Utilization of High KDPI Kidneys

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Disclosures

I have no financial relationships to disclose relevant to this presentation
• One of the goals of KAS is to make better utilization of available kidneys so as to increase overall transplant longevity
• This goal could be in part achieved by better use of high KDPI kidneys (KDPI>85%)
Data periods for this presentation

- Pre-KAS 06/04/2014 to 12/03/2014
- Post-KAS1 12/04/2014 to 06/03/2015
- Post-KAS2 06/04/2015 to 12/03/2015

- Source: UNOS Research Department, provided on February 05, 2016
- Special thank to UNOS, Darren Stewart and his team for facilitating the updated data
Questions

1) What are the utilization rates (acceptance vs discard) for high KDPI kidneys?
2) Who is getting these kidneys?
3) Where are these kidneys being allocated? i.e., locally, regionally, etc.
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High KDPI Organ Allocation

1. Non-linear association between KDPI and graft survival rates
2. Non-linear association between KDPI and discard rates
3. Those high KDPI kidneys that are accepted may lead to reasonable graft survival

D. Stewart, ATC 2013 (Abstract #301)
Initial data suggested a slightly higher discard rate of high KDPI kidneys

KAS report 09/2015 – UNOS
Table II.3b.
Initial increase in post-KAS high KDPI kidney discard rate has stabilized in the second half of 2015

<table>
<thead>
<tr>
<th>Period</th>
<th>Discard Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-KAS</td>
<td>54.1%</td>
</tr>
<tr>
<td>Post-KAS 1</td>
<td>60.3%</td>
</tr>
<tr>
<td>Post-KAS 2</td>
<td>56.7%</td>
</tr>
<tr>
<td>Total</td>
<td>57.2%</td>
</tr>
</tbody>
</table>
Slight increase in the proportion of discarded kidneys due to “no recipient” available where organ was allocated

- Biopsy
- No recipient or list exhausted
- Other

<table>
<thead>
<tr>
<th>Period</th>
<th>Biopsy</th>
<th>No recipient or list exhausted</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-KAS 06/14 – 12/14</td>
<td>42.1%</td>
<td>29.3%</td>
<td>28.6%</td>
</tr>
<tr>
<td>Post-KAS 12/14 – 06/15</td>
<td>40.0%</td>
<td>30.8%</td>
<td>29.2%</td>
</tr>
<tr>
<td>Post-KAS 06/1 – 12/15</td>
<td>37.9%</td>
<td>33.3%</td>
<td>28.8%</td>
</tr>
</tbody>
</table>

Other: too old on pump/ice, vascular/ureteral damage, donor medical/social history, donor HIV/Hec C, long ischemia times, poor organ function, donor infection, anatomical abnormalities
Significant variability by region of high KDPI kidney discard rates

Note: Percent of discarded high KDPI kidneys in relation to all discarded kidneys, i.e., those with a KDPI of less than 85
Variability by region on the number of allocated high KPDI kidneys

Number of distributed high KDPI kidneys

- Pre-KAS: 06/14 – 12/14
- Post-KAS: 12/14 – 06/15
- Post-KAS: 06/15 – 12/15

Regions:
1. Region 1
2. Region 2
3. Region 3
4. Region 4
5. Region 5
6. Region 6
7. Region 7
8. Region 8
9. Region 9
10. Region 10
11. Region 11
Questions

1) What are the utilization rates (acceptance vs discard) for high KDPI kidneys?

2) Who is getting these kidneys?

3) Where are these kidneys being allocated? i.e., locally, regionally, etc.
Increased use of high KDPI kidneys in the 50-64 yo age group post-KAS

% transplanted high KDPI kidneys

- <18 yo
- 18-34 yo
- 35-49 yo
- 50-64 yo
- >65 yo

<table>
<thead>
<tr>
<th>Period</th>
<th>Pre-KAS 06/14 – 12/14</th>
<th>Post-KAS 12/14 – 06/15</th>
<th>Post-KAS 06/1 – 12/15</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;18 yo</td>
<td>7.2</td>
<td>11.0</td>
<td>6.9</td>
</tr>
<tr>
<td>18-34 yo</td>
<td>46.2</td>
<td>47.1</td>
<td>48.3</td>
</tr>
<tr>
<td>35-49 yo</td>
<td>44.8</td>
<td>40.3</td>
<td>43.8</td>
</tr>
<tr>
<td>50-64 yo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;65 yo</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Increased use of high KDPI kidneys in those with high EPTS scores

Note: 46% of missing data pre-KAS
Questions

1) What are the utilization rates (acceptance vs discard) for high KDPI kidneys?
2) Who is getting these kidneys?
3) Where are these kidneys being allocated? i.e., locally, regionally, etc.
Increased allocation of high KDPI kidneys from local to regional programs

<table>
<thead>
<tr>
<th></th>
<th>Local</th>
<th>Regional</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-KAS 06/14 – 12/14</td>
<td>68.4</td>
<td>14.8</td>
<td>16.8</td>
</tr>
<tr>
<td>Post-KAS 12/14 – 06/15</td>
<td>49.6</td>
<td>35.2</td>
<td>15.2</td>
</tr>
<tr>
<td>Post-KAS 06/1 – 12/15</td>
<td>48.3</td>
<td>35.6</td>
<td>16.1</td>
</tr>
</tbody>
</table>
Summary

• After 1 year of KAS, the rate of high KDPI kidney discard rates may be returning back to pre-KAS rates
• There appears to be a subtle increase in the rate of discarded kidneys due to lack of potential recipient or list exhaustion
• There is a significant variability in the management of high KDPI kidneys by UNOS region
• There is an increase in the use of high KDPI kidneys in recipients between 50 and 64 yo
• While most high KDPI kidneys are still distributed locally, a significant number are now shared regionally
Conclusions

• Better understanding of why high KDPI kidneys are not being transplanted will be important to improve utilization of this pool of organs

• **Further data is needed to better understand the dynamics of high KDPI organ utilization (acceptance vs. discard)**
Thank You!
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Audience response question
Since implementation of KAS, which statement is FALSE regarding high KDPI kidneys?

a. There is an increase in the allocation of these kidneys at the regional level rather than locally or nationally

b. There is a continuous increase in discard rates since KAS implementation

c. The proportion of discarded kidneys because no suitable recipient was found is comparable to pre-KAS era

d. There is an increase in the utilization of these kidneys for recipients between 50-64 yo rather than in 65 yo or older

Correct answer highlighted in bold