Anxiety, Distress and Pain in Pediatric Urodynamics

Julia Finkelstein*, Dylan Cahill, Kelsey Graber, Brianna O’Connell, Lauren Mednick, Peter Weinstock, Carlos Estrada
Introduction

• To obtain best possible urodynamics (UDS) results, patients typically kept awake and interactive throughout testing

• Children can experience physical and emotional discomfort while undergoing procedure

• In a study of children undergoing VCUG, certain steps were found to be significantly distressful
Introduction

• No one has assessed UDS to determine those steps that elicit the greatest anxiety, distress and pain in children

• Aim: To systematically evaluate the pediatric patient UDS experience
Methods

• **Prospective** study of patients **aged 5 and older** undergoing UDS over 6-month period

• Upon arrival, patients completed **Visual Analogue Scale for Anxiety (VAS-A)** about upcoming procedure
Methods Continued

• Research assistant (RA) observed all UDS studies, including those with an external urethral sphincter needle EMG

• RA assessed patient’s behavior during each major UDS step using validated observational measurement method: Brief Behavioral Distress Scale (BBDS)
  – Non-interfering behavior = minor verbal distress, cry, whine, moan
  – Potentially-interfering behavior = scream, tense muscles, grit teeth
  – Interfering behavior = escape, disrupt, avoid, aggress
Methods Continued

- Nursing staff obtained patients’ pain ratings using the Faces (<8 years) or numeric (8+ years) pain scale (0-10) for these key steps.

- Immediately after UDS, each patient completed post-test VAS-A along with a brief investigator-developed survey about UDS experience.
Results

- 76 UDS observed: 35 patients (46.1%) underwent UDS with needle EMG

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age (IQR)</td>
<td>10.5 (8.0-14.9)</td>
</tr>
<tr>
<td>Female Sex</td>
<td>36 (48%)</td>
</tr>
<tr>
<td>Full Perineal Sensation Present</td>
<td>49%</td>
</tr>
<tr>
<td>History of Prior UDS Study</td>
<td>87%</td>
</tr>
<tr>
<td>History of Urinary Catheterization</td>
<td>95%</td>
</tr>
<tr>
<td>History of Urologic Surgery</td>
<td>53%</td>
</tr>
</tbody>
</table>
Results

• Mean Patient VAS-A score (0-10):
  ➢ Pre UDS = 2.3
  ➢ Post UDS = 0.8
Results

43% demonstrated interfering or potentially interfering behaviors at some point during UDS testing.

Highest proportion during EMG needle insertion (31%) and urethral catheter insertion (29%).

In agreement with highest mean pain scores of 3.2 and 2.7, respectively.
## Results

<table>
<thead>
<tr>
<th>History of prior UDS</th>
<th>Mean Pre-VAS-A Score (0-10)</th>
<th>Demonstrated Interfering or Potentially Interfering Behaviors</th>
<th>Mean Urethral Catheterization Pain Score</th>
<th>Mean EMG Needle Insertion Pain Score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>No (N=10)</td>
<td>3.9</td>
<td>60%</td>
<td>6.3</td>
<td>7.3</td>
</tr>
<tr>
<td>Yes (N=66)</td>
<td>2.0</td>
<td>38%</td>
<td>2.2</td>
<td>2.3</td>
</tr>
</tbody>
</table>

*if performed
## Results

- 54% patients did **not** completely know what to expect before UDS

<table>
<thead>
<tr>
<th>Reported Preparation Level</th>
<th>Mean Pre-VAS-A Score (0-10)</th>
<th>Demonstrated Interfering or Potentially Interfering Behaviors</th>
<th>Mean Urethral Catheterization Pain Score</th>
<th>Mean EMG Needle Insertion Pain Score*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did Not Completely Know What to Expect (N=38)</td>
<td>2.7</td>
<td>50%</td>
<td>3.4</td>
<td>4.5</td>
</tr>
<tr>
<td>Completely Knew What to Expect (N=32)</td>
<td>2.0</td>
<td>23%</td>
<td>1.8</td>
<td>1.7</td>
</tr>
</tbody>
</table>

*if performed
Conclusions

• Undergoing EMG needle and urethral catheter placement, initial testing and not knowing what to expect were associated with greater distress and pain.

• Highlights importance of pre-test preparation and need for resources to ease distress for children undergoing UDS:
  ➢ Incorporated child life specialist
  ➢ Offering virtual reality as active distraction