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Voiding dysfunction related to adverse childhood experiences and neuropsychiatric disorders

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Abstract *Objective:* Research has demonstrated the effect of adverse childhood experiences (ACEs) on later physiologic function and illness development. In the urologic literature, the relationship between bladder dysfunction and neuropsychiatric disorders is well documented. Observations in pediatric urology clinical practice suggest that a blend of these two areas of research can inform care of patients with voiding dysfunction.

Methods: Retrospective review of 216 patients seen in a single pediatric urology clinic by a single provider over a 24-month period. A descriptive, correlational study design was used to assess the extent to which ACEs and neuropsychiatric disorders affected resolution of symptoms when patients were treated with a bowel and bladder retraining program. Patients were selected using diagnostic codes related to voiding dysfunction and a retrospective chart review was conducted.

Results: A majority of patients who were seen for voiding dysfunction (60%) had at least one psychosocial factor. There is a greater prevalence of ACEs (51%) than neuropsychiatric disorders (25%). Children with either ACEs or neuropsychiatric disorders dropped out of treatment at a higher rate than those with neither. When factors were looked at separately, neuropsychiatric disorders were more likely to impede treatment progress than ACEs.

Conclusions: ACEs and neuropsychiatric disorders affect patients' ability to make progress with bowel and bladder retraining and to stay in treatment. Efforts specifically aimed at maintaining therapeutic relationships with patients who have ACEs are needed to fully treat this group, which typically has a high drop-out rate but high rate of resolution if they are able to stay involved in treatment.

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Introduction

Among children with lower urinary tract symptoms (LUTS), it is recognized that there is an increased rate of psychological and behavioral disorders, and that the presence of these factors interferes with treatment and results in less favorable outcomes [1]. For example, among children with voiding dysfunction, those with attention deficit hyperactivity disorder (ADHD) have more extensive LUTS [2,3], and are more difficult to treat [4]. Children who postpone voiding and who have urge incontinence are known to have increased rates of withdrawn, aggressive, and delinquent behaviors [5]. Children with more severe voiding dysfunction are known to exhibit more internalizing, externalizing, and overall psychosocial difficulties [6]. The emphasis of research in this area to date has been on the rates and treatment success among children with psychological and behavioral disorders, and has generally found that children with these factors have lower rates of treatment success.

For the purpose of this study, the authors grouped psychological, behavioral, and neurobiological disorders into one group termed neuropsychiatric disorders, which includes: ADHD, learning disability, dyslexia, developmental delay, severe seizure disorders, autism and Asperger's, mental retardation, bipolar disorder, depression, and anxiety. The authors acknowledge the wide array of severity and neurodevelopmental or neurochemical etiologies of the disorders in this group. However, these are all known diagnoses that patients have prior to referral to pediatric urology, and they all present a high suspicion in clinical work for barriers to treatment progress, which can be tested out in this study when compared with patients who do not have these diagnoses.

Quite separately, and often in addition to psychological and behavioral disorders, are the adverse life experiences that children with LUTS have had. In pediatric urologic clinical work there is a notably high rate of patient experience with adversity (including having experienced neglect, abuse, divorce, adoption, multiple family relocations, incarceration of a parent, etc.).

Adverse childhood experiences (ACEs) have been an increasingly well-studied area outside of urology since the 1990s, with demonstration of the lasting effect of ACEs (such as psychological, physical, or sexual abuse; violence against mother, living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned) on adult health (including 12-fold increased health risks for alcoholism, drug abuse, depression and suicide attempt, increased rates of smoking and poor self-rated health, and increased rates of multiple adult diseases) [7]. Increased rates of chronic physical conditions are known to occur among women with histories of physical and sexual abuse [8]. Focus has recently begun to shift to investigation of markers of chronic stress during childhood. Adverse events in middle childhood predicted increased levels of C reactive protein at age 10 and in mid-adolescence [9].

The increasingly understood, broad implications of ACEs on adult and childhood health risks suggests that pediatric urology clinical work may be informed by awareness of patients' histories of ACEs as well as neuropsychiatric and

behavioral disorders. Recent research has begun to suggest screening for life stressors in addition to psychological disorders in pediatric urology clinical work [10].

With this in mind, the authors sought to assess the rates of ACEs as well as neuropsychiatric disorders among patients with LUTS. The primary purpose of this study was to test the clinical observation that there are a number of patients with LUTS who have both ACEs and neuropsychiatric disorders, but there are also a number of patients who have ACEs and no neuropsychiatric disorders. It is this latter group that has not been previously described in detail in urology literature.

The secondary purpose of this study was to compare treatment success among patients with ACEs and neuropsychiatric disorders. Clinical work by the primary author with patients experiencing LUTS suggested that ACEs and neuropsychiatric disorders are prominent, are important factors in successful treatment, and may affect follow-up rate, but are not always barriers to success as previously documented by other researchers.

This study was reviewed by the authors' institutional review board (committee for the protection of human subjects) and was deemed to be exempt from further review.

Methods

Design

A descriptive analysis was performed to assess the extent to which ACEs, neuropsychiatric disorders, or both, affected resolution of symptoms when patients undertook a bowel and bladder retraining program. When ACEs and neuropsychiatric disorders were looked at as a group they were termed 'psychosocial factors.'

Subjects

A retrospective chart review was conducted on 216 patients seen by a single nurse practitioner over a period of 2 years. Of the 216 patients, 55% were female, 45% were male. Patients ranged in age from 3 to 18 years, with a mean age of 9.7. Patients were selected using diagnostic codes related to voiding dysfunction, including: urgency, frequency, incontinence, dysuria, urinary tract infection, hesitancy or straining to urinate, diurnal enuresis, and nocturnal enuresis. Patients with neurogenic bladder and cerebral palsy were excluded. All patients had been started on a bladder and bowel retraining program involving a combination of a bowel clean out, prompted voiding every 2 hours, pelvic floor relaxation while voiding (with prompted simulation of a squatting body position with feet on a high stool, legs spread, deep breaths to relax, and taking time to empty adequately), and fluid restriction in evenings if the patient experienced nocturnal enuresis. A minority of patients were also prescribed medications such as oxybutynin, desmopressin, and tolterodine. Patients were routinely seen for a follow-up visit 2–4 weeks after the initial consult, and then were seen 1–3 months later, and as progress occurred, at 3–6 month intervals as needed.

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