Canadian Urological Association Guidelines for the Treatment of Bladder Dysfunction in Children

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Learning objectives

- To identify the best available evidence in the management of bladder dysfunction in children using a systematic approach
- To assess the level of the evidence according to GRADE methodology
- To provide evidence-based recommendations
Introduction

- Bladder and bowel dysfunction (BBD) is the most common reason for referral to pediatric urology clinics
- BBD is a constellation of symptoms related to voiding and defecation without a neurogenic or anatomic cause
Introduction cont’d

• Symptoms:
  – Urinary
    • Irritative: Dysuria, frequency, urgency, urge incontinence
    • Obstructive: Hesitancy, slow flow, overflow incontinence
  – GI: Constipation, encoperesis

• BBD is a risk factor for:
  – Vesico-ureteral reflux (VUR)
  – Urinary tract infection (UTI)

• BBD:
  – Affects quality of life
  – Can cause social and psychological issue
Diagnosis

- BBD is a clinical diagnosis that requires judgement call
- Many questionnaires are available:
  - Diagnosis (quantification and discrimination)
  - Severity (quantification and classification)
  - Measurement of change (responsiveness)
- Dysfunctional Voiding Symptom Score
- Vancouver Questionnaire
Methods for guideline development

- Systematic search of databases:
  - Embase
  - Medline
  - Cochrane Library of randomized controlled trials
  - Clinical trials.gov
- Literature search strategy by expert librarian
- Only randomized controlled studies included
- Data pooled when possible
Methods cont’d

• Participants up to age 18
• Outcomes of interest:
  – Patient-reported: Change in symptom scores, change in symptoms
  – Uroflowmetric parameters
  – Risk of urinary tract infection
  – Quality of life
  – Adverse events
• Recommendations generated using GRADE recommendations
Results

- Search up to November 2019
- 1069 titles
- 179 studies for full review
Recommendations & level of certainty

Grading of Recommendation Assessment Development and Evaluation (GRADE):
- **Very low**: The true effect is probably markedly different from the estimated effect
- **Low**: The true effect might be markedly different from the estimated effect
- **Moderate**: The authors believe that the true effect is probably close to the estimated effect
- **High**: The authors have a lot of confidence that the true effect is similar to the estimated effect
Treatment: Bladder retraining/urotherapy

- Variability in regimen, methods, and delivery
- We were not able to find any study to compare urotherapy to observation
- Urotherapy with timer-assisted scheduled voiding is recommended (GRADE level: Moderate)
- Face-to-face (group or individual) and video instructions are equally effective (GRADE level: Low to moderate)
Treatment: Biofeedback

- In children with underactive bladder, addition of biofeedback to standard urotherapy is recommended (*GRADE level: High*)
- Biofeedback in children with other types of BBD is not associated with improved outcomes and, therefore, not recommended (*GRADE level: Low*)
Treatment: Pelvic floor muscle exercise/physiotherapy

- Addition of pelvic floor muscle physiotherapy to urotherapy has a beneficial effect on resolution of daytime incontinence in children with dysfunctional voiding (GRADE level: Moderate)
- There are no additional benefits in terms of urinary tract infection or enuresis (GRADE level: Low/moderate, respectively)
Treatment: Neuromodulation

- Para-sacral transcutaneous electrical nerve stimulation (PS-TENS)
  - There is no evidence to support PS-TENS as an effective adjunct to urotherapy or oxybutinin for overactive bladder (GRADE level: Low)
  - TENS may be useful in management of refractory urge incontinence in the short-term by reducing the number of wet days (GRADE level low)
- Posterior tibial transcutaneous electrical nerve stimulation (PT-TENS)
  - We cannot make recommendations on this treatment due to lack of high-quality evidence
Treatment: Inferential TENS

- Although this treatment may increase the voiding frequency and uroflowmetric parameters (e.g., post-void residual) in the short-term, there is no evidence it is more effective than urotherapy in long-term management of children with underactive bladder (GRADE level: High)
Treatment: Anticholinergics

- Tolterodine extended-release may result in a small decrease in urge incontinence in children with overactive bladder (average 1.4 per week) when compared to placebo (GRADE level: Moderate)
- No evidence of difference between oxybutynin and cognitive therapy in cure rate of incontinence in children with overactive bladder (GRADE level: Low)
- Solifenacin: May increase the mean and maximum voided volumes in children with overactive bladder but it may not be different from placebo in improving incontinence or number of daily voids (GRADE level: Low)
- Propiverine: May increase mean voided volume and modestly reduce daily frequency compared to placebo in children with overactive bladder (GRADE level: Moderate)
Adverse effects with anticholinergics

- Generally not reported at all or well
- There is no significant difference in adverse effects associated with tolterodine compared to placebo (*GRADE level: Low*)
- Propiverine has been associated with 2% constipation as an adverse effect