

**Let's All Talk
The Same Language:
Standardisation
of
Definitions and Terminology**

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References

The Standardization of Terminology of LUT Function in Children and Adolescents: Report from the Standardisation Committee of International Children's Continence Society. Neveus T., et al., J Urology,176:314-324;2006

The Standardization of Terminology of LUT Function in Children and Adolescents: Update Report from the Standardisation Committee of International Children's Continence Society. Austin PF., et al., J Urology,191:1863-1865;2014

The Standardization of Terminology of LUT Function in Children and Adolescents: Update Report from the Standardisation Committee of International Children's Continence Society. Austin PF., et al., NeuroUrodyn,35:471-481;2016

Why Standardization is Essential ?

Global Disease

Different Specialities and Subspecialities

Research (for Etiology and Management)

Diagnostic Work-up

Disease Classification

Academic Purposes

Good care of Children

Is Vigorous Work on Standardization Worthed ?

More Publications (Almost 50% every three years)

Widely Accepted Terminology (almost 4 fold)

No Geographical Tendency

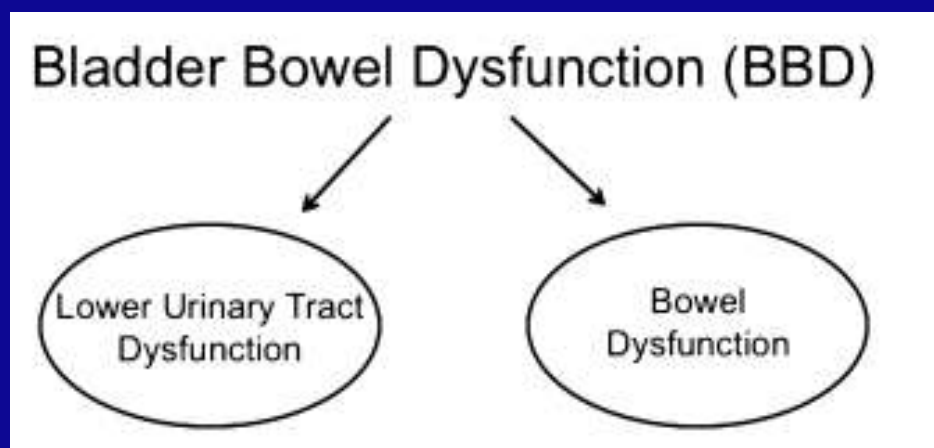
Still way to go (25% not using standard terminology)

Bladder and Bowel Dysfunction (BBD)

Discourage Dysfunctional Elimination Syndrome since it points out a particular condition (Bowel and Bladder together).

BBD can be subdivided into LUT Dysfunction and Bowel Dysfunction.

If only both are present, BBD should be used.



Symptomatic Terms

Age:

Only >5 years of age for LUT symptoms

Only >4 years of age Bowel symptoms

However, younger ages could be selectively labelled as well, depending on maturation level.

Symptomatic Terms

Storage Terms:

Increased or Decreased Voiding Frequency:

8 or more times voiding daily

3 or less times voiding daily

documented with a formal chart or diary

Urgency :

Sudden and unexpected compelling to urinate

Only after bladder control

Nocturia:

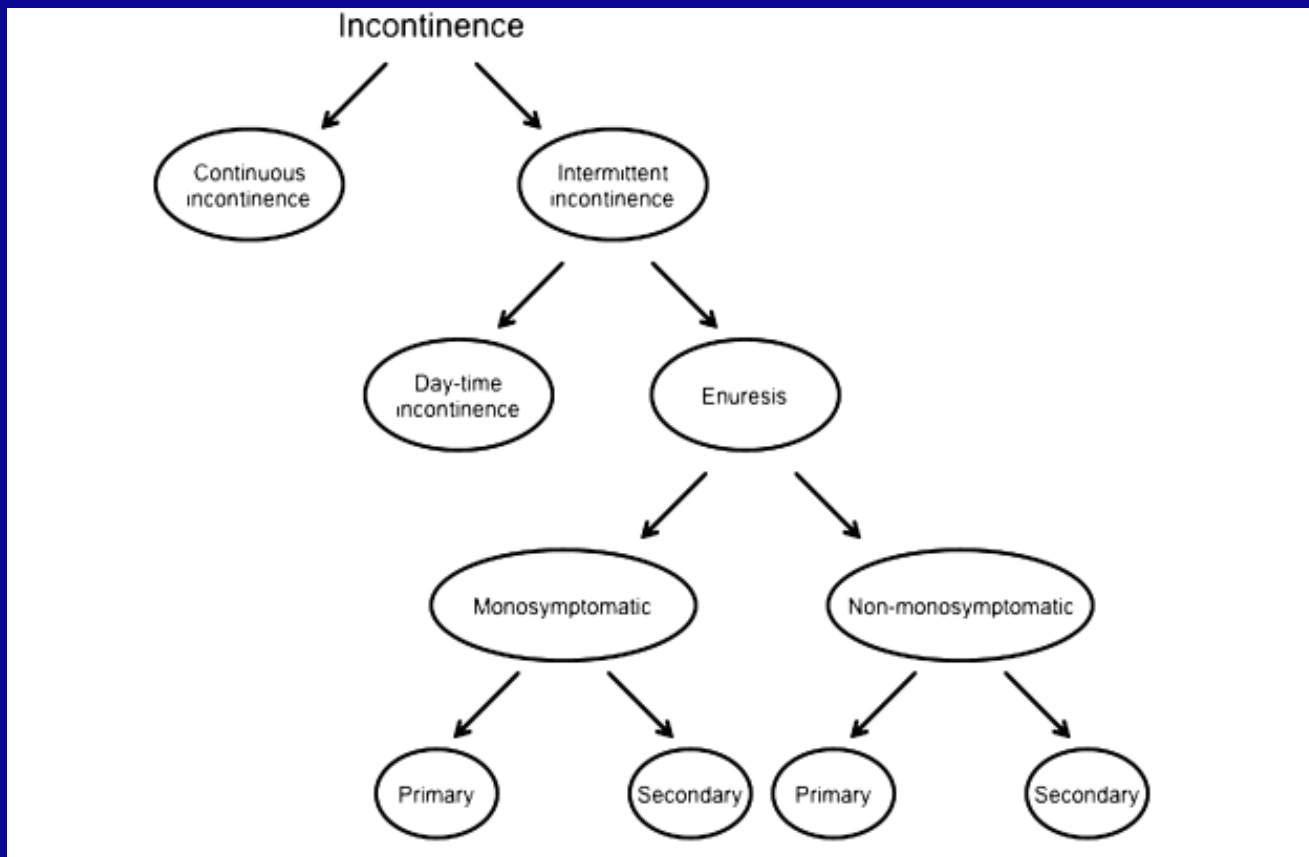
Has to wake up at night to urinate only

Symptomatic Terms

Storage Terms:

Incontinence:

Involuntary leakage of urine



Symptomatic Terms

Voiding Terms:

Hesitancy:

Difficulty in initiating voiding

Straining:

Need for intense effort to increase intraabdominal pressure to initiate and maintain voiding

Weak Stream:

Observed stream or uroflow is weak

Intermittency:

Not continuous voiding but several stop and start spurts

Dysuria:

Burning or discomfort during voiding

Symptomatic Terms

Others:

Holding Maneuver:

Observable moves to postpone voiding or urgency

Feeling of incomplete emptying:

Not feeling empty after voiding and may return voiding again

Urinary Retention:

Inability to void despite distended bladder

Postmicturation dribble:

Involuntary leakage of urine right after voiding

Spraying of the urinary stream:

Spray/split of urine stream instead of single stream

Symptomatic Terms

Genital and LUT Pain:

Bladder Pain:

Suprapubic discomfort, pain or pressure

Urethral Pain:

Pain felt in urethra

Genital Pain:

Pain in vagina or penis:

Vaginal irritation related to incontinence, Penile pain or episodic priapism related to full bladder, constipation or phimosis

Tools of Investigation

Bladder Diary:

Complete bladder diary: 7 day incontinence episodes and night time urine volume measurement

Frequency and volume chart: 48 hours (not necessarily consecutive 2 days)

Bowel diary:

7 day bowel diary Bristol Stool Form Scale

Constipation: Rome III criteria

Questionnaires:

LUT Function Quest:

DVSS and PIN-Q

Psychol Screening:

Child Behavior Checklist (CBL)

Strengths and Difficulties Quest of

Behavior Assesmt for Children (SDQ of BASC)

Short Screening Instr for Psychol Problems in Enuresis (SSPIE)

Tools of Investigation

Urine Flow Measurement

Toilet trained and >50% of EBC voiding and multiple voids
With or without EMG

Flow rate:

Q_{max} over 2 sec and $(Q_{max})^2 > \text{voided vol}$

Curve Shapes:

Bell (Normal)

Tower (OAB)

Staccato (Dysfunctional)

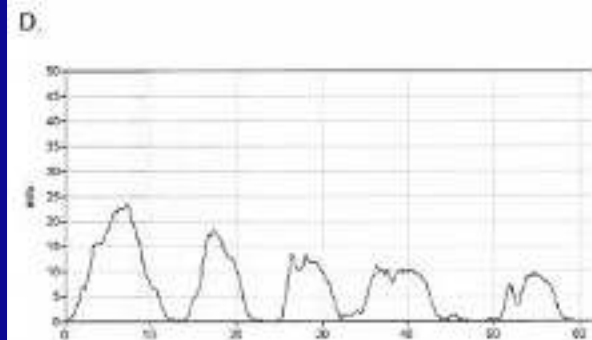
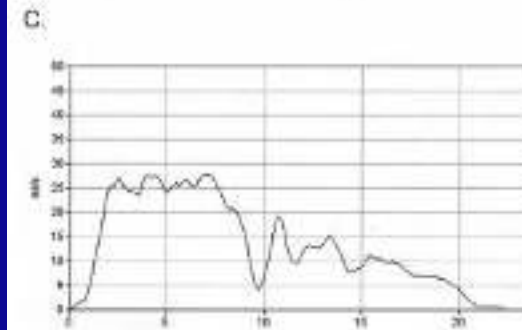
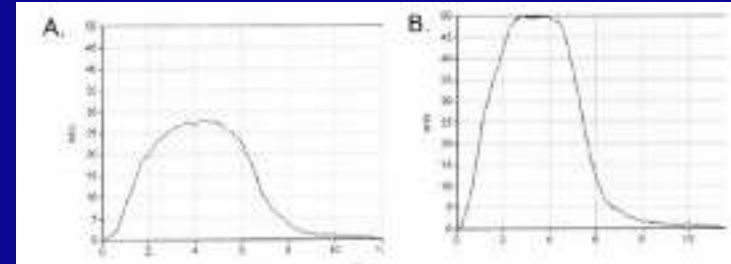
Interrupted (Underactive)

Plateau (BOO)

Tools of Investigation

Curve Shapes:

- Bell
- Tower
- Staccato
- Interrupted
- Plataeu



Tools of Investigation

Pelvic Ultrasound (EBC: (age+1)x30)

VV+PVR:BC

PVR:

4-6 y-o: Single PVR>30 ml or >21% BC

rePVR>20 ml or >10% BC

7-12 y-o: Single PVR>20 ml or >15% BC

rePVR:>10 ml or >6% BC

Bladder should be btw %50-115% of EBC

PVR should be obtained <5 min of voiding

Bladder Wall Thickness:

Normal values do not exist and differ with filling

Rectal Distention:

>3 cm suggestive of fecal impaction

Tools of Investigation

Invasive Urodynamics:

Cystometry (Filling Phase)

Complete emptying of bladder

Filling rate 5-10% of EBC per min

Temp btw 25-37°C

Not prolonged instill if pain or

pdet >40 cmH₂O

Documentation of

Bladder sensation

Detrusor activity

Bladder compliance

Bladder capacity

Tools of Investigation

Invasive Urodynamics:

Cystometry (Filling Phase)

Bladder sensation

Reduced or Absent

Detrusor activity

Any detrusor activity before voiding is abn

Detrusor overactivity is involuntary det contr

Spont or provoked

Phasic or terminal

Sympt or none

Neurog or Idiopath

Tools of Investigation

Invasive Urodynamics:

Cystometry (Filling Phase)

Bladder capacity :

Cystometric capacity is bladder volume where normal desire to void

Maximum cystometric capacity is the volume where no longer to delay micturation

Bladder compliance:

Change of volume by Change of Pdet C: dV/dP_{det}

Note the curve of compliance

Should be linear until bladder is full

Tools of Investigation

Invasive Urodynamics:

Cystometry (Filling Phase)

Urethral Function during Filling : with EMG

Incompetant urethral closure

only with incr abd press and no det contr

Urethral relaxation incontinence

no abd pres and no det contr

Urodynamic stress incontinence

only coughing and no det contr

Leak Point Pressures:

Detrusor LPP

Static test at the lowest det pressure where leakage occurs with no inc abd pressure or det contr

Abdominal LPP

Dynamic test lowest value of intentionally increased vesical pressure provoking urinary leakage with no det contr

Invasive Urodynamics:

Voiding Cystometry (Pressure Flow Studies)

Detrusor Function during Voiding

Detrusor Underactivity

Reduced contr of det during voiding with incomplete emptying. Acontractile is no contr whatsoever. PFS is good a differ of BOO vs underactive bladder

Urethral Function during Voiding:

Dysfunctional voiding

Intermittent or fluctuating flow due to intermittent contract of muscles during voiding in neurol normal children. EMG or videoUD is required to differentiate from underactive detrusor with abdominal voiding

Detrusor Sphincter Dyssynergia (DSD)

Incoordination of det and urethral sphincter due to neurol disorder characterized by active EMG during detr contr.

Spinning top urethra can be seen in both conditions.

Conditions/Diagnosis

Incontinence:

minimum age of 5y-o

minimum 1 episode in 1 month

minimum duration of 3 months

Significant if >1 episode in 1 month and 3 episodes in 3 months

Enuresis is frequent if >4 per week and infrequent <4 per week

Enuresis:

a symptom or condition of intermittent incontinence during sleep.

Subgroups:

Monosymptomatic No LUT symptom

Non-monosymptomatic LUT symptoms

Secondary >6 months of dry period

Primary Less dry periods

Daytime Conditions/Diagnosis

BBD

Combination of bowel and bladder disturbances in neurologically normal. If upper tract deformation occurs severe BBD called Hinman's syndrome

Overactive Bladder

Urgency frequency or nocturia with or without incontinence in absence of UTI. Detrusor overactivity is a UD term.

Voiding Postponement

Habitually postponing voids. Low frequency, urgency and incontinence from full bladder. Oppositional Defiant Disorder

Underactive Bladder

Children who raise abdominal pressure to void. Low frequency with interrupted flow and detrusor underactivity in UD

Daytime Conditions/Diagnosis

Dysfunctional voiding

Habitual contrac of sphincter or pelvic floor during voiding with staccato or interrupted flow where EMG is noted in neurol normal child

Bladder Outlet Obstruction

Impediment of urine flow by increased Pdet and low flow rate.

Stress Incontinence

Involuntary leakage of urine during exertion

Vaginal Reflux

Toilet trained girls complain about only day time incontinence right after voiding with no other LUT symptom related to urine entrapment in introitus

Daytime Conditions/Diagnosis

Giggle incontinence

extensive emptying or leakage only during laughter

Extraordinary daytime only urinary frequency

At least one time voiding per hour with <50% EBC (typically 10-15%) only during day . Exclude polydipsia, DMD, DI, polyuria, UTI or viral infection

Bladder Neck Dysfunction

Impaired or delayed opening of bladder neck resulting in low flow and normal to high Pdet. Prolonged opening time can be noted with UF with EMG. EMG lag time remains to be validated

Treatment

Definitions of Treatment Methods

No Standard/Maintenance Therapy but Define Them

Pharmacological Therapy or Surgical Therapy

Use of Drugs or Surgery

Neuromodulation

Alteration and Modulation of Nerve Activity through central and peripheral electrical stim or chemical agents to target sites

Alarm Treatment

A device giving a strong sensory signal immediately after a incontinence episode and can be used day or night

Treatment

Definitions of Treatment Methods

Urotherapy

Conservative based therapy with rehabilitation of LUT through different healthcare providers .

Standard therapy

Information and demystification

Instruction

Life style advice

Registration

Support and encouragement

Specific Interventions

Biofeedback

Neuromodulation

CIC

Cognitive Behavioral Therapy

Psychotherapy

Treatment

Definitions of Treatment Outcome

Three basic principles:

- a.** Symptom frequency at baseline and after treatment documentation
- b.** Assessment of outcome must be based on baseline registration of frequency of symptoms
- c.** Response of treatment should be noted as well as after treatment cessation

Treatment

Definitions of Treatment Outcome

Initial Success

No Response: <50% reduction

Partial Response: 50-99% reduction

Complete Response: 100% reduction

Long term Success

Relapse : More than one symptom recurrence per month

Continued Success: No relapse in 6 months after stopping treatment

Complete Success: No relapse in 2 years after stopping treatment