Is Kidney Transplantation Justified in Patients with More Than 10 Years of Dialysis?

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Introduction

- Transplantation is preferred treatment for ESKD compared to dialysis, this extends to older patients, and patients with comorbid conditions.
- As a result, the demand for organ transplantation is outpacing the supply of transplantable organs and decisions need to be made about who to transplant.
- Changes in kidney allocation have resulted in increased access to transplantation to patients with longer dialysis exposure, specifically deceased donor transplantation at different times.
- Transplantation is preferred treatment for ESKD compared to dialysis, this extends to older patients, and patients with comorbid conditions.

Objectives

- To determine if deceased donor kidney transplantation (KTX) offers a survival benefit over remaining on the waiting list for patients with at least 10 years of exposure to dialysis.

Study Population and Methods

- Data: Scientific Registry of Transplant Recipients (SRTR)
- Study Cohort: Active on WL ≥ 10 years N=31,064
- Patients with at least 10 years of dialysis exposure January 1, 2006 - November 30, 2011
  - Aged 18-69 N=31,064
  - Aged >69 N=3,365

- Statistical Methods: Multivariate non-proportional hazards analysis with deceased donor transplantation treated as a time-dependent covariate to account for the fact that patients switched from waiting list to transplantation at different times.
- Survival calculated from 10-year dialysis anniversary until death or end of follow-up (Nov 30, 2016).
- Censored at living donor transplantation.
- Adjusted for: candidate age, sex, race, BMI, cause of ESKD, comorbidities (PVD, CVA, Angina), PRA, year of dialysis start.
- Subgroup analyses by age, sex, race, cause of ESKD, PRA, expected post-transplant survival.

Results

- 2,320 (40%) of patients received KTX.
  - Median (Q1, Q3) time of 2.30 years (0.9, 4.2).
  - Median (Q1, Q3) KDPI: 44% (25%, 65%); only 6% KDPI > 85%.
  - Recipients of KTX were at increased risk of death for a period of 180 days after transplantation and then subsequently had a lower risk of death compared to patients who remained on dialysis. (Figure 1)

- Compared to seminal analyses by Wolfe et al., our study patients required a much longer time to achieve a survival benefit, which may be related to a lower death rate on dialysis in the study cohort.

Table 1: Study Patient Characteristics

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Sex</th>
<th>Race</th>
<th>Dialysis Duration</th>
<th>Race</th>
<th>Hispanic</th>
<th>Black</th>
<th>White</th>
<th>Other</th>
<th>Age</th>
<th>BMI</th>
<th>Diabetes</th>
<th>PVD</th>
<th>Stroke</th>
<th>Angina</th>
<th>Location</th>
<th>College</th>
<th>Peak PRA %</th>
<th>High School %</th>
<th>Diabetes as Cause of ESRD</th>
<th>Medicare %</th>
<th>Medicaid %</th>
<th>Medicare %</th>
<th>Overall</th>
<th>Hazard Ratio for Transplantation/95% CI</th>
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Discussion

- Improving the survival of end-stage kidney disease patients is the most compelling reason to treat patients with transplantation rather than dialysis.
- In a contemporary cohort of patients with > 10 years of pre-KTX dialysis, KTX was associated with a significant survival benefit compared to continued dialysis.
- However, took nearly 2 years to achieve survival benefit.
- There were few lower quality transplanted kidneys in the study cohort (i.e. KDPI > 85%).

- There are >22,000 non-wait-listed dialysis patients (plus 3000 prevalent wait-listed patients) with > 10 years of survival who could receive rapid transplantation under the new allocation rules if referred and found suitable for transplantation.
- Further studies are needed to inform the selection of such patients for transplantation and determine whether such patients would also benefit from transplantation with lower quality deceased donor kidneys.

References