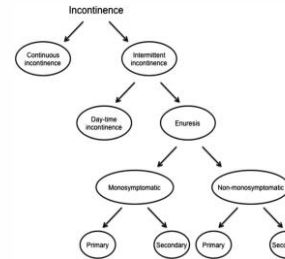


Urinary incontinence in children

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Urinary incontinence



2014 ICCS Standardization of Terminology of Lower Urinary Tract Function in Children and Adolescents



Nocturnal enuresis



Enuresis

- Involuntary passage of urine at night in the absence of physical disease beyond the age of 5 years
 - Spontaneous remission 14-16% / year
20% 5 yrs → 10% 10 yrs → 3% 15 yrs → 0.5-2% adults
- Forsythe et al. Arch Dis Child 1974
- More common in boys (60%)



Types of NE

Type	Definition	Treatment
Monosymptomatic	No daytime symptoms	Alarm/ DDAVP
Non-monosymptomatic	With LUT symptoms +/-incontinence	Treat underlying problem first
Primary	Always wet at night	
Secondary	> 6 months of night dryness previously	Pathological or psychological factors more common



Factors contributing to enuresis

- Deep sleep/poor arousal
- Small or unstable bladder
- Nocturnal polyuria



→How do you determine the role of each?



Time and volume chart

DATE: 			
Time	Drink	Wet	Comments
Dry Weight (grams)	Wet Weight (grams)	Wet Dry = (grams)	

*Amount of first wee in the morning (ml)

- Expected maximum voided volume (Age + 1) x 30 (max 400mls) (? small bladder)
- Overnight urine (max EMVV x 1.3) (? nocturnal polyuria)

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Treatment for NE

- Level I evidence (Cochrane systematic reviews)
 - Alarm therapy Glazener 2005
 - Desmopressin Glazener 2002
 - Tricyclics Caldwell 2016
 - Other medications Deshpande 2012



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Alarms



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How alarms work

- Alarms - first line therapy for NE
 - 2/3 become dry during treatment, (Glazener)
 - 1/2 remain dry after treatment cease
- Alarm is wetness sensor
- Bed (bell and pad) or body worn, (+/- wireless)
- Trains child to wake to void or inhibit voiding when bladder is full
- Training time 2-3 months (parental support)

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Alarm access

- Alarms can be hired (from chemist, continence services, alarm companies) or purchased (online)
- Malem, Dri-Sleeper (Eclipse), Wet alert (Ferring), Ramsey Coote
- Variable qualities
- Need to choose one to suit the child

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Alarm failure

- Failure to wake to stimuli
- Failure to respond (get up and void)
- Attachment problems (body worn)
- Wearing pants (bell and pad)
- Inadequate training time (need for 2-3 months)
- Have not trained to wake to void (need overlearning)

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Desmopressin

- Second line therapy for NE
 - Reduces overnight urine volume
- Use:
 - sleep-overs (short term)
 - alarm failure
 - in combination with other treatments
 - for breaks eg alarm fatigue, menstruation
- Precaution with fluids



Desmopressin failure

- Timing of dose (1 hour before bed best)
- Inadequate dose
 - Max: tablet 400mcg, melt 240mcg, spray 40mcg
- Drinking too much at night (risk of SE)
- Despite reducing urine volume, it is still larger than bladder capacity
- Nephrogenic diabetes insipidus



Other medications

- Tricyclics third line therapy for treatment failure
 - 20% dry, relapse on stopping medication
 - Mechanism of action: anticholinergic effect?
 - Concerns regarding cardiac SE and accidental overdose (?ECG)
- Anticholinergics combined with other therapies increased efficacy and reduced relapse rates by about 20%. (Deshpande 2012)
- May try combination therapy in treatment resistant enuresis.



Psychological factors

- Psychological comorbidities high (20-40%), affects treatment adherence and response
 - eg ADHD, ODD and other externalising behavioural problems (Von Gontard 2011)
- Stress and poor self esteem can affect child's attitude to treatment, involvement of psychologist or use of motivational strategies may help
- Parental attitude can impact on treatment
 - (eg frustration or blaming, anxiety, helplessness)



Motivation strategies



irewardchart



Daytime incontinence



Background for DUI

- 17% - 20% wet ≥ 2 per week _____
- Associated with adult urge incontinence
- Impacts quality of life worse than for NE
- Many causes for daytime wetting:
 - Overactive bladder
 - Voiding postponement
 - Dysfunctional voiding
 - Constipation
 - Vaginal reflux
 - Pollakiuria
 - Giggle incontinence
 - Stress incontinence
 - UTIs, diabetes mellitus, diabetes insipidus, anxiety etc



Overactive Bladder

- Presents with urgency, frequency & DUI
- Often small bladder capacity, associated with constipation
- Rx
 - Urotherapy (fluids, bowel program, timed voiding)
 - Anticholinergics (oxybutynin, tolterodine, solifenacin)
 - TENS Transcutaneous Electrical Nerve Stimulation
 - Botox (experimental)



Voiding Postponement

- Habitually postponing micturition
- Common in children (don't want to miss out play)
- Presents with: holding manoeuvres, urgency, fluid restriction
- Reduces awareness of bladder sensation
- Rx: timed voiding (alarm watch)



Constipation

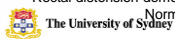
- Cause DUI in 1/3, 90% resolve with treatment for constipation Loening-Baucke 1997
- Assess using ROME III score, Bristol Stool Chart, rectal diameter on U/S
- Rx
 - Adequate drinking, diet (fibre)
 - Laxatives (taste important for children, macrogols most effective) for disimpaction & maintenance
 - Foot support, regular toilet sits (gastro-colic reflex)



Rectal distension



Rectal distension demonstrated.
Normal rectal diameter <2.6cm



Vaginal reflux

- Urine leakage 5-10 minutes after void
- No other LUT symptoms
- Common in prepubertal girls
- Treatment: toilet posture (straddling the toilet backwards)



Pollakiuria

- “Extraordinary daytime frequency”
- Frequent small daytime voids (>20)
- Symptoms disappears in sleep
- Recent stressor in >50%
- Self limiting, reassurance after excluding other causes



Giggle incontinence

- Voiding to completion during laughter
- ? Type of cataplexy
- Uncommon (most cases are overactive bladder or voiding postponement)
- Treatment:
 - Methylphenidate (stimulant to prevent spontaneous activation of pontine micturition center in response to laughter) Berry 2009
 - Biofeedback (pelvic floor training)



Stress incontinence

- *Rare in neurologically normal children*
- DD: OAB, voiding postponement
- Caused by increased intra-abdominal pressure eg CF, urological surgery, elite gymnasts
- Treatment: pelvic floor awareness, pelvic exercises



Summary

- Urinary incontinence impacts on QOL
- Urotherapy (education, drink advice, bowel program, timed voiding) often helps
- Most treatments can be managed by GPs
- Refer if child fails to respond within 6 months or if suspected uro/neurological condition (eg continuous incontinence)
- Refer adolescents earlier

Useful websites

- Continence Foundation of Australia website: <http://www.continence.org.au/>
- ERIC: (Education and Resources for Improving Childhood Continence) <http://www.eric.org.uk/>
- SCHN Factsheets: <https://www.schn.health.nsw.gov.au/parents-and-carers/fact-sheets>
- YouTube of 2015 Kid's Bladder Day talks: <https://www.schn.health.nsw.gov.au/professionals/professional-resources/resources-for-health-care-workers/kids-bladder-day-talks>

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Thank you

