

Introduction

- Living donor kidney transplantation (LDKT) offers another treatment option for patients with end stage kidney disease (ESKD). LDKT often results in better patient and graft survival compared to deceased donor kidney transplants.
- Despite these benefits, only 23% of all kidney transplants in 2022 were from a living donor.¹

Objective

• To provide insight into potential barriers to living donation, we quantified the associations of interest in, and pursuit of, living donor transplant with geographic, demographic, and socioeconomic factors among ESKD patients.

Methods

- This was a retrospective study of 151,656 adult ESKD patients on dialysis for whom preferences and potential pursuit of transplant status were documented in clinical records at a dialysis organization.
- Outcomes considered were interest in living donation and separately, pursuit of living donor transplant.
- Publicly available data sources were used for classification of socioeconomic status.
- Associations between patient characteristics and outcomes were quantified with odds ratios and 95% confidence intervals derived from multivariate logistic regression models assuming a binomial distribution.

Results

Documented Interest and Pursuit in Living Donation

		Inter			
		Interested	Not Interested	Not Documented	Total
Pursuit of a Living Donation	Pursuing	7,376 (4.9%)	1,168 (0.8%)	1,072 (0.7%)	9,616 (6.3%)
	Not Pursuing	3,903 (2.6%)	45,563 (30.0%)	26,694 (17.6%)	76,160 (50.2%)
	Not Documented	395 (0.3%)	1,488 (1.0%)	63,997 (42.2%)	64,880 (43.4%)
	Total	11,674 (7.7%)	48,219 (31.8%)	91,763 (60.5%)	151,656 (100%)

- For the 59,893 patients in whom interest was recorded, 11,674 (19.5%) were interested in living donor transplant.
- Among those interested, 7,376 (63.2%) reported having pursued a living donation.

Sociodemographic Barriers to Interest and Pursuit of Living Donation among ESKD Patients

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Results

Baseline Patient Characteristics									
	Not Interested in Living Donation N=48,893	Interested in Living Donation N=11,674	Standardized Mean Difference ^a	Not Pursuing a Living Donation N=3,903	Pursuing a Living Donation N=7,376	Standardized Mean Difference ^a			
Age at dialysis start, years, mean ±SD	53.2 ± 12.9	51.3 ± 13.7	-0.14	51.7 ± 13.2	51.0 ± 14.0	-0.05			
Race/ethnicity, n (%) White Black Hispanic Asian Other/Unknown/Missing	13,090 (27.1%) 16,142 (33.5%) 11,427 (23.7%) 2,542 (5.3%) 5,018 (10.4%)	3,701 (31.7%) 3,439 (29.5%) 2,677 (22.9%) 530 (4.5%) 1,327 (11.4%)	0.12	1,095 (28.1%) 1,388 (35.6%) 801 (20.5%) 207 (5.3%) 412 (10.6%)	2,535 (34.4%) 1,928 (26.1%) 1,768 (24.0%) 307 (4.2%) 838 (11.4%)	-0.23			
Female, n (%)	18,654 (38.7%)	4,699 (40.3%)	0.03	1,511 (38.7%)	2,997 (40.6%)	0.04			
Diabetes, n (%)	32,058 (66.5%)	7,148 (61.2%)	-0.11	2,439 (62.5%)	4,456 (60.4%)	-0.04			
Insurance type at dialysis start, n (%) Commercial Medicare Medicaid Other/Unknown/Missing	13,637 (28.3%) 18,784 (39.0%) 13,111 (27.2%) 2,687 (5.6%)	4,057 (34.8%) 4,001 (34.3%) 3,038 (26.0%) 578 (5.0%)	-0.14	1,264 (32.4%) 1,387 (35.5%) 1,040 (26.6%) 212 (5.4%)	2,674 (36.3%) 2,478 (33.6%) 1,869 (25.3%) 355 (4.8%)	-0.08			
Etiology of ESKD, n (%) Diabetes Hypertension Other/Unknown/Missing	17,155 (35.6%) 11,134 (23.1%) 19,930 (41.3%)	3,706 (31.7%) 2,635 (22.6%) 5,333 (45.7%)	-0.09	1,255 (32.2%) 947 (24.3%) 1,701 (43.6%)	2,337 (31.7%) 1,603 (21.7%) 3,436 (46.6%)	-0.07			
Attended kidney education class, n (%)	11,300 (23.4%)	3,101 (26.6%)	0.07	990 (25.4%)	2,034 (27.6%)	0.05			
CDC Social Vulnerability Index, ^b mean±SD	0.5 ± 0.3	0.5 ± 0.3	-0.02	0.5 ± 0.3	0.5 ± 0.3	-0.03			
Residents below poverty line, ^b mean±SD	15.8 ± 8.8	14.8 ± 8.6	-0.12	15.5 ± 9.1	14.4 ± 8.4	-0.12			
Rurality, ^b n (%) Urban Suburban Large Town Rural Small Town Rural	39,763 (82.5%) 3,072 (6.4%) 3,026 (6.3%) 2,358 (4.9%)	9,467 (81.1%) 800 (6.9%) 763 (6.5%) 644 (5.5%)	-0.04	3,229 (82.7%) 237 (6.1%) 254 (6.5%) 183 (4.7%)	5,894 (79.9%) 541 (7.3%) 494 (6.7%) 447 (6.1%)	-0.08			
Annual state transplant rate, ^c per 1 million population, mean±SD	67.8 ± 30.3	67.8 ± 35.1	0.00	70.0 ± 46.5	66.7 ± 27.7	-0.08			

Standardized mean differences ±0.10 are indicative of potential imbalance between groups.

^o Based on patient zip code.

^a Mean number of kidney transplants for 2017-2021 (source: OPTN) per 1 million residents for each US State. Emboldened Standard Mean Differences are for values greater than ±0.10.



Plotted are multivariate adjusted odds ratios with 95% confidence interest in living donation among patients who were interested (right panel) based on logistic regression models adjusted all other characteristics shown. For each variable, adjusted odds ratios are referent to the subgroup listed furthest to the left within the respective variable.

Results & Conclusions

- The following factors were associated with interest in living donation: age at dialysis start, race/ ethnicity, sex, diabetes status, insurance type at dialysis start, kidney education course attendance, and poverty level.
- The following factors were associated with pursuit of a living donation: age at dialysis start, race/ ethnicity, and insurance type at dialysis start.
- This information may be useful in the design of interventions to increase living donor kidney transplantation rates.

Limitations

- Indicators of interest in and pursuit of living donation were derived solely from the EHR at a dialysis organization.
- These analyses did not determine how many patients received transplants (living or deceased donations).

References

1. Lentine, K.L., et al. 2022. Amer J Transp. OPTN/SRTR 2020 Annual Data Report: Kidney

Acknowledgments

We extend our sincere appreciation to the teammates in DaVita clinics who work every day to take care of patients and also to ensure the extensive data collection on which our work is based. We acknowledge Kathryn Husarek of DaVita Clinical Research[®] (DCR[®]) for editorial contributions in preparing this poster.

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Poster available at www.davitaclinicalresearch.com

American Society of Nephrology Kidney Week, November 1-5, 2023, Philadelphia, PA

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