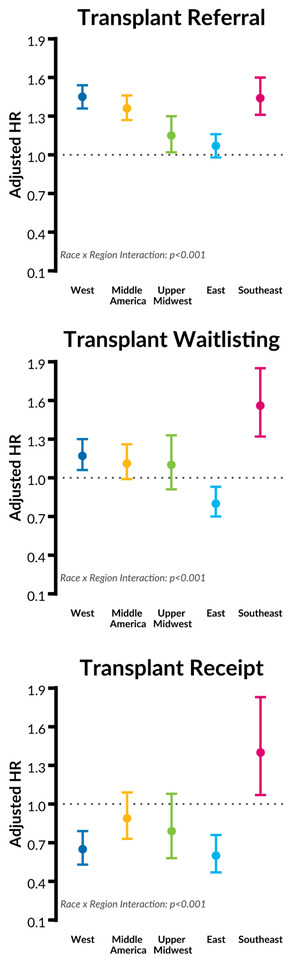


Figure 4. Summary of Transplant Outcomes for Hispanic Patients Relative to Caucasian Patients by Region

	Likelihood of being ***referred*** after starting dialysis	Likelihood of being ***listed***, if referred	Likelihood of getting a ***transplant***, if listed	Net effect on getting a ***transplant***
West	+45%	-5%	-41%	-35%
Middle America	+36%	-10%	-25%	-11%
Upper Midwest	+15%	+5%	-27%	-21%
East	+7%	-13%	-20%	-40%
Southeast	+44%	+29%	+1%	+40%

* Green indicates a significantly higher event rate for Hispanics than Caucasians; red indicates a significantly lower event rate for Hispanics than Caucasians; gray indicates non-significance between groups.

Conclusions

- The progression of Hispanic patients through the transplant process varies by region.
- In most regions Hispanic patients are less likely to receive a kidney transplant than Caucasian patients after accounting for sociodemographic differences.
  - Hispanic patients are more likely to be referred and placed on the waitlist (expect in the East where they are less likely). However, they are less likely to receive an organ after being placed on a waiting list (nominally lower in 4 of 5 geographies and statistically significant in 2); this effect supersedes the benefits in referral or waitlisting.
- A different pattern was observed in the Southeast; not only were individuals more likely to be referred, but also listed.
- The regional heterogeneity in outcomes may partially relate to differences in the ethnic makeup of the Hispanic population across the US.
- In this sample, fewer kidney transplants occurred among Hispanic patients than Caucasian patients during the study period (2015-2022); therefore, highlighting existing disparities Hispanic patients face within the United States kidney allocation system.

Limitations

- Hispanic is a non-specific race/ethnicity label that represents those with ancestry from a large, heterogenous region of the world. Country of origin information was unavailable for patients included in the analysis therefore we could not more specifically classify patients.
- Misattribution of patient race/ethnicity could not be accounted for. This likely would have led to an underestimation of disparities in the transplant process.
- This was a retrospective, observational study; residual confounding exists and cannot be accounted for.

References and Acknowledgements

1. Sawinski, D, et. al.; Racial disparity exists in the waitlist and transplant processes for Black patients. NNI, Nov 2022.

We extend our sincere appreciation to the teammates in more than 2,000 DaVita clinics who work every day to take care of patients and to ensure the extensive data collection on which our work is based. We specifically acknowledge Kathryn Husarek of DaVita Clinical Research for editorial contributions in preparing this poster.

Correspondence: Adam.Walker@davita.com

Presented at ASN Annual Meeting 2024 Kidney Week, San Diego, CA