Implications of Updated eGFR on Simultaneous Heart-Kidney Transplant Eligibility and Clinical Outcomes

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Introduction

- The Organ Procurement and Transplantation Network changed its policy to require that transplant centers update their formulas for estimated glomerular filtration rate (eGFR) in 2023 to remove the race-based variable.

CKD-EPI Creatinine Equation (2009)

eGFR: 141^{*}
$\min(\text{standardized } S_{cr}/K, 1)^{\alpha *}$
$\max(\text{standardized } S_{cr}/K, 1)^{-1.209 *}$
$0.993^{\text{Age} *}$
1.018 [if female]) *
1.159 [if black])

CKD-EPI Creatinine Equation (2021)

eGFR= 142^{*}
$\min(\text{standardized } S_{cr}/K, 1)^{\alpha *}$
$\max(\text{standardized } S_{cr}/K, 1)^{-1.200 *}$
$0.9938^{\text{Age} *}$
1.012 [if female])

- We sought to determine the impact of this policy change on use of dual-organ transplant and clinical outcomes for heart transplant (HT-alone) and simultaneous heart-kidney transplant (SHKT) recipients.

Methods

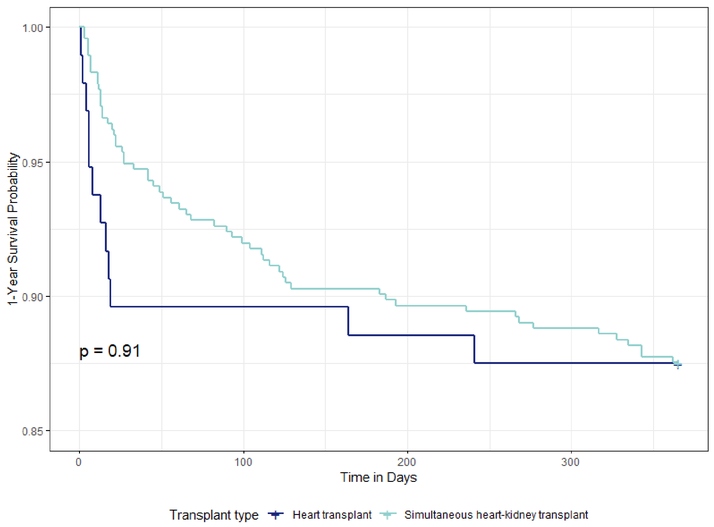
- Using the Scientific Registry of Transplant Recipients database, we identified all HT-alone and SHKT recipients from January 1, 2000, through August 31, 2019.
- Black SHKT recipients were compared with Black HT-alone recipients who had a CKD-EPI 2021 eGFR of 30 mL/min/1.73 m² or less and CKD-EPI 2009 eGFR > 30 mL/min/1.73 m², indicating potential eligibility for SHKT under current policy.
- Posttransplant survival at 1 and 5 years was estimated by Kaplan-Meier method and compared between groups with a log-rank test. Need for dialysis at 1 and 5 years was compared using a chi-square test of proportions.

Results

- During the study period, 39,291 candidates underwent HT-alone and 1,580 had SHKT. Among these, 7,543 (19.2%) and 474 (30.0%) were Black, respectively.
- Among Black HT-alone recipients, 98 (1.3%) had an eGFR of 30 mL/min/1.73 m² or less using the CKD-EPI 2021 formula. Compared with Black SHKT recipients, these Black HT-alone recipients were more likely to be female (52.0% versus 25.2%; *P*=.001).
- Survival between patients with eGFR 30 or less using the 2021 formula was similar at 1 year (HT-alone 87.5%, SHKT 87.5%; *P*=.91) but significantly higher at 5 years for SHKT recipients (HT-alone 66.7%, SHKT 79.6%; *P*=.007).
- Need for dialysis was similar between the two groups at 1 year (*P*=.18) and 5 years (*P*=.33). Among the Black 98 HT-alone recipients with eGFR 30 or less using the 2021 formula, 11 (11.2%) were listed for a subsequent kidney transplant.

Conclusions

- Among Black HT-alone recipients, the new eGFR calculation has the potential to expand the pool of SHKT recipients and improve clinical outcomes. Additional research is needed to evaluate the impact of updated eGFR calculation on a broader range of outcomes and in a prospective cohort.

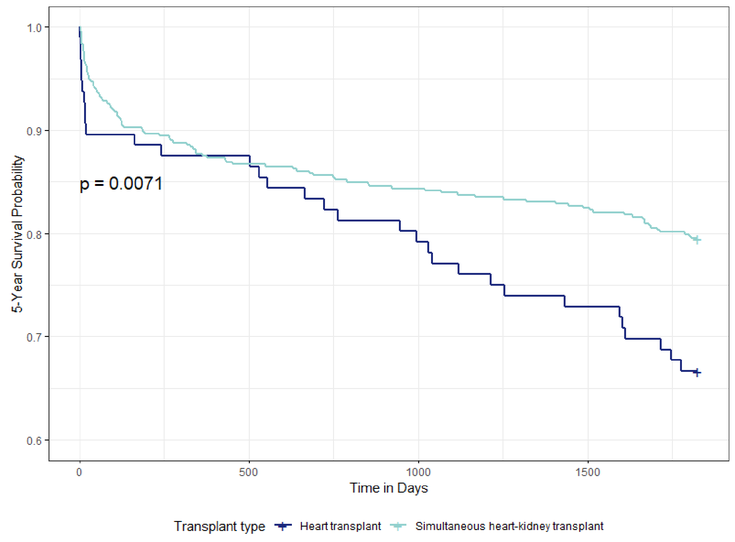


Need for dialysis at 1 year posttransplant

Organ	# Survived	# on Dialysis	p-value for proportions
HR-alone	84	18	0.18
SHK	411	121	

Need for dialysis at 5 year posttransplant

Organ	# Survived	# on Dialysis	p-value for proportions
HR-alone	64	16	0.33
SHK	371	119	



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