Factors associated with follow-up outside a transplant center among pediatric kidney transplant recipients

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INTRODUCTION

Kidney transplantation (KTx) is the most common solid organ transplant performed in children and is the optimal treatment for end-stage renal disease.

Despite high survival rates following pediatric KTx, long term graft survival is poor, especially in minority populations.

Obtaining follow-up care outside of a transplant center may contribute to worse long-term graft outcomes and fragmentation of care.

AIMS

Are minority status, socioeconomic status, or other factors associated with increased likelihood of follow-up outside a transplant center among pediatric KTx patients?

Is obtaining follow-up care at a non-transplant center associated with worse long-term graft survival?

MATERIALS & METHODS

This study used data on pediatric patients (n=10,293) in the United Network for Organ Sharing (UNOS) who underwent KTx between 2003 and 2018 in the United States.

Covariates included age, sex, race/ethnicity, insurance coverage, state population density, primary indication for transplant, pretransplant dialysis, time on waitlist, donor type, and year of transplant.

Cox proportional hazards models of transferring care outside of a transplant center and of death or graft failure were used to assess the risk for these outcomes.

The Cox model of death or graft failure assessed the change in hazard of this outcome after earliest reported follow-up outside a transplant center.

RESULTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medicare (Ref: Private)</td>
<td>1.20</td>
<td>1.07, 1.34</td>
<td>0.001</td>
</tr>
<tr>
<td>Age</td>
<td>1.03</td>
<td>1.02, 1.04</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

CI, confidence interval; HR, hazard ratio; Ref., Reference; P, significance level (p<0.05)

Table 1. Factors associated with increased hazard of follow-up care outside of a transplant center. *

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95% CI</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Follow-up outside a transplant center</td>
<td>1.10</td>
<td>1.004, 1.21</td>
<td>0.041</td>
</tr>
<tr>
<td>Medicare (Ref: Private)</td>
<td>1.25</td>
<td>1.14, 1.38</td>
<td>&lt;0.001</td>
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<tr>
<td>African American race (Ref: White)</td>
<td>1.81</td>
<td>1.65, 2.00</td>
<td>&lt;0.001</td>
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<tr>
<td>Female sex (Ref: male)</td>
<td>1.23</td>
<td>1.16, 1.35</td>
<td>&lt;0.001</td>
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<tr>
<td>Pretransplant dialysis</td>
<td>1.11</td>
<td>1.01, 1.22</td>
<td>0.026</td>
</tr>
</tbody>
</table>

CI, confidence interval; HR, hazard ratio; Ref., Reference; P, significance level (p<0.05)

Table 2. Factors associated with increased hazard of death or graft failure. *

CONCLUSIONS

Follow-up care outside of a transplant center was associated with a 10% increased hazard of death or graft failure (Table 2).

Minority status and socioeconomic factors were not associated with increased likelihood of follow-up outside a transplant center.

African American patients experienced 81% increased hazard of death or graft failure regardless of follow-up location (Table 2).

Patients using Medicare at the time of transplant had a 20% increased hazard of receiving follow-up care outside of a transplant center and 25% increased hazard of death or graft failure (Table 1).

FUTURE WORK

Further work should focus on understanding why African American KTx patients experience worse outcomes even when following up care at a transplant center, and to educate providers on these disparities.

Additionally, future work should examine other measures of socioeconomic status including household income, parental education, and zip code of residence.

Finally, we recommend that transplant centers work toward improving continuity of care and increasing communication with outside clinics to ease transitions of care during the post-transplant period.

REFERENCES