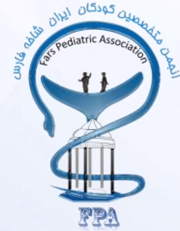
Approach to a child with Nocturnal Enuresis



Dorna Derakhshan
Pediatric Nephrologist
SUMS

Outlines:

- ✓ Case presentation
- ✓ Definition & Classification
- ✓ Etiology & Pathophysiology
- ✓ Management

Case presentation:

- A 6 y/o boy presented with episodes of enuresis that happen almost every night. He is continent in the daytime. What are the important points in history and how do you approach?

Definition:

Intermittent incontinence during sleep in a child aged≥ 5 year

- Absence of congenital anomalies of the urinary tract
- Absence of congenital or acquired defects of the CNS
- Duration: at least 3 consecutive months
- Minimum frequency: one episode per month

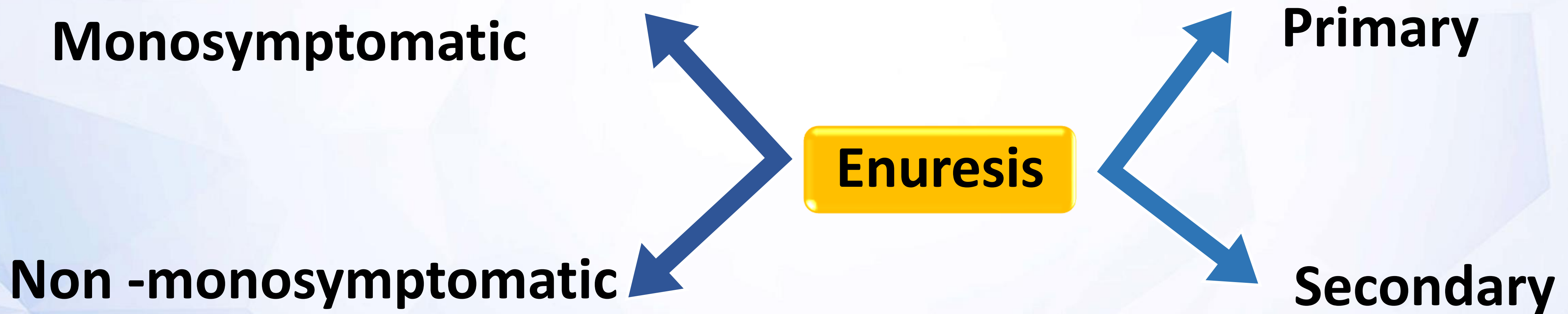
Epidemiology:

- Common childhood problem
- More frequent in boys
- The prevalence is decreased by about 15% with each year
- The monosymptomatic subtypes, can be managed by a general practitioner or pediatrician.

Enuresis is often highly distressing for children and parents …

- Loss of self-esteem
- social isolation
- Poor school performance
- Psychological impairment
- Domestic violence

Classification:



Classification:

Monosymptomatic (70%)

- NO LUT symptoms
- Nl voided volumes

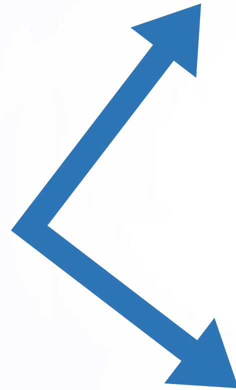
Enuresis

Non –monosymptomatic(30%)

Daytime incontinence, Urge, Increased or decreased voiding frequency, Voiding postponement, and holding maneuvers

Classification:

Enuresis



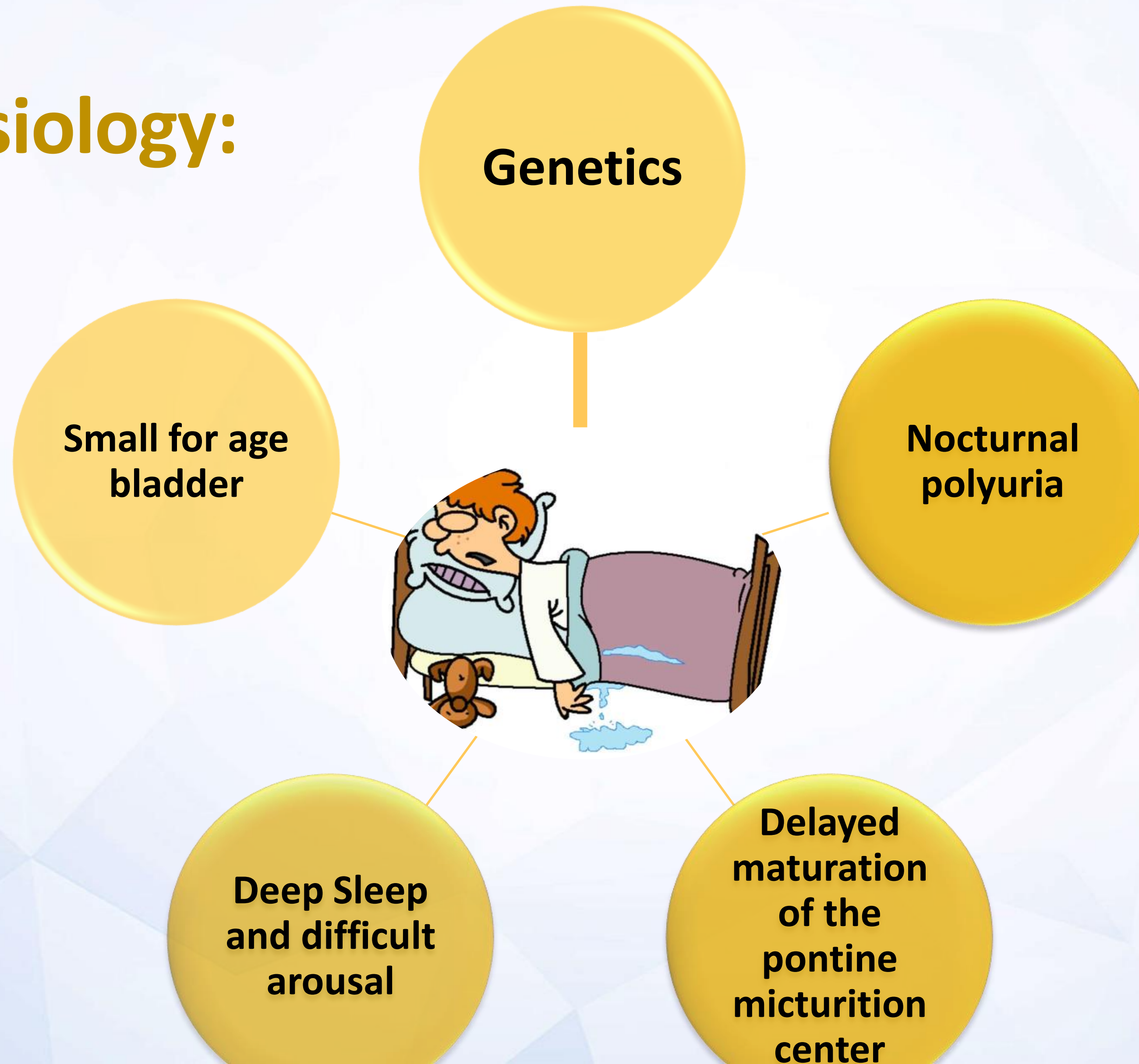
Primary

- Never attained continence for longer than 6 months during sleep

Secondary

- Relapse after a dry period of at least 6 months has occurred
- Higher risk for comorbid disorders

Pathophysiology:



ADHD

Constipation

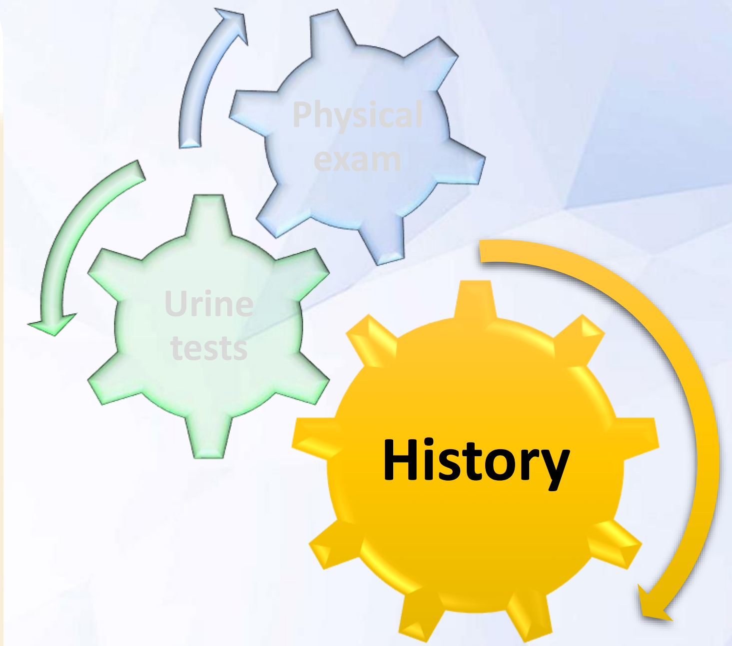
Sleep Apnea

- *Separation and divorce of parents*
- *Birth of a sibling*
- *School problems*

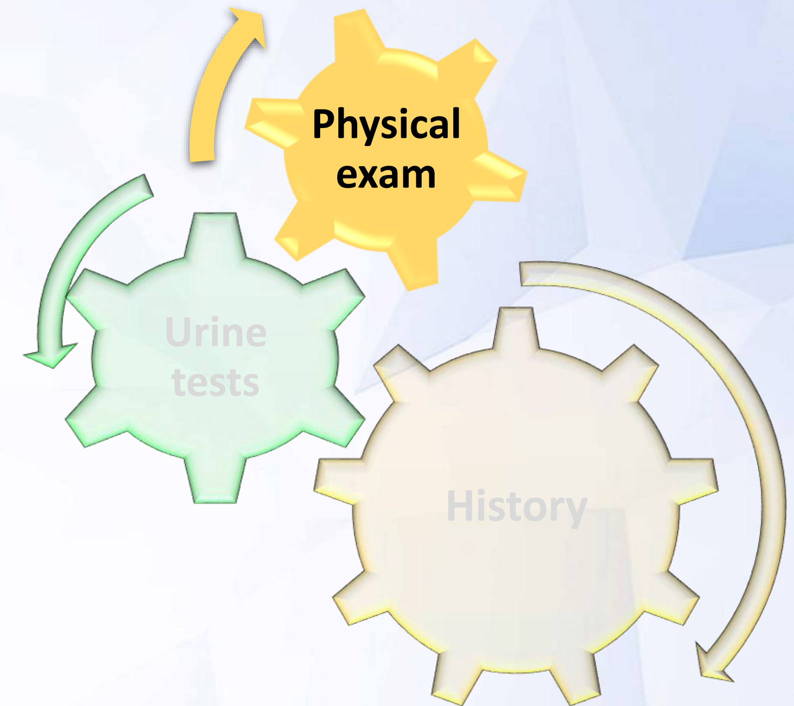
Psychological problems (esp. in cases of secondary MNE)

Evaluation:

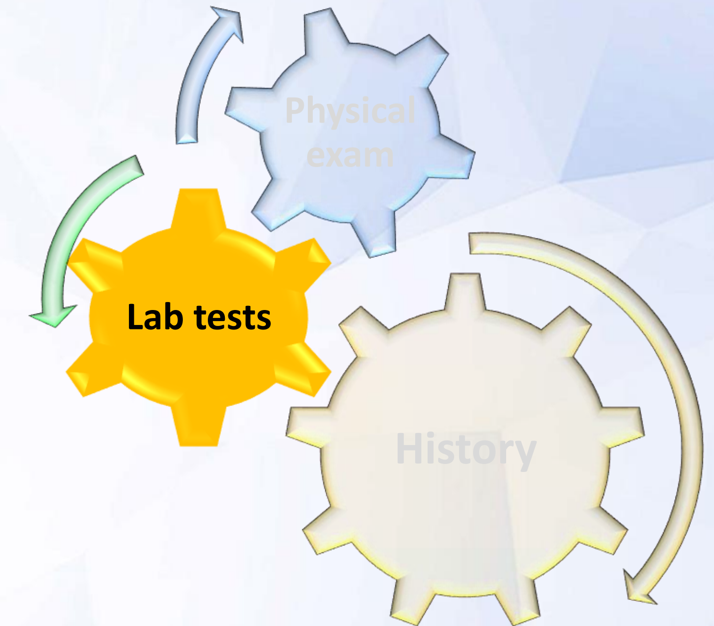
- ✓ General health and development
- ✓ Perinatal data
- ✓ Sleep
- ✓ Frequency of night wetting
- ✓ Nocturia
- ✓ Daytime bladder symptoms
  - Voiding frequency
  - Urge symptoms
  - Holding maneuvers
  - Voiding postponement
- ✓ History of UTI
- ✓ Drinking habits
- ✓ Bowel habits
- ✓ Family history
- ✓ Psychological comorbid conditions
- ✓ Previous treatment strategies



Evaluation:



- ✓ Growth
- ✓ Blood pressure
- ✓ Adenoid face
- ✓ Abdomen: Fecal mass, bladder
- ✓ Genitalia: Structural anomalies, pinworm infestation
- ✓ Lower spine: Cutaneous stigmata of spinal dysraphism
- ✓ Motor strength, tone, and reflexes in the legs



What tests do you ask for the patient?

A-Urinalysis

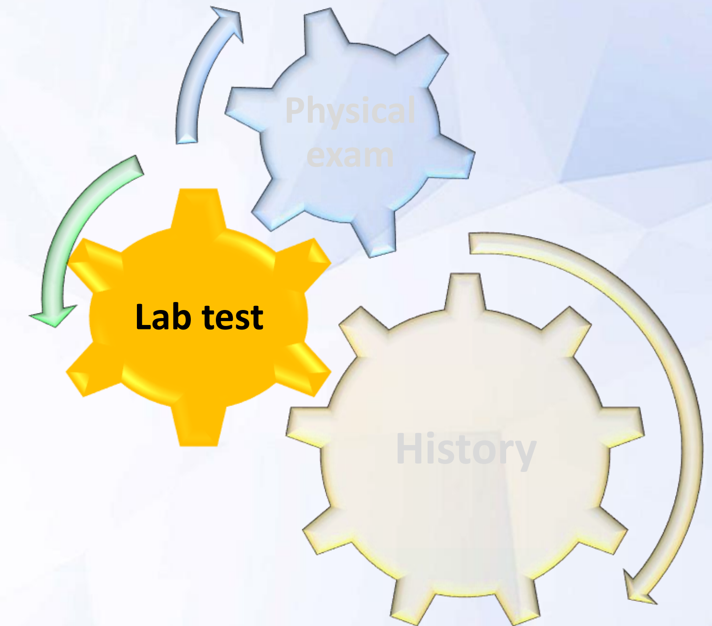
B-Urinalysis and KUB sonography

C-Urinalysis and KUB sonography and Urodynamic study

D-Urinalysis and FBS

Evaluation:

Urine dipstick test is the only mandatory laboratory test in all children with MNE , to rule out UTI, Glycosuria, and Proteinuria



Role of kidney sonography:

- Not required in clear monosymptomatic enuresis.
- It is necessary for children with daytime incontinence or other daytime symptoms
  - Measuring bladder wall thickness
  - Post-void residual volume

Treatment:

- The choice of treatment depends on :
  - Co-existing disorders
  - The subtype of enuresis (MNE or NMNE)
  - The severity of the problem
  - The child’s motivation and the motivation and abilities of their parents.

When to initiate management:

- Varies from child to child
- Varies from family to family.
- At pubertal age (irrespective of family and child concern)
- Child’s enough responsibility for treatment (not only parents interest)

Initial management

Discuss the expectations with parents:

Enuresis treatment

- Often requires several methods
- May be prolonged
- May fail in the short term
- Relapse is common
- Parents/families must be willing to participate, be supportive, and adhere to follow-up

Parents usually ask….
What do you recommend?

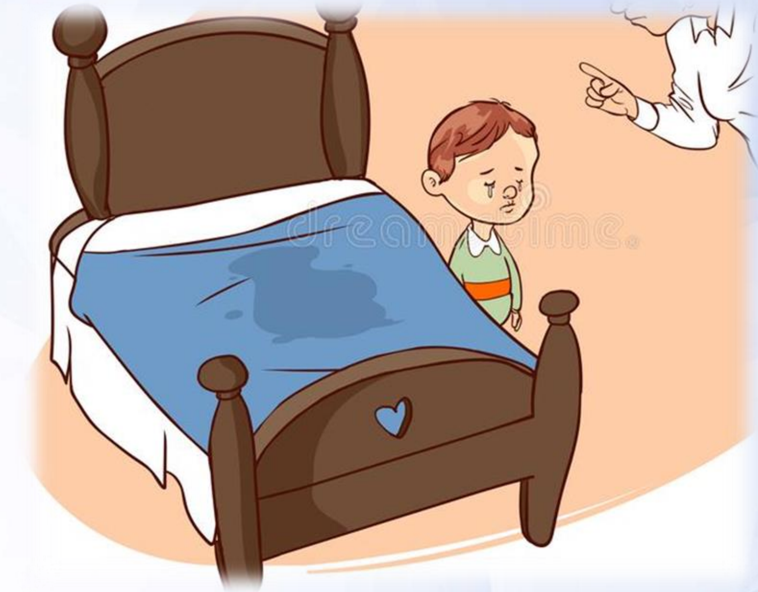
A. Avoid fluid intake during the daytime.

B. Avoiding urination to train the bladder for night

C. Waking the child at night?

D. Avoid caffeine and sugar

Initial management



Education and advice

- ✓ Enuresis is common and resolves on its own in most pts.
- ✓ Enuresis is not the fault of the child.
- ✓ Enuresis is also not the fault of the parents/caregivers.
- ✓ Voiding 4 to 7 times per day, including just before going to bed.
- ✓ Taking the child to the toilet if the child wakes at night
- ✓ Avoid high-sugar and caffeine-based drinks in the evening.
- ✓ Providing a smaller proportion of the child's daily fluid intake after 7 PM
- ✓ Avoid routine use of diapers and pull-ups
- ✓ Keeping a calendar of wet and dry nights

Motivational therapy:

Reward Chart

This Chart belongs to:

Task	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total

When I reach my goal of .... stars
My reward will be

When I reach my goal of .... stars
My reward will be

When I reach my goal of .... stars
My reward will be

When I reach my goal of .... stars
My reward will be

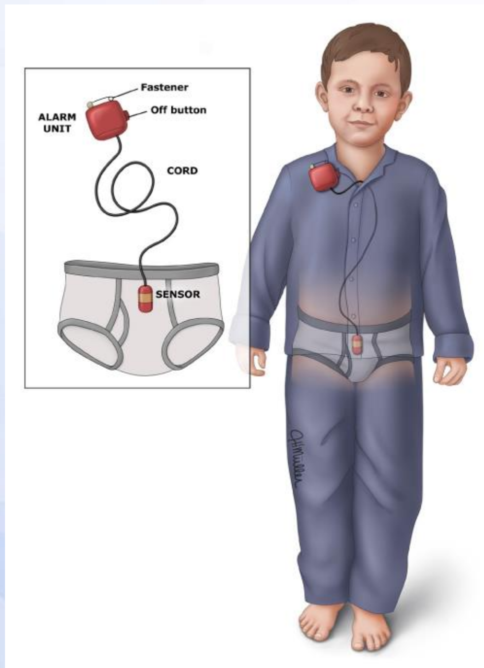
ACTIVE THERAPY

Indication of starting active therapy:

- Children with MNE who had no improvement after 3 to 6 months of initial management
- Children at puberty age

ACTIVE THERAPY

Based on family priorities and expectations



First active therapy
- Alarm
- Desmopressin

Alarm treatment

- ✓ Best long-term results.
- ✓ Based on conditioning
- ✓ The situation of the whole family must be considered
- ✓ Parents need to help the child to **wake up completely**.
- ✓ The alarm has to be **used every night without interruptions.**
- ✓ The effect should be evaluated after a period of 6–8 wks
- ✓ Response is not immediate.
- ✓ Alarm therapy must be continued for at least 14 consecutive dry nights for a maximum of 16 weeks before being discontinued.
- ✓ If there is no improvement after 6 weeks→ Stop therapy / add other treatment components (medication, behavioral therapy)

Alarm is not appropriate in :

- Children with seldom bed wetting
- Severe problems in the parent–child interaction
- Children with marked symptoms of an oppositional defiant disorder (ODD) or other psychological disorders.
- Untreated LUT dysfunction (especially from an OAB)

Alarm success rate:

- Treatment success rates : 50 and 80% after 10–12 weeks of therapy.
- Relapse: in 12–30% of cases within the first 6 months after treatment
  - The child often responds to another course of alarm therapy in relapses
- Long-lasting cure rates are nearly 50%

Desmopressin

- ✓ Mechanism: reduced urine production in the night hours
- ✓ tablet or fast-melting oral lyophilizate form.
- ✓ Timing: 30–60 min before going to sleep, its effects last for up to 8–10 h
- ✓ Starting dose: 0.2 mg desmopressin tablet or 120 µg of the melt tablet.
- ✓ Can be raised up to 0.4 mg or 240 µg after 14 days of inefficient treatment.
- ✓ If treatment is successful, it can be continued for an additional 3 months before withdrawal.
- ✓ If a relapse occurs, desmopressin can continue to be prescribed for another 3 months

Desmopressin success rate:

- Success rates : 60 and 70%
- Sudden discontinuation of desmopressin → High recurrence
- The long-lasting curative effect is low

Desmopressin considerations:

- water intoxication and hyponatremia→ headache, nausea, vomiting, and convulsions.
- Fluid intake in the evening should be restricted to 250 ml
- No night-time drinking
- Should be withheld during GE, vomiting ,…

Alarm Vs Desmopressin

- There is no difference between desmopressin and the alarm during treatment for achieving dryness, as long as the medication is taken
- long-term treatment results with the alarm are much better than desmopressin after withdrawal

Anticholinergic:

- Decreased urge incontinence in children, especially in children with day time symptoms.
- Tolterodine, Oxybutynin are most
- Adverse effects: Constipation and urine retention, Dry mouth, headache, tachycardia, blurred vision, and mood changes.

Imipramine:

- Anticholinergic, antispasmodic, and local anesthetic effects, and possibly a central nervous system effect on voiding.
- Dosage: The initial dose is 10 to 25 mg; (increase by 25 mg if there is no response after one week (maximum dose 50 mg for children 6 to 12 years of age; and 75 mg for children ≥12 y/o)

- Effective in nearly 40% of patients with enuresis, but a high rate of relapses after discontinuation.
- 75% relapse after withdrawal
- Side effects: dry mouth, mood changes, cardiotoxicity (at high doses).
- Needs screening for a long QT syndrome with ECG before starting treatment

- The norepinephrine reuptake inhibitor **Reboxetine** may be useful as a non-cardiotoxic alternative to imipramine in the treatment of therapy-resistant enuresis

Questions?