Bedwetting Updates

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Objectives

- Know- Primary monosymptomatic nocturnal enuresis (PMNE) and non-monosymptomatic NE
- Using good history to guide PMNE treatment
- Different treatments of PMNE & effectiveness
- Recognize psychological effects

Definitions:

International Children's Continence Society

- Nocturnal enuresis- Intermittent nocturnal incontinence
  - Subset who have been dry for > 6 mon classified as secondary
- PMNE- lifelong continuous enuresis without bladder dysfunction or Lower UT symptoms
- All others fall in broad category of Non-Monosymptomatic nocturnal enuresis (NMNE)
  - UTIs, Diurnal enuresis, UT abnormalities

Physiology: Other Key Points

- Difficulty with sleep arousal is central to all types of NE
- 15% of children will have nocturnal polyuria with UO > 130% of expected bladder capacity (EBC- 30 ml + age in yrs X 30 ml)
  - Need to evaluate these kids for metabolic abnormalities, sleep disordered breathing, heart conditions)

Physiology: Other Key Points

- Other considerations include:
  - Small bladder capacity
    - Small frequent voids during the day, voiding diary (likely if UO is < 50% of EBC)
  - Overactive bladders
    - Urology referral for bladder dynamics assessment
  - Chronic constipation
  - Genetics
  - Combination of components of the above ***

Epidemiology

- NE is common (all babies!) decreases with age- 10-15% still do so by age 6
- 15% annually outgrow it after age 6 until the teenage years- but 1-2% of individuals can still have NE into adulthood
- ADHD associated with it
- Male predominance
- Large genetic component- if one parent has it – up to 50% of their kids will, if both parents- ¾ of the kids will

The work-up

- Thorough H & P (rapids screening questions to categorize the NE)
- Nights/week, volume, nocturnal leakage
- Bedtime habits, pre-bed fluid intake, salt intake during day
- Have they ever been dry?, daytime enuresis
- Urinary holding posturing?

Rapid Screening questions

QUESTION	IF RESPONSE IS POSITIVE, THEN CONSIDER
Previously dry for 6 months	NMNE or SNE
Associated with daytime urine control issues	NMNE
Constipation or fecal soiling	NMNE
Severe recent stress	SNE
If responses to all above questions are negative, then consider	MNE

MNE=monosymptomatic nocturnal enuresis; NMNE=nonmonosymptomatic nocturnal enuresis; SNE=secondary nocturnal enuresis.

The work-up

- Straining, start stop cycle for urinating
- Constipation- large issue- must get bowel habits clearly identified!!!! How often, how big, associated fecal incontinence
- Social stressors! New sibling, divorce, school issues, etc.
- Psychological effect– does it bother the child? Does it impact social development
- No role for punative approach!!!

Physical Examination

- Focus on: genitals- labial adhesions/meatal stenosis
- Proper visualization of lower back, anus and genital region- ectopic ureter in girls? Hairy patch on back? Redness etc, check underwear
- Neurologic exam, abdominal exam, oral exam- big tonsils?

Laboratory

- International Children's Continence Society
  - Only mandatory screening is a urinalysis
  - Childhood elimination and intake diary- stool and urine– measuring urine volume is important (hard to do at night unless you have pull ups or a scale for sheets), can use anything that can measure volume (even an old soda bottle), caffeinated fluids?

Treating PMNE

- Guided by factors identified in the P & E and elimination diaries

- 2 Primary treatments:
  - Bed Alarm
  - Desmopressin

Standard basic approaches

- Eliminate fluid and solute intake in the evening (no snacks!)

- Hydrate in the daytime- key (some kids don’t like to use bathroom at schools and will not take in adequate fluids during day- then they consume at night

Standard basic approaches

- Rule 2/3 of fluid during day, 1/3 early evening, none within one hr of bed ** take into account activities (sports etc)
- Stable sleeping patterns– sleep hygeine is key
- Void before bed so bladder is empty

Treatment specifics

- The Alarm:
  - Focused on altering sleep arousal associated with voiding- vibratory or auditory
  - May sleep through it so parent should get up with child – make them go to bathroom and help change sheets
  - Most effective and sustainable treatment
  - May take months to be effective

Alarm contd

- ICCS recommends:
- Alarm should be tried for 2-3 months- if effective continue use until at least 14 consecutive dry nights achieved
- If relapse a second trial should be attempted

Desmopressin

- Oral tablet preferred (less hyponatremia)
- 20-30% above placebo
- Better in children with NP variant
- Relapse higher than alarm
- ICCS recs- limiting fluid intake to 200 ml one hr before medication is given and no fluids until next am
- May be useful for special events- sleep overs

Anticholinergics

- Oxybutinin- Not primary treatment
- After alarm and desmopressin attempted
- Maybe better in patients with small bladder capacity
- May be better in conjunction with desmopressin
- Need to ensure proper voiding techniques and watch for constipation!

Tricyclic antidepressants

- Imipramine: (not first line)
- 20% responsiveness with up to 90% relapse when medication is stopped
- Taper or withdraw every 3 months- check for response
- Caution in patients with cardiac issues- need to monitor closely
- May be helpful in those patients with ADHD

Alternatives

- No data to support
- Hypnotherapy or acupuncture

- Key is listening and working with the patients and their families closely

Refractory Enuresis

- Constipation
- Secondary enuresis- psychological evaluation– life stress events
- NMNE– regimented bowel and urinary elimination approaches
  - Involved specialists
  - Urotherapy- biofeedback, elimination training, double voiding etc

Treatment Failure & Approaches

CAUSE	NEXT STEP
Constipation or retained fecal burden	Bowel regimen
Occult voiding dysfunction	Behavioral therapy, postvoid residual volume, uroflowmetry
Treatment compliance failure	Family goal discussion and assessment of child's interest in participation
Neurologic condition	Detailed neurologic examination and consider lumbar magnetic resonance imaging
Psychological stressors	Psychological evaluation and counseling as needed
Metabolic concerns	Laboratory evaluation and consider endocrine referral
Sleep disorders	Sleep laboratory referral with polysomnography
Sleep disordered breathing	Sleep specialist referral or otolaryngologist referral

Possible Treatment approaches

TYPE OF MNE	TREATMENT
All cases	Limit fluids before bed (≤200 mL)
	Void before bed
	Regular sleep and wake schedule
Classic PMNE	Alarm (first)
	Desmopressin (second)
Nocturnal polyuria	Desmopressin
Sleep disordered breathing	Sleep study or referral to an otorhinolaryngologist
Small bladder capacity	Alarm
Overactive bladder (suspected)	Desmopressin and oxybutynin
	Alarm and oxybutynin
Small bladder and nocturnal polyuria	Desmopressin and alarm (consider oxybutynin as well)

MNE=monosymptomatic nocturnal enuresis; PMNE=primary monosymptomatic nocturnal enuresis.

Summary

- Common disorder- most kids will outgrow it
- Need to identify and categorize specific pattern
- If NMNE need to have specific underlying issues addressed before initiating therapy
- Alarm and desmopressin are first line after behavioral habits & issues addressed

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Its always about The Kids!