RETROSPECTIVE REVIEW OF A MID-SIZE PEDIATRIC RENAL TRANSPLANT PROGRAM
FLUID MANAGEMENT AND ITS RELATIONSHIP TO DONOR AND RECIPIENT AGE

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BACKGROUND
• Anesthetic management for pediatric renal transplantation poses special challenges because of the possible large size of the donor kidney relative to the recipient.
• While aggressive intraoperative fluid loading is important, we lack evidence for precise details about fluid management.

METHODS
• With IRB approval, we retrospectively reviewed electronic medical records of 50 consecutive renal transplant recipients from October 2009 till May 2015.
• Statistics: We used simple linear regression models and ANOVA. ‘P’ value < 0.05 was considered significant.
• Mean recipient age: 11.9 (1.6-22) yrs.
• Mean recipient weight: 46 (10.3-113.5) kg

RESULT AND DISCUSSION
• Using age as a categorical variable, there is a significant negative correlation between recipient age and intraoperative fluids administered (ml/kg) \( p=0.0018 \)
• Using age as a continuous variable, we found a parameter estimate of -4.2 (\( p=0.0006 \)).
• Difference between donor and recipient age has a significant positive correlation with intraoperative fluids with a parameter estimate of 2.2 (\( p=0.01 \)).

<table>
<thead>
<tr>
<th>Age (yrs)</th>
<th>N</th>
<th>Avg mL/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 3</td>
<td>4</td>
<td>155.845</td>
</tr>
<tr>
<td>3 – 6</td>
<td>8</td>
<td>126.224</td>
</tr>
<tr>
<td>6-12</td>
<td>11</td>
<td>116.897</td>
</tr>
<tr>
<td>&gt;12</td>
<td>27</td>
<td>75.042</td>
</tr>
</tbody>
</table>

• Systolic blood pressure five min after reperfusion did not correlate with the relative amount of intraoperative fluids administered (\( p=0.8 \)), or to the difference between donor and recipient age (\( p=0.88 \)).
• Implies that the hemodynamic management prior to reperfusion was adequate.
• For recipients <15 kg, the average CVP prior to reperfusion was 12.8 with average of 130ml/kg intraoperative fluids given.
• There have been no deaths in this cohort.
• 10% of our patients failed transplantation and needed dialysis. In the North American Pediatric Renal Trials and Collaborative Studies (NAPRTCS) 2010 report, 25% to 35% transplants failed. It was a much larger group with longer followup. Average time to urine output after unclamping of vessels is 21.9 min, and median hospital stay is 3 days. NAPRTCS 2010 median stay is 12 days.
• In adult literature, CVP > 11cmH2O has a correlation with increase number of acute rejection episodes.
• This study is part of a long-term goal to determine optimal intraoperative fluid management for pediatric renal transplantation.

LIMITATIONS
• This study is retrospective
• Unable to determine when intraoperative urine output replacements were begun
• Small sample size

REFERENCES
• L. Campos et al, Transplantation Proceedings 2012
• Coupe et al, Pediatric Anesthesia 2005
• Chavers et al, Pediatric Transplantation 2007