

the urinalysis. Children with complicated enuresis, including children with previous or current UTI, severe voiding dysfunction, or a neurologic finding, are evaluated with a renal sonogram and a voiding cystourethrogram. If vesicoureteral reflux, hydronephrosis, or posterior urethral valves are found, the child is referred to a urologist for further evaluation and treatment.

Differential Diagnosis

Commonly there is no identified cause of enuresis and, in most cases, enuresis resolves by adolescence without treatment. Children with primary nocturnal enuresis are most likely to have a family history and are least likely to have an identified etiology. Children with secondary diurnal and nocturnal enuresis are more likely to have an organic etiology, such as UTI, diabetes mellitus, or diabetes insipidus, to explain their symptoms. Children with primary diurnal and nocturnal enuresis may have a neurodevelopmental condition or a problem with bladder function. Children with secondary nocturnal enuresis may have a psychosocial stressor or a sleep disturbance as a predisposing condition for enuresis.

Treatment

Treatment begins with treating any diagnosed underlying organic causes of enuresis. Elimination of underlying chronic constipation is often curative. For a child whose enuresis is not associated with an identifiable disorder, all therapies must be considered in terms of cost in time, money, disruption to the family, the treatment's known success rate, and the child's likelihood to recover from the condition without treatment. The most commonly used treatment options are **conditioning therapy and pharmacotherapy**. The clinician can also assist the family in making a plan to help the child cope with this problem until it is resolved. Many children have to live with enuresis for months to years before a cure is achieved; a few children have symptoms into adulthood. A plan for handling wet garments and linens in a nonhumiliating and hygienic manner preserves the child's self-esteem. The child should take as much responsibility as he or she is able, depending on age, development, and family culture.

The most widely used **conditioning therapy** for nocturnal enuresis is the **enuresis alarm**. Enuresis alarms have an initial success rate of 70% with a relapse rate of 10%. The alarm is worn on the wrist or clipped onto the pajama and has a probe that is placed in the underpants or pajamas in front of the urethra. The alarm sounds when the first drop of urine contacts the probe. The child is instructed to get up and finish voiding in the bathroom when the alarm sounds. After 3 to 5 months, 70% of children are dry through the night.

Pharmacotherapy for nighttime enuresis includes desmopressin acetate and, rarely, tricyclic antidepressants. **Desmopressin** decreases urine production and has proved to be safe in the treatment of enuresis. The oral medication is started at 0.2 mg per dose (one dose at bedtime) and on subsequent nights is increased to 0.4 mg and then to 0.6 mg if needed. This treatment must be considered symptomatic, not curative, and has a relapse rate of 90% when the medication is discontinued. **Imipramine**, now rarely used for enuresis, reduces the frequency of nighttime wetting. The initial success rate is 50%. Imipramine is effective during treatment only, with a relapse

rate of 90% on discontinuation of the medication. The most important contraindication is risk of overdose (associated with fatal cardiac arrhythmia).

Complications

The psychological consequences can be severe. Families can minimize the impact on the child's self-esteem by avoiding punitive approaches and ensuring that the child is competent to handle issues of their own comfort, hygiene, and aesthetics.

Prevention

Appropriate anticipatory guidance to educate parents that bed-wetting is common in early childhood helps alleviate considerable anxiety.

FUNCTIONAL CONSTIPATION AND SOILING

Constipation is decreased frequency of bowel movements usually associated with a hard stool consistency. The occurrence of pain at defecation frequently accompanies constipation. Although underlying gastrointestinal, endocrinologic, or neurologic disorders can cause constipation, *functional constipation* implies that there is no identifiable causative organic condition. **Encopresis** is the regular, voluntary or involuntary passage of feces into a place other than the toilet after 4 years of age. Encopresis without constipation is uncommon and may be a symptom of oppositional defiant disorder or other psychiatric illness. *Soiling* is the involuntary passage of stool and often is associated with fecal impaction. The normal frequency of bowel movements declines between birth and 4 years of age, beginning with greater than four stools per day to approximately one per day.

Etiology

The etiology of functional constipation and soiling includes a low-fiber diet, slow gastrointestinal transit time for neurologic or genetic reasons, and chronic withholding of bowel movements, usually because of past painful defecation experiences. Approximately 95% of children referred to a subspecialist for encopresis have no other underlying pathologic condition.

Epidemiology

In U.S. studies, 16% to 37% of children experience constipation between 5 and 12 years of age. Constipation with overflow soiling occurs in 1% to 2% of preschool children and 4% of school-age children. The incidence of constipation and soiling is equal in preschool girls and boys, whereas there is a male predominance during school age.

Clinical Manifestations



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Constipation
Irritable Infant