



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, encopresis
- 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