



## Review Article

### ENURESIS

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#### Introduction:

Enuresis is a form of incontinence and is the inability to socially control urine storage and discharge after the age at which bladder control should have been established<sup>1</sup>. This is one of the most common and perplexing problems brought to the attention of paediatricians. The prevalence at age 5 yr. is 7% for males and 3% for females. At age 10, it is 3% for males and 2% for females, and at age 18, it is 1% for males and extremely rare in females.<sup>2</sup>

#### Classification

1. Primary enuresis: is that which has not been associated with a period of dryness following toilet training. It is often the result of inadequate and inappropriate toilet training by the parents. A recent studies suggest that, primary enuresis represents a variation in normal bladder control than a disease.<sup>3</sup> Children with primary enuresis have never been continent for a period of time lasting at least 3-6 months.
2. Secondary enuresis: It begins after a dry period. It is usually associated with urinary tract infection, structural abnormalities, neurologic disorders or psychological disturbances. At least 15% of school children presenting to a doctor with nocturnal enuresis have secondary enuresis.<sup>4</sup>
3. Nocturnal enuresis: It occurs when the child is asleep. It affects 85% of all enuretic children.
4. Diurnal enuresis: It is both daytime and nighttime wetting. It affects about 5% of enuretic children.

5. Mixed type: Approximately 10% of enuretic children have a mixed type (nocturnal and diurnal) enuresis.

#### Aetiology:

1. Maturation Delay: It is the most popular theory. It is supported by clinical recognition of a generalised delay in attaining developmental landmarks and delayed functional maturation of CNS seen in many young enuretics. Spontaneous resolution of enuresis with age supports this concept.<sup>5</sup>

Genetic Factors: It has been reported that enuresis is a familial disorder. Over 40% of parents and siblings of an enuretic child will have enuresis. When both parents are enuretic - there is a 75% chance the child will wet.

#### Organic:

*Genitourinary Tract*- Obstructive lesions are known to be associated with a high degree of diurnal enuresis. Structural abnormalities like ectopic ureter, posterior urethral valves, phimosis are also responsible.

When enuresis is associated with posterior urethral valve; either transurethral resection of the valve or cystoscopic fulguration should be done. Enuresis may be also associated with Megalocystis and urethral reflux. In that case reduction cystoplasty and bilateral ureteric reimplantation may be done. In case of phimosis, simple circumcision is sufficient.

Neurogenic lesions will more frequently require either drug therapy or intermittent catheterization than urologic surgery.

*Infection*- A high incidence of urinary tract infection has been reported in enuretic children. Studies have

shown that rectal distension due to faecal retention causes bladder distortion and in turn may result in detrusor perineal dyssynergism. When enuresis is combined with UTI, proper treatment of the infection cures the enuresis in about one third of the cases.

2. **Psychological Stress:** Secondary enuresis can be caused by the presence of stress factors during the development period from 2 to 4 years of age. Separation from the family, death of a parent, birth of a sibling, move to a new home, marital conflict and child abuse are some of the most commonly known conflicts that precipitate enuresis.<sup>6</sup>

#### **Evaluation:**

A carefully obtained history, physical examination and urinalysis are sufficient for most children with primary enuresis because of low incidence of associated pathology. The major goal in evaluation to identify those children who need further study and clues such as recurrent infection, obstructive symptoms or neuropathy must be pursued. In the absence of these, there is no indication for radiographic studies or cystoscopy.<sup>7</sup>

#### **Assessment:**

1. *History*- Essential elements of the history include:

- Family History: The family history of enuresis
- Pattern of Enuresis: Primary versus secondary, nocturnal versus diurnal.
- Urinary Habit: defining urinary habits (frequency, urgency, dysuria, dribbling)
- Psychological Stressful Condition:

2. *Physical Exam.*

- Height & Weight
- Blood Pressure
- Neurological Exam: A thorough neurologic examination emphasizing lower spinal vertebral function.
- Exam. of Ext. Genitalia & Bladder

#### *Laboratory INV:*

- Urine R/M/E
- USG- of the kidney and bladder before and after voiding is a valuable non invasive method of excluding hydronephrosis and bladder wall thickening.<sup>8</sup>

- Voiding Cystourethrogram - might be needed as the minimum radiographic studies
- Urodynamics- may be necessary to further study secondary enuresis

#### **Therapeutic Approaches**

##### **A. Psychological & Behavioural Therapy**

Psychological and behavioural therapy may be needed both for the child as well as the parents.

- *Counselling:* of both the child and parents is mandatory. Punishment or humiliation of the child by parents is counterproductive and should be strongly discouraged.<sup>9</sup> Parents should understand that punishing the child will bring only harm to their child without any good effect. They should be very patient during the whole period of treatment.
- *Charting:* It should be practised to see the progress of treatment.
- *Bladder Stretching Exercise:* The technique is forcing fluids and increasing the retention interval between voids, the goal being to gradually increase bladder capacity.<sup>10</sup>
- *Night Awakening:* Frequent awakening of the child at night for micturition.
- *Buzzer Alarm:* Of all methods or theories used in the treatment of primary enuresis, the buzzer alarm is the best. It is a battery operated device, placed in the bed or in the underclothing to detect the passage of very small amount of urine.<sup>11</sup> Anatonia CN, Joseph RN. Enuresis, Paediatric Clin North Am. 1987; 34(3); 719-732.
- *Fluid Restriction:* All kind of fluid should be restricted 1 hour before retiring to bed.

##### **B. Medications**

- *Imipramine:* It is effective if the dose is high enough, if the treatment period is long enough and if the patient is compliant. Success rate is 70%. The recommended dose is 0.8-1.6 microgram/kg/day. It decreases detrusor tone to allow better bladder storage overnight and allow effective short term control of bed wetting.<sup>12</sup>
- *Desmopressin:* It is an analogue of vasopressin. It produces nocturnal anti diuresis. It is administered at bed time as a nasal spray in a dose of 20 microgram.<sup>13</sup>

- *Oxybutynin*: It is an anti cholinergic agent given for the relief of detrusor spasm and for the treatment of primary enuresis in an attempt to relax the bladder and increases its capacity.
- *Synthetic Oral Testosterone*: It has been given to boys between the ages of 6 to 10 years. It apparently has no side effect when given over a short period of time and does improve bladder capacity significantly.<sup>14,14</sup> Devlin JB: Predicting treatment outcome in nocturnal enuresis. Arch Dis Child 65; 1990: 1158-1161.

### Conclusion:

In summary, the physicians treating enuresis must keep in mind that for the vast majority of patients the condition is medically benign and has a spontaneous cure rate. Therefore, in many instances, enuresis is a maturational process or a self-limiting disorder. Assessment of the motivation of the family, and particularly of the child, is important in determining whether therapy more than reassurance is actually being sought and in deciding which treatment is indicated and likely to succeed. Considering the potential and unknown risks of long term pharmacotherapy, drugs such as Imipramine and testosterone should probably be reserved for failures of conditioning therapy or when specific short term dry periods are essential.

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