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

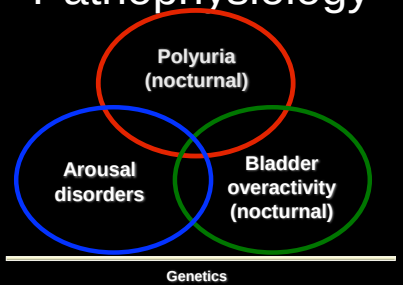
Nocturnal Enuresis

- 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



Butler RJ. et al The three systems: a conceptual way of understanding nocturnal enuresis. Scan J Urol Nephrol. 34(4):270-7, 2000

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 [yrs] x 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

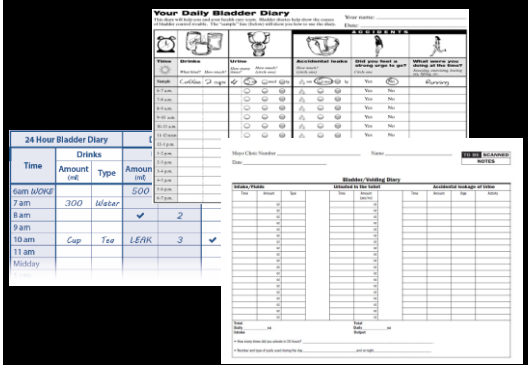
Treatment failure

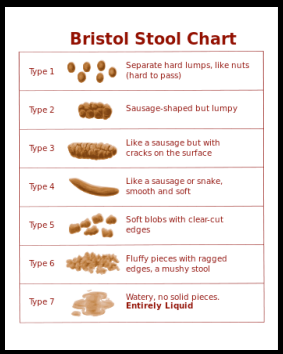
- Missed NMNE on initial assessment
- Unsuitability for alarm
- Psycho-social factors
- Associated pathology
- Medication dosing

Second or specialist opinion

Bowel Bladder Dysfunction

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





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

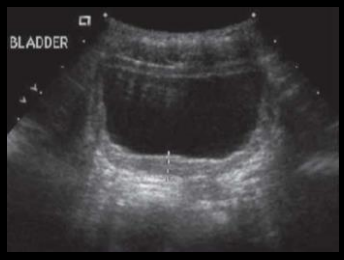
- Poor motivation, non-compliance
- Scared of alarm
- Lack of parental support
- Lack of experienced support
  - Continence CN, Continence physiotherapy

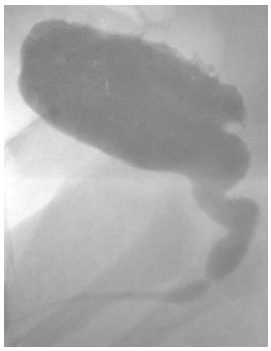
Psycho-social Factors

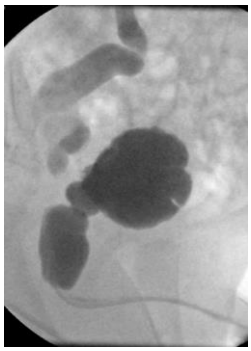
- Unrealistic expectations
- Social stresses: Exams, newborn baby, parental separation
- Anxiety, depression

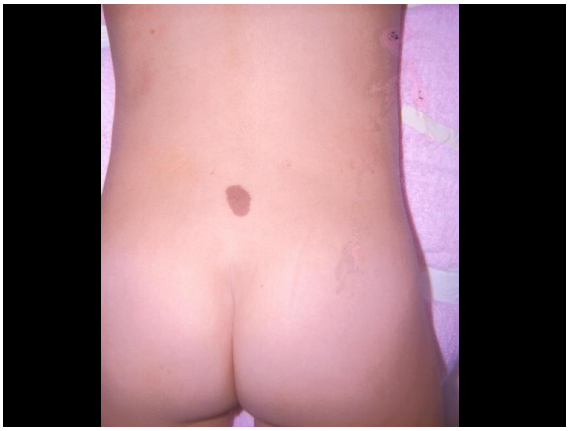
Associated Pathologies

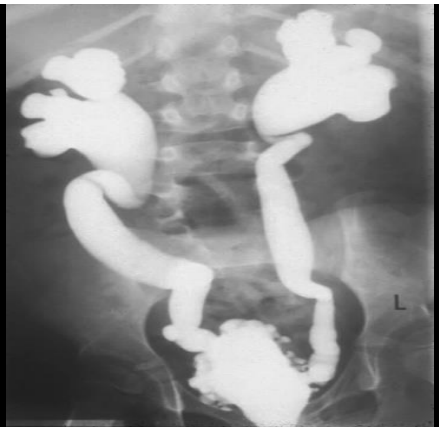
- UTI
- Spinal anomaly
- Structural anomalies: posterior urethral valves, meatal stenosis
- Obstructive Sleep Apnoea











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, solifenacine, 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