

Consequences of perineological problems in childhood

Els Bakker
PT, PhD
IES Parnasse - Brussels

Aims

- Detect indicators for bladder -sfincter dysfunctions and associated recurrent urinary tract infections (UTI)
- Prevent renal scars in children by early treatment
- Study the influence of potty- training on the maturation of the urinary system in order to prevent dysfunctions

Methods

- 4332 children (2215 boys,, 2117 girls, mean age 11,5 ± 0,5 years)
- Questionnaires with 43 questions on toilet behaviour and potty- training



Incontinence

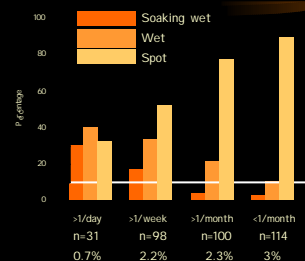
| | | N= 343 [8%] | | |
|------------------------|---------|-------------|-----------------------|---------|
| N= 528 12% | MNE | Day wetting | Day and night wetting | Soiling |
| Boys n=2215 | 47 (2%) | 68 [3%] | 89 [4%] | 47 (2%) |
| Girls n=2117 | 15 (1%) | 124 [6%] | 62 [3%] | 76 (4%) |

Bakker E *et al.* *Scand J Urol and Nephrol* 2002; 36: 354-62

Voiding habits and wetting in a population of 4332 Belgian schoolchildren

N= 343
10-14 years

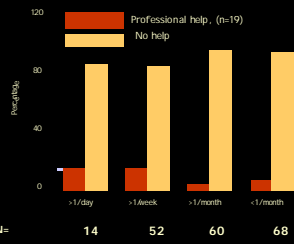
Daytime wetting



Reaction of the parents

Daytime wetting only

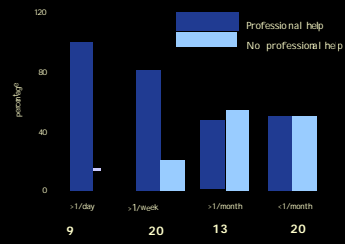
n= 194



Reaction of the parents

MNE

n= 62



Rarely stress urinary incontinence



- 35 girls aged 12-22 years
- 85% < 15ans
- 100% > 15 ans
- Urineloss >30 grammes per training

Eliasson K et al. *Scand J Med Sci Sport* 2002
Prevalence of stress incontinence in nulliparous elite trampolinistes

High bladder pressures

Uninhibited bladder contractions



- ⚡ Symptoms :
- urgency
 - frequent mictions
 - incontinence (spots)
 - high pelvic floor tone

Learning process

Hellstrom AL. (2000). Lancet: 356: 1787
"Influence of potty training habits on dysfunctional bladder in children"

« The most crucial event in this learning process is the maturation of the inhibition of the bladder that takes place in the growing urinary tract »

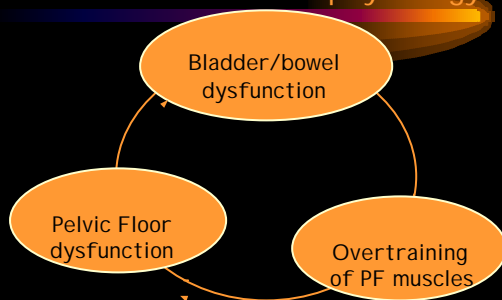
Maturation

198.. : No influence of higher centers
Bauer : 1980
Hjalmas : 1988

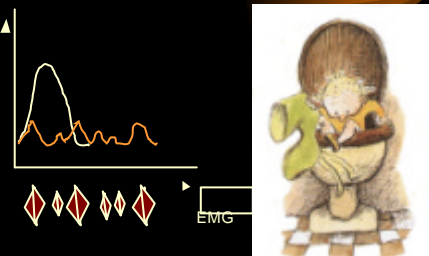
199.. : Control from higher center
Yeung: 1995
Vanderhorst : 1996
Yoshimura : 1997
Geirsson : 1999

200.. : Dyssynergic voiding patterns in newborns
Sillén : 1999
Gladh : 2000
Hellström : 2001

Pathophysiology



Dysfunctional voiding



Lazy bladder



⚡ Symptoms :

- infrequent voiding
- incontinence (overflow)
- incomplete bladder emptying

School toilets



Elimination problems

Koff SA et al (1978), *J Urol*, 160: 1019-22
The relationship among dysfunctional elimination syndromes, primary vesicoureteral reflux and urinary tract infections in children



- Constipation
- Soiling
- Fecal incontinence

Prevalence of UTI

| | Single UTI | Recurrent UTI | No UTI | Total |
|--------------|------------|-----------------|-------------|--------------|
| Boys | 99 (4%) | 31 (1%) | 2,085 (95%) | 2,215 |
| Girls | 283 (13%) | 101 (5%) | 1,744 (82%) | 2,117 |

51%^{<2,5}
21%^{<2,5}

Bakker et al., *Eur J Pediatr* 2004; Risk factors for UTI

Renal scars

- 30% incidence of kidney scars
 - Risk for hypertension
 - Risk for reduced renal function
 - Risk for complicated pregnancy

- Jacobson SH et al (1989) *BMJ* 299: 703-6
Development of hypertension and uraemia after pyelonephritis in childhood: 27 year follow up
- Smellie JM et al (1998) *Pediatr Nephrol* 12: 727-36 Childhood reflux and urinary infection: a follow-up of 10-41 years in 226 adults



Indicators for UTI

| | MNE | Wetting | Soiling |
|--------------------------------|---------|----------|---------|
| Controls N= 3818 | 1% (52) | 7% (268) | 2% (94) |
| Recurrent UTI N= 132 | 1% (1) | 30% (40) | 9% (12) |

Wetting and soiling

Indicators for UTI

| | Recurrent UTI 132 | Controls 3818 | p |
|--------------------|----------------------|------------------|--------|
| urgency | 15% | 0,8% | <0,001 |
| >10 voidings a day | 3% | <0,01% | <0,001 |
| Nycturia 7/7 | 30% | 10% | <0,001 |

Urgency, nycturia, >10 voidings

Treatment

- Voiding and drinking chart
- Proprioceptive relaxation of the pelvic floor
- Biofeedback training
- Toilet posture
- Uroflowmetry with EMG and ultrasonography

OUTCOME : 83% good results

De Paepe et al. *Brit J Urol* 1998;81:109-113 Pelvic floor therapy in girls with recurrent UTI and dysfunctional voiding

Conclusions



Potty-training changed a lot during the last years and might prevent bladder-sphincter problems later

Conclusion

- Prevalence of enuresis in children at 10-14 years is 10-15%
- Psychological factors, such as low self-esteem, are associated with enuresis
- If wetting, enuresis, and nycturia are present, the prevalence of current UTI is up to 60%

