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EDITORIAL

Daytime urinary incontinence: a chronic and comorbid condition of childhood☆,☆☆

Incontinência urinária diurnal: uma doença crônica e comorbidade infantil

Anne J. Wright[a,b,c,d]

[a] *The Children's Bladder Clinic, United Kingdom*
[b] *Evelina London Children's Hospital, London, United Kingdom*
[c] *Guy's and St Thomas' NHS Foundation Trust, London, United Kingdom*
[d] *International Children's Continence Society, Chappaqua, United States*

In the article ''Clinical course of a cohort of children with non-neurogenic daytime urinary incontinence symptoms followed at a tertiary center,'' Lebl et al.[1] characterize a cohort of 50 children attending their center over 12 years with the primary symptom of functional daytime urinary incontinence (DUI). They conclude that a subgroup of children with clinical characteristics of an overactive bladder (OAB), without associated comorbidities of urinary tract infection (UTI) and normal urinary tract ultrasound and uroflowmetry, may be treated without further invasive studies. Mean follow up time was 4.7 years and one-third of the group were resistant to treatment.

With regards to the characteristics of the group, their demographics, symptomatology, and co-morbidities are broadly similar to other reported groups in tertiary settings from around the world.[2–7] Daytime urinary incontinence is known to be more common in girls[8–11] in contrast to nocturnal enuresis and fecal incontinence, which are more common in boys. The age of presentation in this cohort (mean 7.9 years) is two to three years after the child is expected to be dry.[12] A large population cohort in the United Kingdom followed from birth to young adulthood allows the formulation of longitudinal trajectories for children with daytime wetting between the ages of 4.5 and 9.5 years. Eighty-six percent are in the so-called ''normative group'' and are dry. Of the 14% who have DUI, approximately half (6.9%) show a resolving trajectory called ''delayed'' and attain normal status (dry) by 9.5 years of age. Approximately one-fifth (3.2%) had been dry at 4.5 years but relapsed after 5 years of age and remain wet at 9.5 years, and one-third (3.7%) were persistent (chronic) wetters with minimal resolution.[13] Thus, DUI may be primary or secondary, commencing at about the time that children enter school. In addition, there is increasing evidence that bladder dysfunction resulting in lower urinary tract symptoms (LUTS) is a common chronic condition of childhood that can carry on into adulthood.[14,15] Hence, early recognition and appropriate management are vital in attempting to limit lifelong morbidity. There is a need for greater awareness amongst health professionals, parents, and the public that incontinence in children above the age of 5 years is not normal and that we may do children a disservice by placating parents by saying they will ''grow out of their difficulties.''

The hallmark symptom of OAB (as defined by the International Continence Society) is urgency,[16] which was reported by 56% of this cohort. The urodynamic correlate of OAB is detrusor overactivity (DO), which occurred in 92% of performed urodynamics studies (UDS) ($n = 38$). This lack of concordance may reflect the child's inability to describe their symptoms adequately or lack of awareness of what normal voiding should entail. It may also be that their parents

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E-mail: Anne.Wright@gstt.nhs.uk

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incorrectly interpret urgency as voiding postponement;[12] holding on too long, (named erroneously by the authors as *urinary retention*) or ''leaving things till the last moment.'' Other childhood and adult studies have also found that urgency is a poor indicator of underlying pathophysiology.[6,17] Good concordance (85%, $p < 0.05$) for DO in UDS from this study required the symptoms of urgency/urge incontinence together with increased urinary frequency, no history of urinary tract infection, and normal non-invasive investigations of ultrasound and uroflowmetry. Applying these criteria to this cohort of children would mean that 62% would still require invasive testing, as the UTI rate was high. This may be warranted given the high rate of vesicoureteric reflux (27.8%) and abnormal renal scintigraphy results (43.3%), further highlighting the role of bladder dysfunction in recurrent urinary tract infection.[18]

The symptom of DUI seldom occurs in isolation[2–7] and the comorbidities in this cohort are significant and overlapping; 70% had nocturnal enuresis (nocturia is not reported and can be a later outcome of earlier enuresis), 62% recurrent urinary tract infections, 62% constipation, and 16% fecal incontinence. Comorbidity symptoms may be perceived by the parent and/or child as more distressing than the DUI, which may present with smaller, more concealable volumes than enuresis and be more socially acceptable than fecal incontinence. This can result in a mismatch between parental expectations of treatment and the treatment starting point prescribed by the pediatrician. In addition, while emotional and behavioral comorbidities were not reported in this cohort, it is well established that childhood incontinence is associated with these disorders and may affect the severity and treatment outcomes. For this reason, the International Children's Continence Society (ICCS) recommend that all incontinent children benefit from active screening for emotional/behavioral disorders.[19] Thus, in order to allow pediatricians to more accurately capture the heterogeneity and complexity of childhood incontinence, it may be time for the ICCS to recommend a multi-axial diagnostic algorithm similar to the concept of the multi-axial diagnostic framework used by Diagnostic and Statistical Manual of Mental Disorders (DSM) or International Classification of Diseases (ICD 10).[20,21] It could incorporate features of symptomatology; physical, developmental, and emotional/behavioral comorbidity; quality of life and severity indicators; and underlying pathophysiology such as DO, external urethral sphincter activity, detrusor underactivity, etc.

With regards to treatment, this study reported significant improvement in all LUTS at the time of follow-up, which was generally longer (4.7 years $\pm$ 3.2 years) than that quoted in other studies. This may be due partly to the fact that a stepwise approach is required for treatment, starting with bowel dysfunction and moving on to daytime and then nighttime symptoms. The authors do not detail their treatment protocol with stepwise outcomes, but in a cohort of Danish children with DUI, Hagstroem et al. report that treatment of bowel dysfunction alone resulted in a DUI cure of 17%. Urotherapy (with or without a timer watch) then resulted in a further 73% resolution (this was more effective in older children with relatively larger bladder capacity) and, finally, 26% of the entire cohort required treatment with anticholinergics, of whom 81% responded.[7] Lebl's[1] cohort had a higher treatment-resistant rate of 32%, compared to 6% in the Danish study (follow up time of two years) and this is likely to be due to the exclusion of any children with UTI in the latter. Other groups have also demonstrated the value of urotherapy, a key component of which is education of the child and parent as to the causes of incontinence, thereby relieving the burden of guilt and shame from both parties,[2,3] as well as explaining the rationale of treatment approaches.

In summary, this cohort highlights a number of features for the group of children presenting with daytime urinary incontinence, illustrating important concepts, practice points, and principles. Timely and appropriate diagnosis and intervention will hopefully ameliorate short- and long-term effects for the children and their families.

Conflicts of interest

The author declares no conflicts of interest.

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