Liberalizing the Safety Net and Encouraging Sequential Living Donation - Alternative to Simultaneous Multi-Organ Transplantation

Alexander Wiseman, M.D.
Executive Director, Kidney Transplantation
Centura Transplant, Denver CO
Alexander Wiseman, M.D.
Executive Director, Kidney Transplantation
Centura Transplant, Denver CO

I have financial relationship(s) with:

Grant/Research: Alexion, Astellas, Bristol Myers Squibb, CareDx, Novartis, Oxford Immunotec, Quark

Consultant: CTI, Hansa, Mallinkrodt, Veloxis, CareDx, Natera

No disclosures relevant to this talk
Objectives

• Describe the impact of the August 2017 changes to SLK allocation policy upon SLK and KAL transplant rates

• Discuss strategies that promote living kidney donation for liver transplant recipients with kidney failure

• Contrast strategies that expand the safety net with those that promote living kidney donation
SLK: traditionally overused, and transplant lives wasted

- SLK outcomes are inferior to KTX outcomes
  - KTA: >90% 1y graft survival/ 83% 3y graft survival, \(~10\% \text{ vs SLK}\)
  - a kidney does not clearly improve outcomes for the LT recipient: this leads to wasted years of transplant

- SLK allocation policies should be restrictive until a benefit (or hazard) is shown, rather than permissive
  - ONLY THEN WILL WE BE ABLE TO FIND PREDICTORS OF AKI RECOVERY/NONRECOVERY following transplant
OPTN/UNOS criteria for eligibility for SLK

Candidates must meet at least one of the following conditions:

1) **CKD with GFR <60 mL/min for >90 days with:**
   a) ESRD on chronic RRT, or
   b) GFR <30 at time of listing for kidney

2) **Sustained AKI with:**
   a) 6 consecutive weeks of RRT, or
   b) GFR <25 mL/min for 6 consecutive weeks, or
   c) Combination of 2a and 2b for 6 consecutive weeks

3) Metabolic disease (hyperoxaluria, aHUS, familial non-neuropathic systemic amyloidosis, or methylmalonic aciduria

**“Safety Net” Provision:**
Liver transplant recipients with continued dialysis dependency or GFR ≤ 20 ml/min in the period **2-12 months after liver transplant** will receive priority for kidney allocation for kidneys with KDPI>20%
ARS question

• What is the “right” percentage of SLK transplants, as a fraction of all liver transplants:

• A) 0% (safety net only)
• B) 5%
• C) 10%
• D) 15%
• E) whatever the SLK policy delivers
Simultaneous Liver-Kidney (SLK): one year post-implementation monitoring

April 15, 2019

Amber R. Wilk, PhD
Manager, Research Science
Kidney Transplantation Committee Research Liaison
UNOS Research Department
SLK Registrations have remained stable
SLK transplants decreased since 8/2017 policy change
Decline in SLK transplants post-policy change (~9%)

Absolute decrease in SLK is ~6/month
Renal Criteria of Those Transplanted with SLK

CKD with GFR <60 for >90d:

a) ESRD on chronic RRT, or
b) GFR <30 at time of listing

Sustained AKI with 6 weeks:

a) RRT, or
b) GFR <25 mL/min, or
c) Combination
CKD Criteria of Those Transplanted with SLK

~85% had severe renal dysfunction at time of transplant (>50% on dialysis)

For the majority, this likely represents AKI on CKD, but simply did not meet the 6 week criteria for AKI definition.

- Dialysis: 51.8%
- No dialysis, 0–20 eGFR/CrCl: 22.7%
- No dialysis, 20.1–25 eGFR/CrCl: 9.7%
- No dialysis, 25.1–30 eGFR/CrCl: 15.8%
KAL and the Safety Net

“Safety Net” Provision:
Liver transplant recipients with continued dialysis dependency or GFR ≤ 20 ml/min in the period 2-12 months after liver transplant will receive priority for kidney allocation for kidneys with KDPI>20%
3-Fold increase in KAL registrations post-policy

Kidney listing month (for adult listings within a year following liver transplant)
Increase in total number of registrations for KAL since policy change:
Of the 209 KAL registrations, an increasing proportion (45%) are eligible for safety net (other KAL registrations have remained stable).
Kidney transplant rates for those listed within the first year following LTA

Waitlist mortality did not change. **No living donor transplants.**

4X increase

![Bar chart showing transplant rates before and after SLK era]
KAL transplant rates pre/post policy: 6-month review

KIDney after liver (KAL) transplant month

Number of KAL transplants (per 30 days)

SLK policy

7.3/mo

1.4/mo
KAL transplant rates post policy change: Initial results remain consistent

7.3 KAL/mo
Renal diagnoses for KAL transplants

HRS is the most common diagnosis, ~40% of KAL

Reflects a large proportion of patients with pretransplant AKI (not meeting 6 week criteria?) and post-transplant renal nonrecovery
What we know:

- SLK transplants decreased, likely due to decrease in AKI-indicated use

- KAL transplants increased, due to AKI (HRS) non-recovery and subsequent safety net

- Net -6 SLK/mo and +6 KAL/mo from prior to policy

- Regional variations in SLK have “normalized”
  - 8.2% of total liver transplants
  - ~5% of deceased donor kidney transplants (slightly lower than previous)
SLK...

Too many? Too few? Just Right?
KAL...

Too many? Too few? Just Right?
Potential considerations with the “safety net”:

**Risk of underutilization**
- Patients may be too debilitated to undergo kidney transplant surgery
- Patients may be sensitized and unable to be transplanted in a timely fashion
- Patients may be higher risk (without risk factors adjusted for in SRTR modeling) for transplant centers

**Risk of overutilization:**
- All LTA recipients (not only those with pre-tx renal dysfunction) eligible
- Those eligible beginning at 11 months post LTA are probably different than those eligible at 2 months
What would “liberalizing the safety net” look like?

• Option A: Discourage SLK (eliminate?)

• Option B: Expand safety net
  – Increase eligibility: current 2-12 month eligibility...expand the “entry criteria”...to 24 months? Longer? Higher GFR?
  – Increase supply: increase priority? (over 0 ABDR, living donor?) Increase access? (KDPI < 20%?)
# Liver “Safety Net” Under KAS

<table>
<thead>
<tr>
<th>Sequence A</th>
<th>Sequence B</th>
<th>Sequence C</th>
<th>Sequence D</th>
</tr>
</thead>
<tbody>
<tr>
<td>KDPI &lt;=20%</td>
<td>KDPI &gt;20% but &lt;35%</td>
<td>KDPI &gt;=35% but &lt;=85%</td>
<td>KDPI &gt;85%</td>
</tr>
<tr>
<td>Highly Sensitized</td>
<td>Highly Sensitized</td>
<td>Highly Sensitized</td>
<td>Highly Sensitized</td>
</tr>
<tr>
<td>0-ABDRmm</td>
<td>0-ABDRmm</td>
<td>0-ABDRmm</td>
<td>0-ABDRmm</td>
</tr>
<tr>
<td>Prior living donor</td>
<td>Prior living donor</td>
<td>Prior living donor</td>
<td>Prior living donor</td>
</tr>
<tr>
<td>Local pediatrics</td>
<td>Local pediatrics</td>
<td>Local pediatrics</td>
<td>Local pediatrics</td>
</tr>
<tr>
<td>Local top 20% EPTS</td>
<td>Local safety net</td>
<td>Local safety net</td>
<td>Local safety net</td>
</tr>
<tr>
<td>0-ABDRmm (all)</td>
<td>Local adults</td>
<td>Local</td>
<td>Local safety net</td>
</tr>
<tr>
<td>Local (all)</td>
<td>Regional pediatrics</td>
<td>Regional</td>
<td>Regional</td>
</tr>
<tr>
<td>Regional pediatrics</td>
<td>Regional adults</td>
<td>National</td>
<td>National</td>
</tr>
<tr>
<td>Regional (top 20%)</td>
<td>National pediatrics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional (all)</td>
<td>National adults</td>
<td></td>
<td></td>
</tr>
<tr>
<td>National pediatrics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National (top 20%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>National (all)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What would “Encouraging Sequential Living Donation” look like?

• Option A: Increase demand for LDKTX
  – Increase restrictions for SLK (eliminate?)
  – Limiting safety net: reduce allocation priority, limit eligibility (6 months?), reduce access to DD organs

• Option B: Increase supply of LDKTX
  – KPD paybacks, end-chains, nondirected donors
  – Early education/screening efforts in the pre-liver tx phase
Consider an eligibility “sliding scale” for SLK/safety net recipients while policy is revisited

- Goal: optimize utilization of kidneys in the liver transplant population while preserving utility of kidney transplant for the kidney transplant population

- Philosophy: no more than “5%” of liver transplants should be performed as SLK, and no more than “5%” of liver transplant recipients should require kidney transplant in the first year following liver transplant
Example of an eligibility “sliding scale” for SLK/safety net recipients while policy is revisited

<table>
<thead>
<tr>
<th>IF: SLK % of liver transplant</th>
<th>AND: Safety Net enrollment after LTA</th>
<th>THEN</th>
<th>GOAL</th>
</tr>
</thead>
</table>
| >7%                          | <5%                                  | • Increase AKI time to 8 weeks  
|                              |                                      | • Decrease CKD GFR to 25        | Reduce SLK  
|                              |                                      |                               | Increase safety net |
| < 5%                         | > 7%                                 | • Decrease AKI time to 4 weeks  
|                              |                                      | • Increase CKD GFR to 35        | Reduce safety net  
|                              |                                      |                               | Increase SLK |

- To be reviewed on 12 month basis
- All programs with SLK > 10% or KAL > 10% undergo site review/audit
Conclusions

• Safety net provision has reduced SLK and increased KAL, with net neutral impact on kidney utilization in liver transplant recipients overall

• NO living donor transplants

• Future policy can drive more KAL, or drive need for LD option, but we first need to agree upon what is the “right” amount of priority for SLK candidates