

Nocturnal Enuresis In Children: Trouble-shooting when treatment seems unsuccessful



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Nocturnal Enuresis (NE)

- Involuntary passage of urine at night, in the absence of physical disease, beyond the age of 5 years

Nocturnal Enuresis

- At 5 yrs - 12-15% still consistently wet
- At 14 yrs - 2-4% still consistently wet
- Approximately 15% become “dry” each year

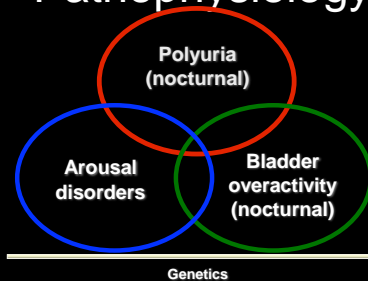
Nocturnal Enuresis

- Primary - 90%
 - have always wet, never dry > 6 months
- Secondary -10%
 - dry for more than 1-2 years, then wet

Nocturnal Enuresis

- Non Monosymptomatic NMSNE
 - Bedwetting with daytime symptoms
 - More common
- Monosymptomatic MSE
 - Bedwetting without daytime symptoms

PNE: Pathophysiology



Contributing to NE

- Poor brain response to bladder wanting to empty while asleep.
- “Deep sleepers”

Contributing to NE

- Bladder overactivity
 - frequent, irregular bladder contractions causing frequency, urgency and wetting
 - poor co-ordination of bladder and its sphincter



Contributing to NE

- Low vasopressin levels at night
 - hormone produced by pituitary gland
 - low level means more urine is produced at night

Nocturnal polyuria

- Nocturnal urine output >130% of EBC for age
- $EBC = 30 + (Age \text{ [yrs]} \times 30)$

Principles of Rx of NE

- Screen for contributing factors & treat these
- Address bowel dysfunction before addressing daytime bladder dysfunction before addressing nocturnal enuresis

What does patient want?

- Occasional dry night eg sleepovers, school camp
- Resolution of NE for long term
- Not bothered by it, nor is family

NE Treatment

- Bed or body alarm
- Desmopressin
- Imipramine



Treatment failure

- Missed NMNE on initial assessment
- Unsuitability for alarm
- Psycho-social factors
- Associated pathology
- Medication dosing

Second or specialist opinion

Bowel Bladder Dysfunction

- Subtle day-time symptoms
- Frequency, urgency, wetting
- Small void volumes
- Bowel dysfunction: Constipation

The image shows two overlapping medical forms. The top form is titled 'Your Daily Bladder Diary' and includes sections for 'Drinks', 'Bowel Function', and 'Bladder Function'. The bottom form is a '24 Hour Bladder Diary' with columns for 'Time', 'Amount (oz)', 'Type', and 'Amount (ml)'. It contains handwritten entries for 7 am, 8 am, 9 am, 10 am, and 11 am.

Time	Amount (oz)	Type	Amount (ml)
7 am	300	Water	500
8 am			2
9 am			
10 am	Cup	Tea	LEVR 3
11 am			
Midday			

Bristol Stool Chart

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on the surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces. Entirely liquid

Unsuitable for alarm

- Untreated OAB, Bowel dysfunction
- <2/7 nights wet per week
- Wetting in pockets, with long spells of dry nights
- Small wets, don't soak through undies

Psycho-social Factors

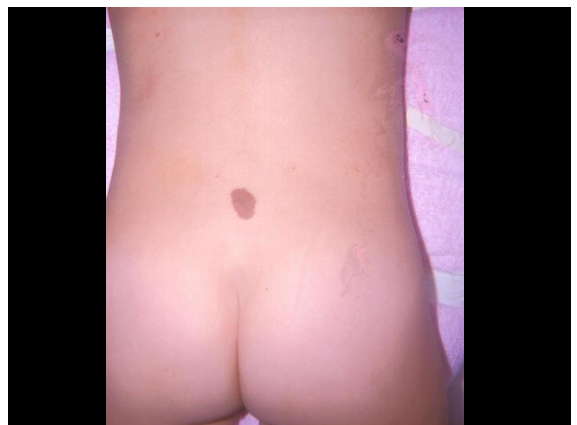
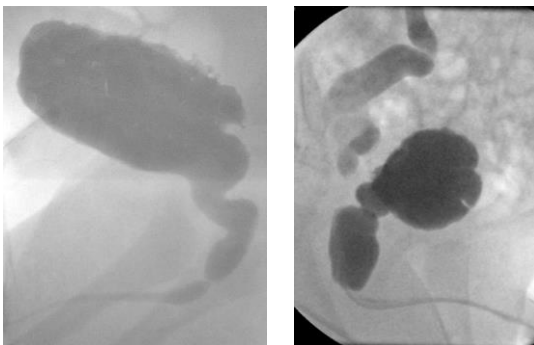
- Poor motivation, non-compliance
- Scared of alarm
- Lack of parental support
- Lack of experienced support
 - Continenence CN, Continenence physiotherapy

Psycho-social Factors

- Unrealistic expectations
- Social stresses: Exams, newborn baby, parental separation
- Anxiety, depression

Associated Pathologies

- UTI
- Spinal anomaly
- Structural anomalies: posterior urethral valves, meatal stenosis
- Obstructive Sleep Apnoea





Associated Pathologies

- Sleep disturbances
- Epilepsy
- Autism spectrum
- Developmental delay
- Diabetes

Medication Dosing

- Trial highest safe dose of treatment
- Trial anticholinergics of a few weeks before dismissing
- Ensure correct dosing regime

Medication Non-response

- Desmopressin: if poor response
 - OAB component?
 - Add in Anticholinergics

Medication Non-Response

- Non-response to first anticholinergic: Try oxybutynin oral, oxybutynin patches, solifenacin, tolterodine
 - (Minimise detrusor spasm)
- Beta-3 agonist - Mirabegron
 - (Promotes relaxation)
- Role for intravesical Botox

Optimising success

- Careful history, examination and diaries
- Screening USS, LxSx spine Xray, MSU
- Assess comorbidities and treat
- Assess social circumstances
- Assess motivation and expectations

Optimising Success

- Tailor treatment
- Nocturnal polyuria: Desmopressin
- OAB: Anticholinergics
- Bowel management
- Combination therapy

- Majority get better, some still need support and treatment in adulthood

