



Neurourology in clinical practice - Basics,diagnostics and therapeutical options in patients with neurogenic lower urinary tract (NLUTD) and lower gastrointestinal tract dysfunction (LGITD) in Diabetes mellitus, Multiple sclerosis and Parkinson's disease

W24, 16 October 2012 09:00 - 10:30

Start	End	Topic	Speakers
09:00	09:05	Introduction of the topic	<ul style="list-style-type: none"> Ruth Kirschner-Hermanns
09:05	09:25	Neurooulogical findings in patients with Diabetes mellitus, Multiple Sclerosis and different forms of M. Parkinson	<ul style="list-style-type: none"> Ulrich Mehnert
09:25	09:45	Patient oriented diagnostic approaches for neurogenic lower urinary tract (NLUTD) and neurogenic lower intestinal tract dysfunction (LIGTD)	<ul style="list-style-type: none"> Ruth Kirschner-Hermanns
09:45	10:00	Success rates and risk factors for different treatment modalities in regard of underlying neurological disease	<ul style="list-style-type: none"> Nariman Gadjiev
10:00	10:15	Conservative Treatment and management in patients with neurological diseases	<ul style="list-style-type: none"> Louise Kurczykcki
10:15	10:30	Questions	All

Aims of course/workshop

Patients with diabetes mellitus, multiple sclerosis and different forms of Parkinson's disease with NLUTD, LGITD, prolapse or BPE are often firstly seen by general gynaecologists, urologists, continence nurses and physiotherapists but not by specialized neurourologists. The goal of this course to give an overview on neurological pathophysiology with special focus on management strategies. For urinary incontinence that includes micturition timing, pelvic floor rehabilitation, bladder training, pharmacotherapy, instillation of Botulinium A toxin, neuromodulation and surgical interventions. For patients with neurogenic LGITD we will give an overview about chemical stimulants, retrograde or antegrade colonic enema and sacral neuromodulation.

Educational Objectives

A patient with neurological comorbidities needs special diagnostic work up and is generally accepted being the most difficult patient population to treat. Clinical and urodynamic findings as well as treatment modality can be quite different even in patients with similar diseases. Based on our own clinical experience and a thorough work up of the current literature we will first discuss diagnostic algorithms - what needs to be done and in whom, secondly we will focus on risk factors and success rates for different treatment options. We will also talk about tips and tricks especially with conservative treatment. Discussing therapeutic options with physicians with a different clinical background as well as with nurses and physiotherapists will offer a great opportunity to learn from each other. Generally this workshop will allow doctors as well as nurses and physiotherapists without specialized training in treatment of patients with neurological lesions to get acquainted with the basics of diagnostic and therapeutic measures. Our aim is to get a basic understanding of the course of pathological neurological process which in turn will improve effectiveness of specialized treatment, nursing and conservative measures.

Multiple sclerosis – LUT dysfunction

- Prevalence of LUTS in MS patients ranges between 37-99% for storage symptoms and 34-79% for micturition symptoms.
- Clinical symptoms are highly variable and correlate only infrequently with urodynamic findings.
- There seems to be a correlation between the duration of MS and presence and severity of LUTS.
- Focal neuronal demyelination and scarring (plaques) in the CNS are pathogenetic for LUT dysfunction.
- Pontine lesions (plaques) seems to be correlated to detrusor hyporeflexia (→destruction of PMC?) and cervical lesions seems to be correlated with DSD (→decoupling from PMC).
- Site of lesion does not correlate with urodynamic findings.



Multiple sclerosis – bowel dysfunction

- Prevalence of constipation ranges between 35-54% and of fecal incontinence between 29-51%.
- Lack of postprandial increase in colonic myoelectrical activity might promote constipation
- Impaired function of the external anal sphincter and decreased volumes of rectal distention to relax the internal anal sphincter or both may contribute to fecal incontinence
- Possible causative factors are reduced sensation of rectal filling, poor pelvic musculature contraction, reduced rectal compliance or weakness of the anal sphincter
- Cause of bowel dysfunction is probably multifactorial and influenced by the disease progress, by concomitant drug treatment (i.e. anticholinergics, antibiotics, antidepressants, opiates) or obstetric complications.
- The probability to experience bowel dysfunction increases with EDSS score
- Bowel dysfunction in MS is usually accompanied by LUT dysfunction

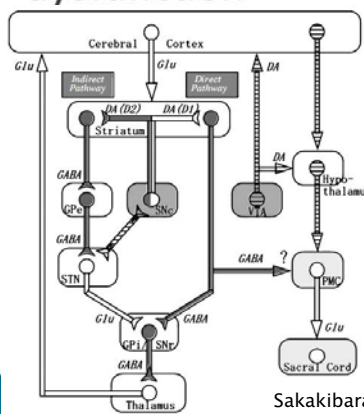


Parkinson's Disease – LUT dysfunction

- Prevalence of LUTS on PD ranges between 27-64%.
- Storage symptoms are most common (60% nocturia, 33-54% urgency, 16-36% frequency).
- Pre-PD LUTS and MSA might be confounding factors.
- Urodynamics: DO is most common, DSD is rare.
- PD patients have difficulties with differentiated sensory perception and processing (e.g. difficulties in dissolving the resolution of different gratings, increased thresholds for two-point discrimination).
- (partial) reversal of basal circuitry dysfunction with dopaminergic drugs or STN-DBS has been shown to improve sensory perception and processing
- LUT dysfunction seems to correlate with neurological disability, stage of PD, and degeneration of nigrostriatal dopaminergic neurons.



Parkinson's Disease – LUT dysfunction



- Relation between basal ganglia circuit and LUT control circuit remains still mainly unidentified.

- Two hypothesis:
 - Direct dopamine D1-GABAergic pathway has inhibitory function on the PMC (→ D1 application in PD monkeys).
 - Dopaminergic neurons of the VTA seems to strongly influence supraspinal centers of LUT control and their degeneration in PD might cause DO (→ VTA stimulation caused inhibition and facilitation of micturition reflex in rats).

Sakakibara R. et al., *J Neural Transm* 2008



Parkinson's Disease – bowel dysfunction

- Decreased stool frequency (<3 times a week) in PD patients ranges from 20% to 81%, that of difficulty in stool expulsion in 57–67%, diarrhea in 21%, and fecal incontinence from 10 to 24%.
- Colonic transit time is increased in 80% of PD patients ranging from 44 hours to 130 hours (healthy controls: 20–39 hours) but not necessarily related to subjective constipation.
- PD may effect the ENS by decrease in dopaminergic myenteric neurons and the appearance of Lewy bodies along the proximal-distal axis resulting in motility dysfunction
- Sacral Onuf's nucleus is spared in the majority of PD patients → only 0-15% of PD patients have neurogenic changes in sphincteric motor potentials
- In PD patients, both rectal and anal pressures tend to increase together but rectal contraction on defecation in PD patients is smaller than that in controls → defecation difficulties



Patient oriented diagnostic approach in patients with **Diabetes mellitus, Multiple Sclerosis** and different forms of **M. Parkinson**

Ruth Kirschner- Hermanns
Department of Neurourology,
University Clinic Bonn, Germany



Prevalence (per 100000 inhabitants/year)

- ▶ Diabetes mellitus 2500
- ▶ Alcohol abuse 5000-15000
- ▶ M. Parkinson 100
- ▶ traumat. QSL 3-4 (USA)
- ▶ Apoplexy 1000
- ▶ Multiple Sklerosis 100
- ▶ Spina bifida / MMC 80-90 (UK)

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Leading symptoms for neurogenic bladder dysfunction

- Pollakisuria > 90%
- Urgency
- Urinary tract infection
- Chronic retention
- Unability to void

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Leading symptoms for neurogenic bowel dysfunction

- Constipation
- Stool smearing
- Incontinence for flatus, liquid stool or even formed stool

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Urinary tract infection

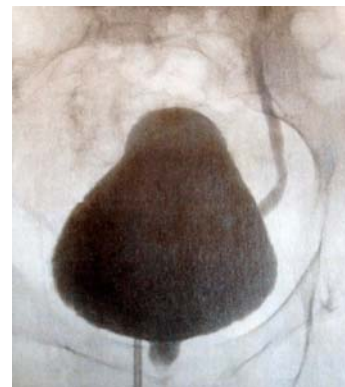
Leukocyturia > 100 Leukoc./mm³
Bacteriuria > 10⁵

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Goal: 1. To protect the upper urinary tract 2. To improve quality of life

- Patient history
- Medication
- Micturition and bowel diary
- Physical examination, including rectal and vaginal exam.
- Reflex status (BCR S2-3, BAR S3-4, CAR S3-5, CR L1-4, HR TH6-L1)
- Ultrasound of kidney and bladder
- Sediment (midstream urine - women preferable catheter urine)
- Creatinine/Creatinine Clearance
- Uroflowmetry



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	Diabetes mellitus	Multiple Sclerosis	M. Parkinson	Comment
Cystoscopy				Only to exclude pathologies e.g. malignancies, stones ...
I.V. Pyelography	Pylonephritis; kidney stones			Rarely necessary
CT/MRI				Rarely necessary
Retrograde Urethrogram				Rarely necessary, sometimes in men in addition to UDS
Videourodynamics		Gold standard!!		
Closing Cystometry				When bladder neck open
Ice water test		to differentiate idiopathic from neurogenic DO		Rarely necessary - not specific: in idiopath.DO 27% pos - in neurog. DO in 100% positive
Urethra pressure profile	in OAB patients?	in OAB patients?	in OAB patients?	In women with additional stress incontinence
Pharmacological provocative tests	obsolet	obsolet	obsolet	

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Sacral Reflexes

Achillis tendon reflex → S1/S2
 Anal reflex → S4/S5
 Cough reflex → S2/S4
 Bulbocavernosus reflex → S2/S4

Voluntary anal contraction	Bulbo cavernosus reflex	Cough reflex	Spinal cord Lesion
+	+	+	normal
+	+	+	Incomplete lesion Upper motor neuron
-	+	+	Upper motor neuron below TH12
-	+	-	Upper motor neuron above TH6
-	-	-	Lower motor neuron below TH12

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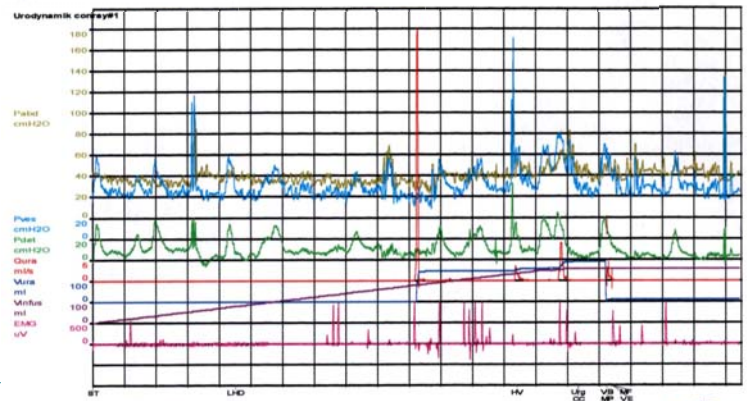
Urodynamics



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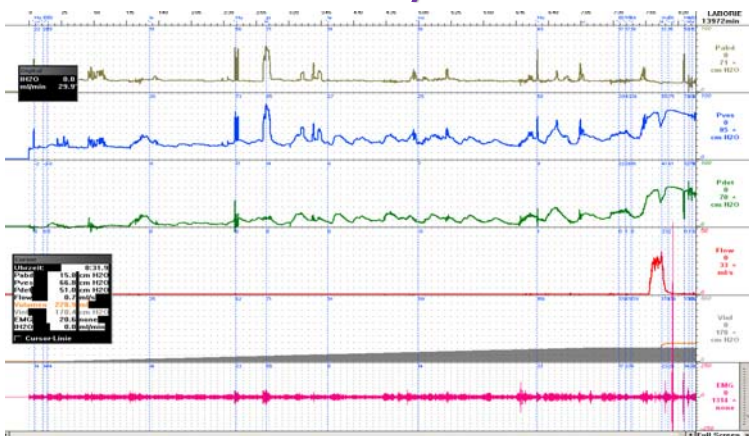
Detrusor/Sphincter dyssynergia



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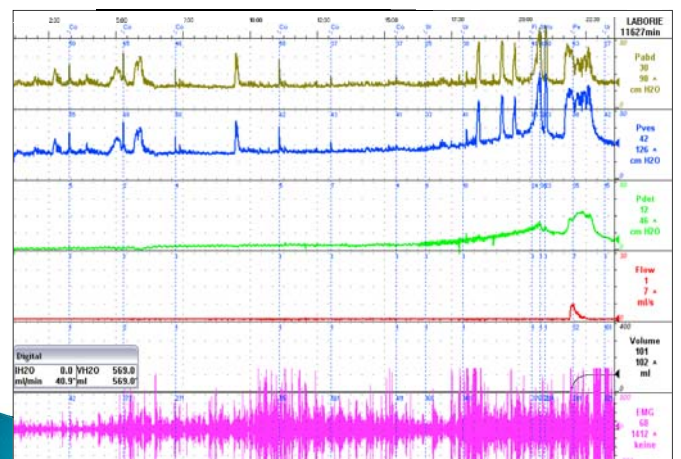


Overactive bladder - Phasic Detrusor Overactivity



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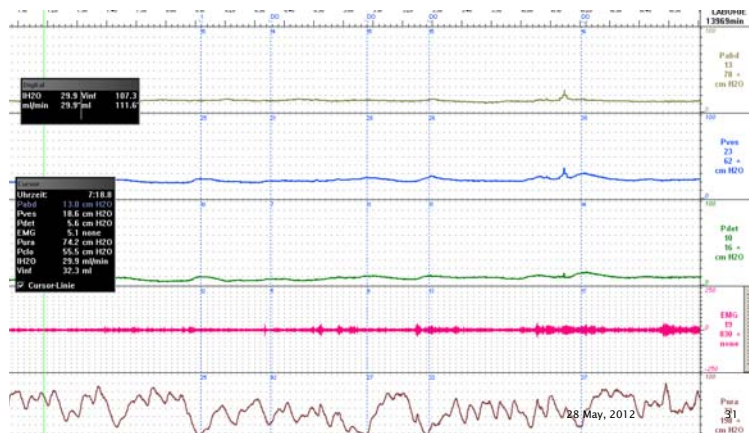
Loss of compliance ($\Delta V / \Delta p$ ml/cmH²O)



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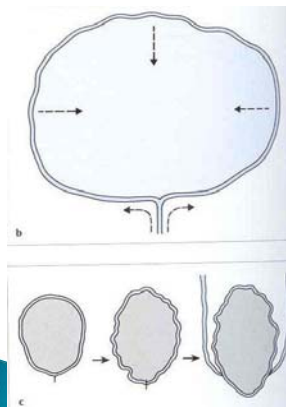
30

Continuous pressure profile – OAB



Visceromotoric complete with LMNL

(„weak bladder“, areflexive bladder, Detrusor acontractility)

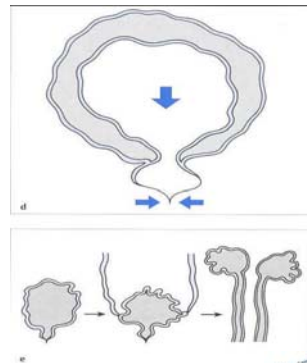
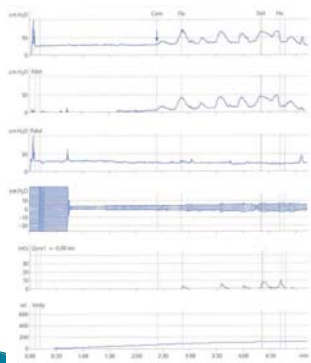


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Visceromotoric complete with UMNL

(„spastic Reflex bladder“, neurogenic Detrusor overactivity)



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Disease

Detrusor / ↑ ↓

DSD

Disease	Detrusor / ↑ ↓	DSD
Diabetes mellitus	60% / +	?
Guillain-Barre	? / +	
M. Parkinson	45-98% / +	11%
traumat. QSL	50-90% / 10-50%	30-40%
Apoplexy	82% / +	+
Multiple Sklerosis	70% / 20%	40%
Spina bifida / MMC	30-50% / 10-20%	50%

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Good urodynamic Practice

Neurology and Urodynamics 21:261-274 (2002)

Good Urodynamic Practices: Uroflowmetry, Filling Cystometry, and Pressure-Flow Studies

Werner Schäfer,* Paul Abrams, Limin Liao, Anders Mattiasson, Francesco Pesce, Anders Spangberg, Arthur M. Sterling, Norman R. Zinner, and Philip van Kerrebroek
International Continence Society Office, Southern Hospital, Bristol, BS10 5NB, United Kingdom

Parameter	high pressure system (Hyperreflexia, low compliance, reduced cap)	low pressure system (Hypo- / Areflexia, overflow)
Compliance (ml/cmH2O)	<20	>50
Voided volume (ml)	<200	>400
pDet -filling phase (cmH2O)	>30	<30 (20)
pDet max (cmH2O)	>60 (f) >80 (m)	<30-40
pDet LPP (cmH2O)	>40	<30

• To minimize artefacts

- No urinary tract infection HWI
- Contrast medium (30%ig; 38° C)
- Vmax 15 to 20ml/ min
- Comfortable position
- Relaxed atmosphere

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"Success rates and risk factors of different treatment modalities in regard of underlying neurological diseases"



Nariman Gadjiev,
Department of Urology,
EMERCOM of Russia,

PLAN FIRST!

Multiple Sclerosis
Diabetes Mellitus
Parkinson's disease



Neurogenic lower urinary tract symptoms

Neurogenic lower gastro-intestinal tract symptoms



Neurogenic lower urinary tract symptoms



Urgency
Hesitancy
Frequency
Urinary
Incontinence
Reduced flow
Incompletely voiding



Multiple sclerosis: treatment modalities

CONSERVATIVE TREATMENT



PHARMACOLOGIC TREATMENT

ANTICHOLINERGICS
A-BLOCKERS
DESMOPRESSIN
INTRAVESICAL AGENTS/BOTULINUM TOXIN



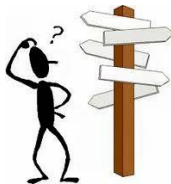
SURGICAL METHODS

NERVE STIMULATION
TRANSURETHRAL SPHINCTEROTOMY IN DSD
URETHRAL STENT IMPLANTATION
AUGMENTATION
ILEOVESICOSTOMY
ILEAL CONDUIT



MS PHARMACOLOGIC TREATMENT

ANTICHOLINERGICS



«Anticholinergics for urinary symptoms in multiple sclerosis»

Nicholas RS. et al, Cochrane Database Syst Rev 2009

NO conclusions suggesting **BENEFIT** from anticholinergic usage could be drawn from the analysis.



MS PHARMACOLOGIC TREATMENT

A-BLOCKERS



41% improvement in flow rate
26% reduction of PVR
54% decrease in IPSS

Oriordan et al, J Urol, 1995

BOTULINUM TOXIN



58% reduction in UTI,
53% increase in time to 1-st desire

Werfer, 2009

DESMOPRESSIN



Decrease in nocturia by mean 0.5 to 1.5 episodes per night #

Increase of uninterrupted sleep by mean 2 hours

Bosma R, Acta Neurol Scand, 2005



Nerve stimulation

MS SURGICAL METHODS

Implantable

Sacral nerve stimulator
Pudendal nerve stimulation

Percutaneous

Posterior tibial stimulation
Penile/clitoral nerve stimulation

SNM is a good option in the treatment of voiding dysfunction in patients with MS in a medium to long-term follow-up.

Minardi D. et al, World J Urol, 2012

Urinary retention in multiple sclerosis female patients can be successfully and safely managed with sacral neuromodulation

Marinkovic et al, Int Urogynecol J, 2010

Pudendal nerve stimulation is at least as effective as sacral nerve stimulation and works in some instances in which sacral stimulation has failed

Joseph W. Mashni, Current Bladder Dysfunction Reports 2010

No data are yet available in outcomes of MS patients on superiority of pudendal stimulation over sacral nerve stimulation



Neurogenic lower gastro-intestinal tract symptoms

Fecal Incontinence (stools or flatus)

1. Conservative treatment

Loperamid
Diphenoxylate
Atropin
Psyllium

2. Pharmacologic treatment

Laxatives

Modest improvement of symptoms related to FI

Stimulant laxatives act to increase colonic motility and induce water and electrolyte secretion

3. Surgical treatment



1 Urethral stent implantation

MS SURGICAL METHODS

After treatment of DSD by a temporary urethral sphincter stent, 70.7% of patients subsequently require a permanent urethral sphincter stent
Gamé X et al, Spinal Cord, 2008

2 Transurethral sphincterotomy in DSD

In those cases, refractory to conservative therapy, transurethral external sphincterotomy followed by condom catheter drainage is recommended.

Existing Information is not enough to recommend this on a routine in MS patients

3 Bladder augmentation

Improvement in urethral continence and reduction of UTIs after surgery
Zachoval R, et al. Urol Int 2003

4 Ileovesicostomy

useful option in patients with lower urinary tract dysfunction who are unable to perform clean intermittent catheterization. Leads to reduction of antibiotic usage
Hellenthal NJ, NeuroUrol Urodyn 2009

5

ILEAL CONDUIT
LAST RESORT



Sacral neurostimulation

MS SURGICAL METHODS

Fecal incontinence was greatly improved with chronic SNS immediately after implantation

Miranda K. Y. Chan and Joe J. Tjandra, 2008

Antegrade continence enema - (MACE)

Antegrade washouts delivered by this route produce complete colonic emptying and thereby prevent soiling. Follow up - 8 years, Success rate -100%

Hanna et al, 2004

Dynamic graciloplasty

Success with DG achieved only in 62% of non-stoma patients

Wexner et al, 2002



ARTIFICIAL ANAL SPHINCTER

Implantation of an artificial bowel sphincter is of uncertain benefit and may possibly harm many patients.

L. Mundy, 2004

COLOSTOMY
LAST RESORT

option for patients with symptoms refractory to other measures



Diabetes mellitus

Type 1 diabetes

"diabetic cystopathy" occurs in 43% to 87% of patients
Bradley WE, Ann Intern Med 1980

Type 2 diabetes

"diabetic cystopathy" occurs in 79% of men and 59% of women
Ruth Kirschner-Hermanns, Medicine 2010

Glycemic control

Goal #1 in the treatment of NLUTS in DM

No specific treatment has been described

PHARMACOLOGIC TREATMENT

Muscarinomimetics

Bethanechol
Carbachol

Acetylcholinesterase inhibitors

Distigmine
Neostigmine

There is no drug with evidence of efficacy for UD

2a

EUA Guidelines 2012



INTERVENTION	INDICATION	ENDPOINT	EVIDENCE
Carbachol/diazepam 2 mg each vs alfuzosin 2.5 mg vs placebo, all x1 oral Number of p-s 249 Burger DH, J Am Coll Surg 1997	treatment of AUR after general surgery	voiding within 2 h after medication	No significant difference between groups
Bethanechol 4 x 50 mg daily oral + intravesical PGE 2 x 1/week vs placebo for 6 weeks Number of p-s 19 Hindley RG. BJU Int 2004	women with persistent high residual urine but no sign of ND or BOO	residual urine	No statistically significant reduction with placebo
Bethanechol 25 mg x 1 oral vs placebo for 2 weeks in cross-over design Number of p-s 16 Riedl CR, NeuroUrol Urodyn, 2002	treatment of UUB	residual urine, max detrusor pressure and urinary flow	Significant reduction of residual urine and increase in max urinary flow vs

Sacral neuromodulation

Main studies of sacral neuromodulation for urinary retention

Study	Nx	Success rate of test phase	Success rate of permanent phase	Follow up (months)
White et al. (2008)	40	70 (28/40)	86 (24/28)	Mean 40
Datta et al. (2008)	60	NA	72 (43/60)	Mean 48

Sacral anterior root stimulation (SARS)

Stimulation of the efferent nerves (anterior roots) produces a contraction of detrusor muscle. **Grade of recommendation B**
EUA Guidelines 2012

Bladder covering by striated muscle

Microneurovascular free transfer of latissimus dorsi muscle to functionally restore a deficient detrusor muscle has proved to be successful for the three patients in our study
Georg Bartsch, 1997



Constipation in 15.0%
 Diarrhea in 5.3%
 Fecal incontinence in 11.2%
Total 608 patients
In-Sik Chung, Korean J Intern Med. 2009

ANTEGRADE CONTINENCE ENEMA - MACE
 For patients with severe fecal incontinence

ARTIFICIAL ANAL SPHINCTER
 Liquid continence up to 70%
 Patient selection is needed

DYNAMIC GRACILOPLASTY
 Possible option in dedicated centers

COLOSTOMY
LAST RESORT



Prospective Randomized Double-Blind Study of Temporary **Sacral Nerve Stimulation** in Patients With Rectal **Evacuatory Dysfunction** and Rectal Hyposensitivity

14 patients

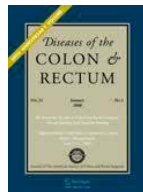
Conclusion: Most patients with chronic constipation secondary to ED with rectal hyposensitivity responded to temporary SNS

Sacral nerve stimulation (SNS) is an evolving treatment for constipation.
Knowles, Charles H, Annals of surgery 2012

Rectal Volume Tolerability and Anal Pressures in Patients with **Fecal Incontinence** Treated With **Sacral Nerve Stimulation**

29 patients

Conclusion: For patients with fecal incontinence successfully treated with sacral nerve stimulation, there was a significant increase in rectal volume tolerability and rectal capacity.



Hanne B. Michelsen, 2006



PARKINSON'S DISEASE

- Prevalence: LUTS- 27- 70%
- Onset **after** motor symptoms in majority patients
- **LUTS:**
 - Nocturia - 60%
 - Urgency - 33-54%
 - Frequency - 16-36%
 - Urinary incontinence - 26- 28%
 - Voiding symptoms 28- 70%



*Sammour ZM, 2009
 Sakakibara R, 2001
 Chaudhuri KR, 2006*



PD: Treatment modalities

A. No specific treatment exist

- B. Treatment modalities depend on major symptoms
- C. Thoroughly evaluation before treatment
 - Validated symptom questionnaires
 - Urodynamic study



Voiding symptoms

- ▶ Detrusor underactivity - may correlate with progression of disease
- ▶ High resting urethral pressure due to medications and their metabolites suggested
- ▶ Infravesical obstruction due to BPH in men

*Stocchi F, 1997
 Sakakibara R, 2010*



Nocturia

- a) Exclude other recognized reasons
- b) Antimuscarinics do not appear to be efficacious for nocturia
- c) Antimuscarinics may be effective for nocturnal voids due to urgency
- d) Treatment of nocturia with α_1 -blockers and/or anticholinergics is not generally effective
- e) Antidiuretic therapy (desmopressin) is recommended as first-line treatment
- f) Surgical treatment are reasonable option for men with prostatic obstruction

Weiss JP, 2011

Urgency , Frequency

- I. No clinical controlled trials found for treatment of detrusor overactivity in patients with Parkinson's disease
- II. General clinical recommendation should be applied
- III. Oral anticholinergics should be prescribed as first line treatment



Urgency, Frequency

BOTULINUM TOXIN

- In refractory cases intravesical injections of botulinum toxin A may be applied
- 100–500 U BoNT/A may be used
- Daytime and nighttime urinary frequency, and the number of daily urinary incontinence episodes were significantly decreased at 1, 3 and 6 months

Percutaneous posterior tibial nerve stimulation

1. PTNS was effective to acutely relief patients with pseudodyssynergia, which is known to be common in PD.
Giannantoni A, 2009, 2011
Kulaksizoglu H, 2010
2. This data should be verified with a prospective multicenter study, before it is introduced to the routine clinical practice.
Kabay SC, 2009



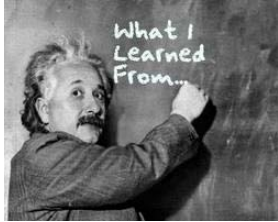
PD Neurogenic lower gastro-intestinal tract symptoms

- ▶ Onset often **before** motor symptoms
- ▶ Prevalence – 20– 81% :
 - Decrease stool frequency (less than 3 times a week)– 20– 81%
 - Difficult stool expulsion– 57– 67%
 - Diarrhea– 21%
 - Fecal incontinence– 10– 24%
 - Dysphagia, vomiting

Chaudhuri KR, 2006

- **Insoluble dietary fibers increase stool frequency**
- **Constipation in PD is treated by drugs acting on dopamine D2 receptors or 5-HT4 receptors (mosapride) in the bowel**

ICI 2009



Take home messages

1. Treat the patient, not the disease
2. Management of a patient with NLUTS and/or NLGITS is always a multi team work
3. Remember: stepwise approach – from conservative, drug therapy to surgery is a pledge of treatment success
4. Never hesitate referring the patient to dedicated surgery center



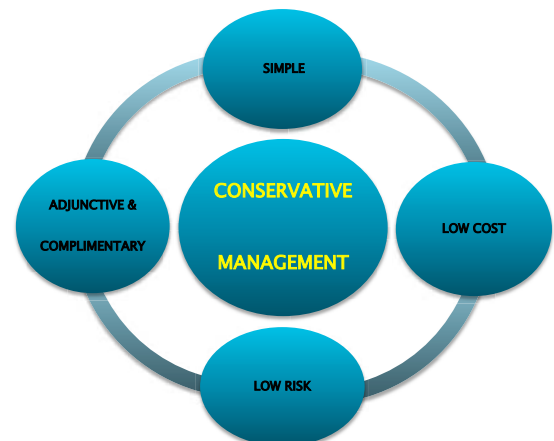
Conservative management of neurogenic bladder & bowel dysfunction

Louise Kurczycki
Continence Nurse Consultant
Eastern Health MS Service, Melbourne Australia



Definition

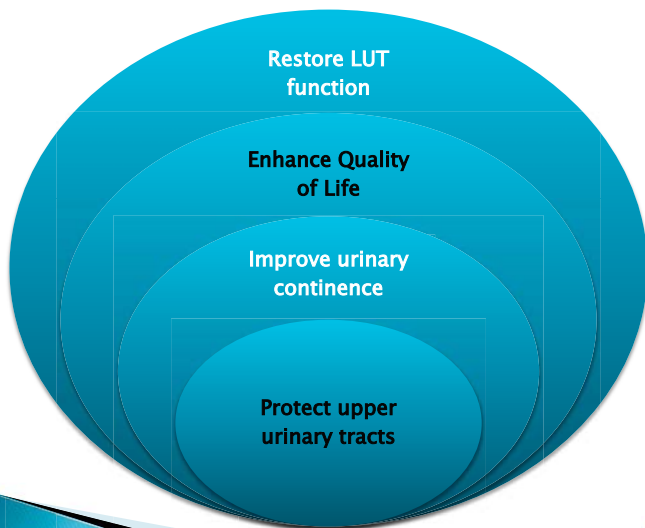
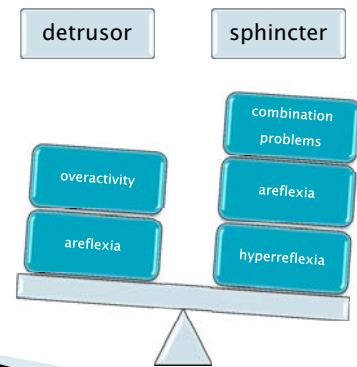
- ▶ Conservative treatment is any therapy that does not involve pharmacological or surgical intervention
- ▶ Includes:
 - lifestyle & behavioural interventions
 - physical therapies
 - scheduled voiding regimens
 - complimentary therapies
 - aids and appliances
 - catheters
- ▶ Caring for patient / carers / other family members



Conservative management

- ▶ Principal direction in management at the primary care level
- ▶ ICS recommends regular monitoring in people with neurogenic bladder and bowel dysfunction
 - best done by primary carers
 - General Practitioners
 - Nurses: general, MS Nurses, Practice Nurses
 - Physiotherapists
 - Occupational Therapists

The therapeutic principles which underpin management interventions vary depending upon the pattern of LUT dysfunction



Protect upper urinary tract

- ▶ **Regular bladder emptying**
 - prompted, timed voiding or habit-retraining
 - catheterisation: intermittent, indwelling
- ▶ **Fluid intake**
 - volume, timing, type
- ▶ **Assisted bladder emptying**
 - bladder expression (Credé & Valsalva manoeuvres) should be avoided unless bladder pressures are identified as low by UDS
 - triggered reflex voiding: stim sacral/lumbar dermatomes in UMNL → reflex detrusor contraction
 - toileting assistance: mobility, dexterity, cognitive deficits

Protect upper urinary tract

- ▶ **Pelvic floor muscle rehabilitation**
 - goal may be to strengthen / relax / patient feedback
 - improves incontinence, aids in voiding dysfunction
 - may include PFM electrostimulation & biofeedback
- ▶ **Neuromodulation**
 - strong contraction of urethral sphincter, pelvic floor reflexly inhibits micturition
 - ano-genital electrostim (penile, clitoral, vaginal & anal) can inhibit NDO by stimulating pudendal nerve afferents
 - produces inhibition of micturition reflex & detrusor contraction
- ▶ **Catheterisation**

Catheterisation

Transurethral (ID)	Suprapubic (SC)	Intermittent (IC)
Is always the last resort	Better alternative to ID	Gold standard for NLUTD
Still used if IC difficult or persistent UI	Benefit & risks similar to ID	Resume normal bladder storage
Demonstrated poor long-term outcomes	+ves = no trauma to urethra	Prevent over distension which leads to bladder and possible renal impairment
Especially unsuitable in neurologic pts	-ve = risk related to sx procedure	Safe for short & long term
	Long-term use in neurologic pts is controversial	

Intermittent catheterisation

- ▶ Done by patient or another person
- ▶ Effective in patients with:
 - detrusor underactivity
 - detrusor acontractility,
 - DSD
- ▶ Debate: single use vs re-use
- ▶ Ongoing monitoring
 - regular screening by primary health care providers
 - adherence to treatment regimen may change over time & life circumstances (personal, financial)

Intermittent catheterisation

- | <u>Advantages</u> | <u>Disadvantages</u> |
|--|--|
| ▶ Safe | ▶ Cost |
| ▶ Effective | ▶ Risk <ul style="list-style-type: none">◦ UTI assoc with technique & care of catheters◦ Non adherence to Rx regimen◦ Trauma (false passage) |
| ▶ Reduces risk of long-term bladder & renal impairment | ▶ Psychological <ul style="list-style-type: none">◦ Fear, loss & grief◦ Altered self image |
| ▶ Convenient | |

Intermittent catheterisation

– therapeutic principles –

- ▶ **Education**
 - Patient should understand rationale for IC.
 - Resilience & problem-solving & UTI management prevention plan
 - Output: volumes no greater than 400ml
 - Fluid input: 1500-2000ml
 - Regimen: frequency vary upon degree of dysfunction
 - Oral & intravesical drug instillations
- ▶ **Support**
 - Counseling: patient / life partner
 - cost of equipment – some countries have funding schemes
 - run through real-life scenario's
 - for some IC is difficult to accept:
 - altered self image & deterioration in health

Toileting assistance

Timed voiding/habit retraining/prompted voiding

Adaptation of the drinking & voiding regimen

- requires patient understanding of principles
- some are implemented with carer assistance & support
- when social or dependent continence is the goal or as an adjunct to other treatment

AIMS:

- correct faulty habit patterns of frequent urination
- improve ability to control bladder urgency
- prolong voiding intervals
- increase bladder capacity
- reduce incontinent episodes
- build patient's confidence in their bladder function

Toileting assistance techniques

Timed voiding

- fixed interval between toileting
- passive toileting assistance program
- avoids incontinence rather than restore bladder function
- initiated & maintained by caregivers, but not exclusively
- neurogenic bladders: useful adjunctive therapy

Prompted voiding & Habit retraining

- aim: avoid incontinence by reducing voiding interval
- program has to be adapted to each pt & needs specific analysis of voiding patterns to select appropriate schedule
- prompted V: teaches people to initiate their own toileting through requests for help with carer +ve reinforcement
- neurogenic bladders: may be useful in dependent patients with good cognitive function

Effective bowel management

AIMS:

- ▶ Modulation of stool consistency
- ▶ Promotion of stool transit through bowel
- ▶ Effective reflex or mechanical evacuation of stool at an appropriate time & place

OUTCOMES:

- ▶ Reduced risk of constipation, impaction & faecal incontinence
- ▶ Improved QoL
- ▶ Reduced fear of soiling which can be disabling

CLINICAL PRACTICE:

- ▶ Little evidence of success in NBoD
- ▶ Interventions mostly empirically based

Bowel care

- ▶ Despite the significance & impact on QoL from bowel dysfunction there is little research evidence to support NBo management
- ▶ Symptoms can include:
 - constipation
 - difficult evacuation
 - bloating
 - urgency
 - anal incontinence: stool / flatus



Bowel care

Aim of bowel training / bowel regimen:

- ▶ initiate defaecation & accomplish evacuation
- ▶ regular / convenient time / avoid incontinence

Defaecation program:

- ▶ cleansing the colon
- ▶ normalising the stool consistency
 - adequate dietary fibre & fluid intake
 - stimulating evacuation of stool on a regularly scheduled basis
 - maximising success using gastro-colic reflex
- ▶ reflex-triggered evacuation + stimulation can be helpful
 - mechanical digital stimulation
 - increases peristaltic contractions by facilitating excitatory anorectal reflex
 - enhances bowel movement & evacuation in reflex bowel
 - chemical stimulation using suppositories / enema



Bowel care

- ▶ valsalva or manually generated external pressure
- ▶ oral medications: softeners, stimulant, osmotic laxatives & prokinetic agents
 - poor quality & inadequate evidence for NBoD
- ▶ transanal / transrectal irrigation: safe option
- ▶ diet & fluid modification
- ▶ posture and defaecation technique
- ▶ biofeedback
- ▶ appliances
 - containment using reusable / disposable pads
 - anal plug: variable success
- ▶ patient education very important
- ▶ support
 - fear of soiling can be equally disabling as FI



Containment options



Additional aspects of care

- ▶ Patient problems are multiple & chronic in nature.
- ▶ Pts often reconcile themselves to accept bladder & bowel dysfunction, making adherence to Rx challenging

ADDITIONAL ASPECTS OF CARE

- ✓ Patient & carer education
- ✓ Support: professional, psychological, social, financial
- ✓ Ongoing monitoring & screening
- ✓ Education of primary health care workers





Notes

Record your notes from the workshop here