Urinary HIP/PAP and BD-1 indicate surgical success after pediatric ureteropelvic junction obstruction surgery
Background

- Antimicrobial peptides (AMPs) are innately expressed peptides known to help maintain sterility of the urinary tract

- Previously found specific AMPs to be ↑ in UPJO
  - Could be markers of urinary tract stress
Background

- Aim: reevaluate AMPs after relief of obstruction
- Hypothesis: once elevated AMPs would ↓ after successful surgery
Methods

- ≤18 year olds
  - No signs of active UTI
- ELISAs on specific AMPs
  - BD-1, HIP/PAP, LL-37, and NGAL
- Compared Pre-intervention and Post-intervention samples
## Results

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Obstructed patients (n=13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median age at surgery in years (range)</td>
<td>4.3 (0.4-18.4)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>9 (69)</td>
</tr>
<tr>
<td>Median time from surgery in months (range)</td>
<td>27.4 (7.8-45.3)</td>
</tr>
<tr>
<td>Clinical/radiologic improvement postoperatively (%)</td>
<td>13 (100)</td>
</tr>
</tbody>
</table>
HIP/PAP and BD-1 levels significantly decreased after successful surgical correction

**HIP/PAP**

**BD-1**

**NGAL**

**LL-37**
HIP/PAP levels normalize after successful surgical correction

**HIP/PAP**

![HIP/PAP ELISA](image)

**NGAL**

![NGAL ELISA](image)

**LL-37**

![LL-37 ELISA](image)

**BD-1**

![BD-1 ELISA](image)

**HIP/PAP levels normalize after successful surgical correction**

PRE           POST

HIP/PAP

NGAL

BD-1

**HIP/PAP ELISA**

POST Control

HIP/PAP ELISA

HIP/PAP (ng/mg)
HIP/PAP and BD-1 decrease after successful surgery

<table>
<thead>
<tr>
<th>AMP</th>
<th>Area under curve</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIP/PAP</td>
<td>83%</td>
<td>77%</td>
<td>85%</td>
</tr>
<tr>
<td>BD-1</td>
<td>78%</td>
<td>75%</td>
<td>67%</td>
</tr>
</tbody>
</table>
Conclusions

• HIP/PAP and BD-1 significantly decrease with successful surgical intervention
  – Promise as aids in post-operative monitoring
    • Imaging can be difficult to interpret

• NGAL and LL-37 remained elevated
  – Could suggest irreversible damage