The Problem

- Children with NLUTD (neurogenic lower urinary tract dysfunction)/DES (dysfunction elimination syndrome) represent a significant heterogeneous subgroup of pediatric urology patients whose physical and mental health is adversely affected.[1]
- In a busy clinic, child participation and engagement is often limited and psychosocial aspects like quality of life are not adequately addressed.[3]
- Few randomized controlled trials have been done to determine the most effective urotherapy modality.[2]

Background

- Urotherapy has been the standard, nonsurgical, nonpharmacological treatment for children with lower urinary tract dysfunction.[4]
- Examples in the Literature

Examples in the Literature

- Behavioral
  - Attention training, modification of fluid intake, positive reinforcement techniques and pelvic floor (Kegel) exercises
  - Improved bladder control, increased daytime dryness, and decreased night-time wetting in children.[5]
- Individualized Urotherapy
  - 8 sessions over 15 weeks
  - Daytime dryness, complete absence of nighttime enuresis, and minimal leakage
- Group Urotherapy
  - Group urotherapy using small groups of 2 to 5 children
  - Improved bladder control with a decrease in daytime wetting and nocturnal enuresis.[5]
- Timing Watches
  - Introduction to 60 children who did not respond to standard urotherapy and 70% of these achieved continence.[10]
- Artichoke Thrapy
  - Significant decrease in dysfunctional voiding or behavioral modification alone or when accompanied by pelvic floor exercises.[11]
- Quality of life
  - Self-esteem, school performance, and social competence have been shown to be negatively affected in children with enuresis.[13]
- Fears of being adversely affected by urinary and fecal incontinence.[14]

Research Question

- Among children aged 6 to 10 with NLUTD/DES, is a 1-hour group urotherapy session about bladder retraining and establishing healthy bowel habits more effective than the standard urotherapy provided in pediatric urology clinics in:
  - improving NLUTD/DES symptoms
  - improving quality of life.

The objectives of this pilot study is to determine the feasibility of:

- Implementing group urotherapy sessions
- Recruiting patients for a controlled trial
- Using the PinQ and Vancouver NLUTD/DES questionnaires to evaluate urotherapy from the child’s perspective
- Comparing with prophylactic

The Problem vs Individual Urotherapy for Bladder Dysfunction in School-Aged Children: A Randomized Controlled Pilot Trial

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Method

- **Setting**
  - Pediatric Urology clinics at McMaster Children’s Hospital
- **Participants**
  - 90 children aged 6-10 years with NLUTD/DES
- **Intervention**
  - Urotherapy program provided by Nurse Practitioner
- **Randomization**
  - Randomized controlled trial
- **Blinding**
  - Single-blind study
- **Sample Size**
  - Aim to recruit 60 patients in total

Protocol

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Session 1</strong></td>
<td>Introduction to urotherapy and bladder retraining</td>
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<tr>
<td><strong>Session 2</strong></td>
<td>Individualized biofeedback training</td>
</tr>
<tr>
<td><strong>Session 3</strong></td>
<td>Group biofeedback training</td>
</tr>
</tbody>
</table>

Outcome Measures

- **Health Outcomes**
  - Reduction in nighttime wetting
  - Improvement in daytime dryness
- **Quality of Life**
  - Improvement in self-esteem
  - Increase in social competence

Methods

- **Participants**
  - 90 children aged 6-10 with a diagnosis of NLUTD or DES based on history and physical examination.
- **Randomization**
  - 1:1 no blocks
- **Blinding**
  - Single-blind study
- **Sample Size**
  - Aim to recruit 60 patients in total

Recruitment

- **Eligible patients who declined to participate in the study provided the following reasons:**
  - Did not want to participate in group setting
  - Did not want to travel back to the hospital
  - Conflict with dates of group sessions

Preliminary Results

- **Provide New and Valuable Knowledge**
  - Child’s perception of their condition and the effect of urotherapy on their QOL.
  - Comparison of two urotherapy modalities as a control and intervention.
  - Ideal number of children for effective group sessions.
  - Evaluate urotherapy from the child and parent perspective for two urotherapy modalities.
- **Potential**
  - Change the way these patients are seen, assessed, and managed.
  - Organize group sessions as part of standard care if proven to be successful.
  - Encourage further well designed controlled trials to improve the care of these patients.

Knowledge Translation

- **End-Point Measures**
  - Child’s perception of their condition and the effect of urotherapy on their QOL.
  - Comparison of two urotherapy modalities as a control and intervention.
  - Ideal number of children for effective group sessions.
  - Evaluate urotherapy from the child and parent perspective for two urotherapy modalities.

References