

SPECIAL SESSION — PAEDIATRIC FORUM

Chair: Rien Nijman, Henri Lottmann

Highlight Lecture 1

CLASSIFICATION AND DIAGNOSTICS OF DAYTIME INCONTINENCE IN CHILDREN

Henri Lottman

No abstract available

THE PREVALENCE OF DAYTIME URINARY INCONTINENCE IN PRIMARY SCHOOL CHILDREN

Kajiwara M, Inoue K, Usui T

Neurourology and Urodynamics 2002; 21(4): Abstract 121

DETERMINANTS OF THE ABILITY TO INCREASE FUNCTIONAL BLADDER CAPACITY IN CHILDREN WITH MONOSYMPTOMATIC NOCTURNAL ENURESIS

De Wachter S, Vermandel A, De Moerloose K, Wyndaele J

Neurourology and Urodynamics 2002; 21(4): Abstract 122

THE ROLE OF PAEDIATRIC URODYNAMICS REVISITED

Switinhbank L, O'Brien M, Frank D, Nicholls G, Abrams P

Neurourology and Urodynamics 2002; 21(4): Abstract 123

AN EMPIRICAL TREATMENT ALGORITHM FOR INCONTINENT CHILDREN

Marschall-Kehrel D, Mürtz G

Neurourology and Urodynamics 2002; 21(4): Abstract 124

A PILOT STUDY ON SANS IN CHILDREN TO TREAT VESICO-SPHINCTER DYSFUNCTION

De Gennaro M, Capitanucci M L, Silveri M, Gatti C, Mosiello G

Neurourology and Urodynamics 2002; 21(4): Abstract 125

Highlight Lecture 2

MANAGEMENT OF FUNCTIONAL INCONTINENCE IN CHILDREN

Rien JM Nijman, Department of Paediatric Urology, Erasmus MC, Sophia Children's Hospital, Rotterdam, The Netherlands

Introduction

Normally by the age of 5 years, unless organic causes are present, most children are able to void at will and to postpone voiding in a socially acceptable manner (1,2). By this age, nighttime and daytime urinary incontinence are socially unacceptable and suggest that the child may have a pathologic condition that requires therapeutic intervention.

Presentation and terminology

The majority of children present with frequency, urgency, with or without incontinence and infections. The term "urge syndrome" has been used to describe both the symptoms and the detrusor instability. The problem is that not in all children detrusor instability can be demonstrated during a urodynamic study, although the symptoms are indicative for overactivity of the detrusor, which suggests that the term "bladder overactivity" may be more accurately describe the symptoms for this group.

The term "dysfunctional voiding" is more appropriate for children who have an abnormal urinary stream due to overactivity of the pelvic floor muscles and dys-coordination between detrusor and sphincter (3). These patients may also have urodynamically demonstrable detrusor instability. Children with hypocontractile or acontractile detrusor muscle are referred to as having a "lazy bladder" (2).

Symptoms

Children with voiding problems can present with any of the following symptoms: urinary tract infections, frequency, urgency, urinary incontinence, constipation, soiling or squatting.

The majority of children with overactive bladder present with urinary frequency and urgency, with or without urge incontinence and often have UTIs (1,2).

Urinary frequency occurs in 20% to 30% of children with daytime urinary incontinence, but most children who experience daytime urinary incontinence also have urgency. Functional urinary incontinence shows a high co-

morbidity with urinary tract infections and asymptomatic ("covert") bacteriuria, especially in girls (1).

Urodynamically, detrusor overactivity is characterised by frequent, uncontrollable contractions of the detrusor during the filling phase, whereas the clinical symptoms are urgency, frequency and incontinence. Urinary incontinence may occur during the whole day, but is more frequent in the afternoons and can be accompanied by voiding postponement and use of hold manoeuvres such as squatting, which apply external pressure to the urethra and perineum. There is also a close association with vesico-ureteric reflux, leading to an increased risk for ascending urinary tract infections, renal scarring and other damage to the upper urinary tract (2,3).

Constipation and soiling are other findings and may be due to overactivity of the pelvic floor. In order to counteract the detrusor contractions the pelvic floor contracts at the same time. The purpose of this reflex is to close the urethra and to suppress bladder contraction by reflex inhibition.

Clinical evaluations

The most important procedures for evaluating a child with lower urinary tract symptoms include a careful and detailed medical history in combination with a physical examination, urinalysis, voiding diary (chart) and uro-flowmetry with assessment of a postvoid residual. Ultrasonography of the kidneys is also required in children with (recurrent) urinary tract infections.

Further evaluation is required in children who have an abnormal flow pattern, residual urine and upper tract infections or abnormalities.

For these children a urodynamic investigation with fluoroscopy or voidingcystogram and in some endoscopic examination are the studies of choice. In the majority of children the voiding history and ultrasponography with uro-flowmetry will provide the correct diagnosis.

Treatment

For children with functional daytime incontinence, the traditional approach is cognitive and behavioural therapy. Children are taught the basics of bladder function and how to recognize the sensation of urge. In conjunction they are taught not to postpone micturition and to stop using holding manoeuvres.

Children are reminded to urinate every 3 to 4 hours through the use of micturition charts and diaries. Sometimes an alarm clock is used in combination with these techniques as an additional reminder to urinate. Ultrasound is used as a visual biofeedback to reduce residual volume (4).

Often a combination of bladder training programs and pharmacotherapy, aimed specifically at reducing detrusor contractions is seen as useful and necessary. In most children without UTIs, pharmacotherapy for overactive bladder may commence before urodynamic investigation. The drug of first choice in most countries is oxybutynin, which has proven anticholinergic effects and claims to have spasmolytic and local-anaesthetic properties.

Doses are individually adjusted, but have been used at the maximum recommended adult dose of 5 mg t.i.d. Adverse effects include dry mouth, skin flushing, tachycardia, nausea, dizziness, blurred vision, headache and constipation, dysphagia, stomach ulcers and diarrhoea (5).

In most children with bladder overactivity without urinary tract infections treatment may commence before urodynamic investigation.

Before commencing treatment with oxybutynin the parents and child are given extensive instructions about the medication and the rationale for treatment. Oxybutynin is prescribed for a period of 3 months and a voiding diary is maintained for at least one whole day weekly. Keeping a voiding diary is likely a very helpful training tool because it helps parents and their child comply with a strict regimen and it provides useful feedback on the parents' and child's motivation.

Children with recurrent urinary tract infections are also treated with prophylactic antibiotics for 3 to 6 months.

If anticholinergic treatment fails, the next step is urodynamic evaluation. However, in children with symptoms of dysfunctional voiding, a full urodynamic evaluation is necessary treatment is initiated.

Treatment of children with dysfunctional voiding with or without detrusor overactivity is more complicated (6). Because most of these children have postvoid residual volume, urinary tract infections and constipation, treatment should address all these conditions. Antibiotics and laxatives are usually used to treat the urinary infections and constipation, respectively. Behavioural and bladder "retraining" therapy has been shown to be effective for treating dysfunctional voiding in children, but before therapy is initiated, parents and children should be advised that the process of "retraining" will take time, and in some cases a very long time.

A pharmacologic approach to anticholinergic therapy can be initiated in children with bladder overactivity once constipation is controlled. In addition to improving overactive bladder, anticholinergic therapy should reduce pelvic floor overactivity. There is a potential risk of increasing the post-void residual volume with anticholinergic treatment, but in practice this rarely is a major problem.

In children with a "lazy bladder" (i.e. detrusor contractions are minimal or absent), bladder emptying can be achieved with clean intermittent self catheterisation (CISC). This requires careful guidance and programming for both the child and the parents. Sometimes it is necessary to give the child a suprapubic catheter for a period of time while gradually preparing the child to accept CISC. Once any infections have cleared and the child is continent, it will become easier for both the parents and their child to accept CISC treatment.

Some children are diagnosed with an urge syndrome or dysfunctional voiding, but are actually victims of child abuse. While difficult to prove, it should be considered. Child abuse can have lasting medical implications for lower urinary tract function. A significant portion of adult women with complex urinary symptoms reported

sexual abuse as children.

Because oxybutynin may have severe side effects, including behavioural changes, some children are required to discontinue treatment. Fortunately newer medications that have fewer adverse effects are being investigated for the use in children. One of these drugs is tolterodine, which has higher selectivity for the bladder over other organs compared with oxybutynin and has been shown to be tolerable and effective for treating overactive bladder in adults (7). Tolterodine is approved for treating overactive bladder in adults in most countries worldwide, but it is not yet approved for use in children. Tolterodine 0.5 to 2 mg b.i.d. was shown to be safe and have good efficacy in paediatric trials (8-10). Currently the once-daily extended-release formulation of tolterodine is being evaluated in paediatric clinical trials.

Conclusion

The treatment of children with functional incontinence should be approached as a stepwise evaluation to rule out other potentially serious causes of incontinence and other urinary symptoms. When other complicating conditions have been treated, antimuscarinic treatment and behavioural training should be initiated because this therapeutic approach has been shown to be effective for the treatment of overactive bladder in children.

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