



**PATHOLOGIES NEUROLOGIQUES ET HYPERACTIVITÉ VÉSICALE**

**QUELLES SPÉCIFICITÉS**

**LA SCLÉROSE EN PLAQUES**

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CLINIQUE SAINT AUGUSTIN, BORDEAUX



# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## EPIDEMOLOGIE

- SYMPTÔME MICTIONNEL LE PLUS FRÉQUENT: MÉDIANE 65 % (17 À 82%)
- PRÉCOCITÉ D'APPARITION
  - DÉLAI MÉDIAN DE 6 ANS
  - INAUGURAUx DANS 10 % DES CAS
- PEUT CONSTITUER LE POINT D'APPEL D'UNE POUSSÉE DE SEP

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## SYMPTOMATOLOGIE

- **NON SPECIFIQUE**

- URGENTURIE: 38 À 99%, POLLAKIURIE: 26 À 82%, PERTES SUR URGENTURIE: 27 À 66%

- **ASSOCIATION À DES TROUBLES DE LA VIDANGE CHEZ PLUS DE 50% DES PATIENTS**

- SE MÉFIER D'UN RÉSIDU POST MICTIONNEL
- RÉSIDU NON PERÇU PAR 47% DES PATIENTS RÉTENTIONNISTES (VERSUS 83% RPM SI SYMPTOMATIQUE)

- **FLUCTUATIONS CLINIQUES URINAIRES INDÉPENDANTES DU STATUT NEUROLOGIQUE**

- PLUS D'1/3 DES PATIENTS CHANGENT DE SYMPTÔMES CLINIQUES EN 4 ANS, INDÉPENDAMMENT DU STATUT NEUROLOGIQUE

- **SYMPTOMATOLOGIE CLINIQUE PEU INFORMATIVE DU TABLEAU URODYNAMIQUE**

- ANOMALIE URODYNAMIQUE CHEZ ~50% DE PATIENTS ASYMPTOMATIQUES
- HYPERACTIVITÉ PEUT TRADUIRE UNE HYPOACTIVITÉ DU DÉTRUSOR

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## TYPOLOGIE URODYNAMIQUE

### PATIENTS AVEC SYMPTÔMES HAV

- HYPERACTIVITÉ DU DÉTRUSOR CHEZ 65% (34 À 91%)
- 43 À 80% DE DVS ASSOCIÉE
- 5 À 36 % D'ACONTRACTILITÉ ASSOCIÉE
- 2 À 10% DE DÉFAUT DE COMPLIANCE

### PATIENTS SANS SYMPTÔME HAV

- PLUS DE 50% D'ANOMALIE URODYNAMIQUE
  - HYPERACTIVITÉ DU DÉTRUSOR
  - DYSSYNERGIE VESICOSPHINCTERIEUNE 35%

- PRÉVALENCE DE L'HYPERACTIVITÉ DU DÉTRUSOR ET DE LA DVS CROISSANTE AVEC DURÉE D'ÉVOLUTION DE LA SEP , EDSS, SIGNES PYRAMIDAUX

- MAIS ATTENTION,
  - **MAJORATION DE FACTEUR URODYNAMIQUES PRÉJUDICIALES (PD MAX, COMPLIANCE) CHEZ PRÈS DE 40% STABLES SUR LE PLAN NEUROLOGIQUE**

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## PREJUDICES

- **RETENTISSEMENT FONCTIONNEL**

- ALTERATION MODÉRÉE À IMPORTANTE DE LA QUALITE DE VIE CHEZ 70% DES PATIENTS SEP SYMPTOMATIQUES

Hemmet, Int J Med 2004

- **RETENTISSEMENT ORGANIQUE**

- RÉPUTÉ MOINDRE QUE CHEZ PATIENTS MÉDULLAIRES ET DYSRAPHISMES
- MAIS, PAS SI BÉNIN
- COMPLICATION URO-NÉPHROLOGIQUE CHEZ PLUS D'1 PATIENT SUR 10 DANS LES 18 PREMIÈRES ANNÉES DE SEP
  - INFECTIONS URINAIRES HAUTES 9%
  - DILATATION HAUT APPAREIL 8%,
  - LITHIASES VESICALES OU RENALES 5%,
  - REFLUX VESICO URETERAL 5%,
  - INSUFFISANCE RENALE 2 À 3%
- **HAUTES PRESSIONS DU DETRUSOR ET AMPLES CONTRACTIONS DESINHIBÉES DU DETRUSOR**= FACTEURS ÉTABLIS DE RISQUE URONEPHROLOGIQUE
- **IMPORTANCE +++ DE LEURS DÉPISTAGE, SUIVI ET PRISE EN CHARGE RÉGULIÈREMENT ADAPTÉS**

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## DEPISTAGE

ARTICLE

*Multiple Sclerosis* 2007; 13: 915–928

### The neurogenic bladder in multiple sclerosis: review of the literature and proposal of management guidelines

Marianne de Sèze<sup>\*1</sup>, Alain Ruffion<sup>2</sup>, Pierre Denys<sup>3</sup>, Pierre-Alain Joseph<sup>1</sup> and Brigitte Perrouin-Verbe<sup>1</sup> and the International Francophone Neuro-Urological expert study group (GENULF)

### Recommendations for the management of urinary disorders in multiple sclerosis: a consensus of the Italian Multiple Sclerosis Study Group

*Neurol Sci* (2011) 32:1223–1231

A. Ghezzi · R. Carone · G. Del Popolo · M. P. Amato · A. Bertolotto ·

#### ASYMPTOMATIC PATIENT

##### Minimal evaluation

Specific questionnaire of VUD  
Post void residual

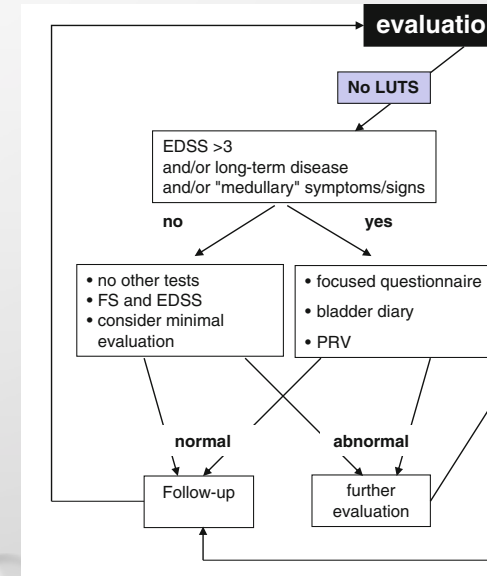
##### Micturitional symptoms ?

No

Yes

##### Minimal evaluation

at each MS follow-up visit  
Specific questionnaire of VUD  
Post void residual



# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## EXPLORATION INITIALE DES PATIENTS SYMPTOMATIQUES

ARTICLE

Multiple Sclerosis 2007; 13: 915-928

### The neurogenic bladder in multiple sclerosis: review of the literature and proposal of management guidelines

Marianne de Sèze<sup>1</sup>, Alain Ruffion<sup>2</sup>, Pierre Denys<sup>3</sup>, Pierre-Alain Joseph<sup>1</sup> and Brigitte Perrouin-Verbe<sup>4</sup> and the International Francophone Neuro-Urological expert study group (GENULF)

#### SYMPTOMATIC PATIENT

Neuro-Urologic physician



#### Baseline evaluation

3-days voiding chart  
Urinary Echography  
Urine bacteriology  
Urodynamic study  
Urinary creatinin clearance  
Quality of Life related to VUD



#### Analysis of risk factors

Table 4 Risk factors of upper urinary tract complications in MS

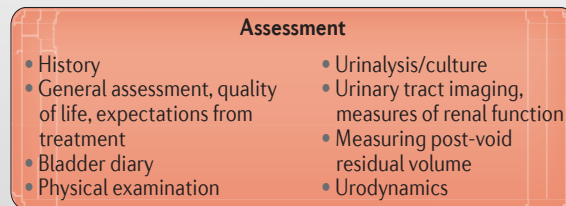
	Definite risk factors	Probable risk factors
Level of scientific proof	1. Established level of proof	2. Assumption of proof
Nature of risk factor	- MS duration beyond 15 years  - Indwelling urinary catheter - Ample uninhibited contractions of the detrusor - High detrusor pressure	Detrusor-sphincter dyssynergia  Age over 50 years Male sex

### Management of neurogenic bladder in patients with multiple sclerosis

Véronique Phé<sup>1,2</sup>, Emmanuel Chartier-Kastler<sup>1</sup> and Jalesh N. Panicker<sup>2</sup>

Phe, Nat Rev Urol 2016

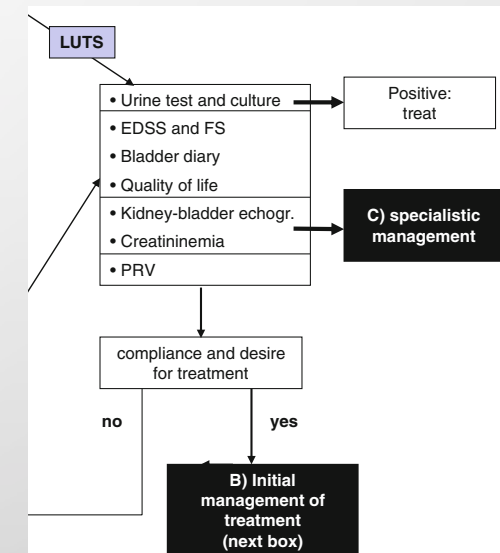
#### The management of patients with multiple sclerosis and LUT symptoms



### Recommendations for the management of urinary disorders in multiple sclerosis: a consensus of the Italian Multiple Sclerosis Study Group

Neurol Sci (2011) 32:1223-1231

A. Ghezzi · R. Carone · G. Del Popolo · M. P. Amato · A. Bertolotto ·



# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## SUIVI AU LONG COURS

ARTICLE

Multiple Sclerosis 2007; 13: 915–928

### The neurogenic bladder in multiple sclerosis: review of the literature and proposal of management guidelines

Marianne de Sèze<sup>1</sup>, Alain Ruffion<sup>2</sup>, Pierre Denys<sup>3</sup>, Pierre-Alain Joseph<sup>1</sup> and Brigitte Perrouin-Verbe<sup>4</sup> and the International Francophone Neuro-Urological expert study group (GENULF)

### Canadian Urological Association guideline: Diagnosis, management, and surveillance of neurogenic lower urinary tract dysfunction – Full text

Alex Kavanagh, MD<sup>1\*</sup>; Richard Baverstock, MD<sup>2</sup>; Lysanne Campeau, MD<sup>3</sup>; Kevin Carlson, MD<sup>2</sup>; Ashley Cox, MD<sup>2</sup>; Duane Hickling, MD<sup>2</sup>; Genviève Nadeau, MD<sup>2</sup>; Lynn Stothers, MD<sup>1</sup>; Blayne Welk, MD<sup>2\*</sup>

CJUI • June 2019 • Volume 13, Issue 6  
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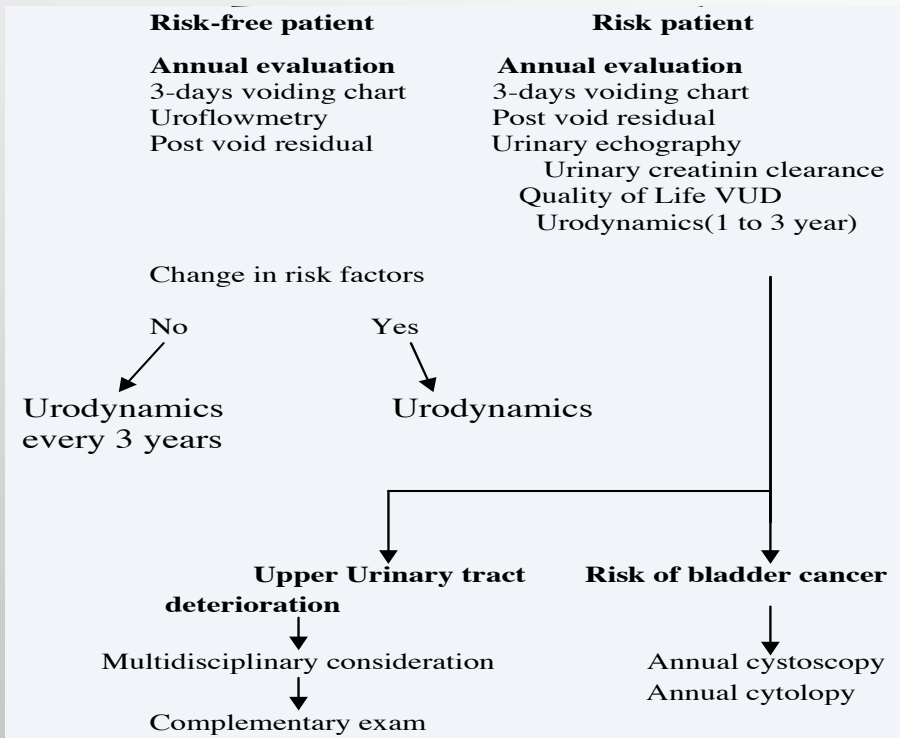


Table 3. Surveillance strategy for neurogenic lower urinary tract dysfunction (NLUTD) based on patient risk-stratification

Risk group	Description	Suggested surveillance strategy
High-risk	Underlying high-risk disease (SCI, spina bifida, advanced MS) or select other neurogenic diseases with evidence of significant urological complications or morbidity) in addition to: <ul style="list-style-type: none"> <li>– Bladder management technique: Valsalva/crede/reflexive voiding; or</li> <li>– Known high-risk features on UDS without confirmation of appropriate attenuation after treatment (DSD, NDO, impaired compliance [<math>&lt;20</math> ml/cm<math>H_2O</math>], DLPP <math>&gt;40</math> cm<math>H_2O</math>, vesico-ureteral reflex); or</li> <li>– New/worsening renal imaging (hydronephrosis, atrophy, scarring); or</li> <li>– New/worsening renal insufficiency</li> </ul>	<ul style="list-style-type: none"> <li>– Yearly urological evaluation (history and physical examination)</li> <li>– Yearly UDS</li> <li>– Yearly renal-bladder imaging</li> <li>– Yearly renal function assessment</li> </ul>
Moderate-risk	Underlying high-risk disease (SCI, spina bifida, advanced MS) or select other neurogenic diseases with evidence of significant urological complications or morbidity) in addition to: <ul style="list-style-type: none"> <li>– Bladder management technique: CIC, spontaneous voiding, indwelling catheter</li> <li>– Prior history of high-risk features on UDS that have been appropriately optimized (DSD, NDO, impaired compliance [<math>&lt;20</math> mL/cm<math>H_2O</math>], DLPP <math>&gt;40</math> cm<math>H_2O</math>, vesico-ureteral reflex); or</li> <li>– Renal imaging without any significant interval change; or</li> <li>– Renal function without any significant interval change</li> </ul>	<ul style="list-style-type: none"> <li>– Yearly urological evaluation (history and physical examination)</li> <li>– Yearly renal-bladder imaging</li> <li>– Periodic UDS (every 2–5 years)</li> <li>– Yearly renal function assessment</li> </ul>
Low-risk	No evidence of high-risk disease and no features on initial evaluation that would be considered high-risk	<ul style="list-style-type: none"> <li>– Yearly evaluation with GP, physiatrist, neurologist, or urologist (history and physical examination with attention to general neuro-urological assessment outlined previously)</li> <li>– Yearly renal imaging in select cases</li> <li>– Re-referral for urological evaluation as suggested by:                             <ul style="list-style-type: none"> <li>• New-onset/worsening incontinence; or</li> <li>• New frequent urinary infections; or</li> <li>• New-onset catheter issues (for example, penile/urethral erosions, encrustation, bypassing)</li> <li>• Renal-bladder imaging changes suggestive of upper or lower UT deterioration (hydronephrosis, new clinically significant PVR, or significant increase in PVR) or new stone disease</li> </ul> </li> </ul>

DLPP: detrusor leak point pressure; DSD: detrusor-sphincter dyssynergia; GP: general practitioner; MS: multiple sclerosis; NDO: neurogenic detrusor overactivity; PVR: post-void residual; SCI: spinal cord injury; UDS: urodynamic study; UT: urinary tract.



# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## DRAPEAUX ROUGES

ARTICLE

*Multiple Sclerosis* 2007; 13: 915–928

### The neurogenic bladder in multiple sclerosis: review of the literature and proposal of management guidelines

Marianne de Sèze<sup>\*1</sup>, Alain Ruffion<sup>2</sup>, Pierre Denys<sup>3</sup>, Pierre-Alain Joseph<sup>1</sup> and Brigitte Perrouin-Verbe<sup>4</sup> and the International Francophone Neuro-Urological expert study group (GENULF)

### The Management of Lower Urinary Tract Dysfunction in Multiple Sclerosis

Jure Tornic<sup>1</sup> • Jalesh N. Panicker<sup>1</sup>

*Current Neurology and Neuroscience Reports* (2018) 18: 54

**Table 4** Risk factors of upper urinary tract complications in MS

	Definite risk factors	Probable risk factors	Risk group
Level of scientific proof	1. Established level of proof	2. Assumption of proof	Risk patient: at least one definite risk factor or more than two probable risk factors
Nature of risk factor	<ul style="list-style-type: none"> <li>- MS duration beyond 15 years</li> <li>- Indwelling urinary catheter</li> <li>- Ample uninhibited contractions of the detrusor</li> <li>- High detrusor pressure</li> </ul>	<ul style="list-style-type: none"> <li>Detrusor-sphincter dyssynergia</li> <li>Age over 50 years</li> <li>Male sex</li> </ul>	Risk-free patient: No definite risk factor and no more than two probable risk factors

**Table 1** The presence of red flags should initiate an early referral to urology services

- Presence of hydronephrosis
- Renal impairment
- Recurrent urinary tract infections
- Hematuria
- Suspicion of concomitant urologic pathology (e.g., prostate enlargement), stress urinary incontinence
- Loin and/or pelvic pain
- Symptoms refractory to 1st-line treatment

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## Intérêt de l'approche multidisciplinaire



Neurourology and Urodynamics 36:706–709 (2017)

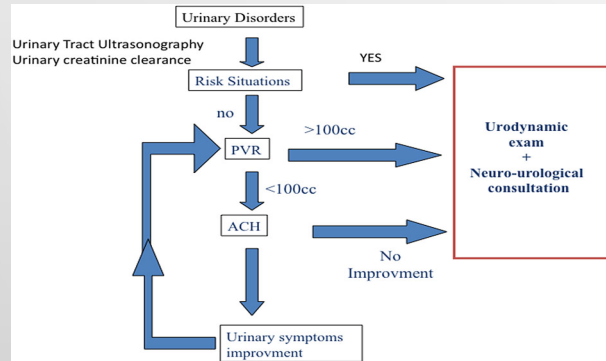
### Assessment of a Program to Encourage the Multidisciplinary Management of Urinary Disorders in Multiple Sclerosis

Evelyne Castel-Lacanal,<sup>1\*</sup> Xavier Gamé,<sup>2</sup> Michel Clanet,<sup>3</sup> Xavier De Boissezon,<sup>1</sup> David Brassat,<sup>3</sup> Pascal Rischmann,<sup>2</sup> and Philippe Marque<sup>1</sup>

328 patients SEP

Groupe 1: avant multidisciplinarité

Groupe 2: suivi multidisciplinaire



**Fig. 1.** Algorithm to manage urinary disorders in Multiple Sclerosis Urinary disorders: the physicians were aware of systematically asking their MS patients about any urinary symptoms. In the event of UD, they had to prescribe urinary creatinine clearance, and urinary tract ultrasonography with post-void residual urine volume determination. Risk situation: voiding symptoms (dysuria, chronic retention), medical history of febrile urinary tract infection, renal failure, failure of anticholinergic therapy, ultrasound abnormalities (ureteral dilatation, urinary lithiasis), post-void residual urine above 100ml. In the event of urinary improvement by anticholinergics, the urinary tract ultrasonography and the urinary creatinine clearance have to be checked every year. PVR, post-void residual; ACH, anticholinergic.

**TABLE I.** Comparison of the Epidemiological, Clinical and Paraclinical Data During the First Neuro-Urological Evaluation

	Group 1 (N = 168)	Group 2 (N = 160)	P
Age	51.6 ± 12.6	48 ± 11.8	t-Student (P = 0.008)
Gender (M/W)	56/112	49/111	χ <sup>2</sup> (P = 0.06)
Duration of MS	15.8 ± 9.6	12.8 ± 10.4	t-student (P = 0.007)
Mean EDSS	5.7 ± 2	5.1 ± 2	t-student (P = 0.008)
Progression of MS			χ <sup>2</sup> (P = 0.18)
Relapsing-remitting	64 (38%)	76 (48%)	
Secondary progressive	66 (39%)	45 (28%)	
Progressive	32 (19%)	34 (21%)	
Undetermined	6 (4%)	5 (3%)	
Urinary symptoms			χ <sup>2</sup> (P = 0.095)
Asymptomatic	3 (2%)	4 (2%)	
Storage symptoms	57 (34%)	66 (41%)	
Voiding symptoms	57 (34%)	36 (23%)	
Both storage and voiding symptoms	51 (30%)	54 (34%)	
Post-void residual urine above 100 ml	77 (46%)	50 (31%)	χ <sup>2</sup> (P = 0.007)

**TABLE II.** Comparison of the Prevalence of Urinary Complications During the First Neuro-Urological Evaluation

	Group 1 (N = 168)	Group 2 (N = 160)	P
<b>Urinary complications</b>	<b>112 (67%)</b>	<b>66 (41%)</b>	χ <sup>2</sup> (P < 0.001)
<b>Lower urinary tract complications</b>	<b>66 (39%)</b>	<b>45 (28%)</b>	χ <sup>2</sup> (P = 0.002)
Lower urinary tract infection	50 (30%)	31 (19%)	
Bladder morphological damage	24 (14%)	24 (15%)	
Bladder cancer	1 (0,05%)	0 (0%)	
<b>Upper urinary tract complications</b>	<b>68 (40%)</b>	<b>36 (23%)</b>	χ <sup>2</sup> (P = 0.001)
Pyelonephritis/urinary sepsis	43 (26%)	16 (10%)	
Lithiasis	12 (7%)	7 (4%)	
Ureteral dilatations	10 (6%)	2 (1%)	
Vesico-ureteral reflux	10 (6%)	3 (2%)	
Renal failure	34 (20%)	16 (10%)	

**Multidisciplinarité:**  
Patients suivis plus précocement, moins de complications uronéphrologiques, prise en charge thérapeutique optimisée

Received: 19 November 2019 | Accepted: 30 December 2019  
DOI: 10.1002/nuu.24276

ORIGINAL CLINICAL ARTICLE

### Consensus document on the multidisciplinary management of neurogenic lower urinary tract dysfunction in patients with multiple sclerosis

José Medina-Polo PhD<sup>1</sup> | José María Adot<sup>2</sup> | Marta Allué<sup>3</sup> |

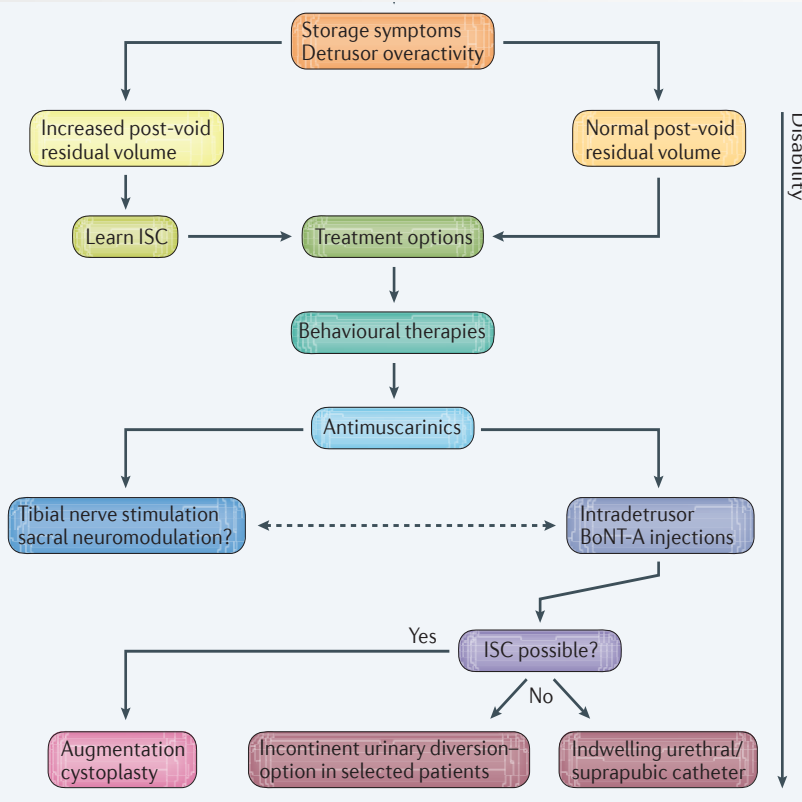
# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

## PRISE EN CHARGE THERAPEUTIQUE

### Management of neurogenic bladder in patients with multiple sclerosis

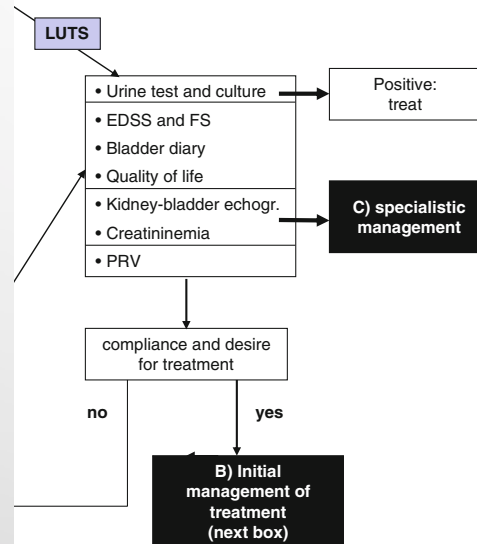
Véronique Phé<sup>1,2</sup>, Emmanuel Chartier-Kastler<sup>1</sup> and Jalesh N. Panicker<sup>2</sup>

NATURE REVIEWS | UROLOGY



### Recommendations for the management of urinary disorders in multiple sclerosis: a consensus of the Italian Multiple Sclerosis Study Group

A. Ghezzi · R. Carone · G. Del Popolo · M. P. Amato · A. Bertolotto ·



### Anticholinergic Drugs for Adult Neurogenic Detrusor Overactivity: A Systematic Review and Meta-analysis

Priya Madhuvrata<sup>a,\*</sup>, Manju Singh<sup>a</sup>, Zaid Hasafa<sup>b</sup>, Mohamed Abdel-Fattah<sup>c</sup>

### Solifenacin Is Effective and Well Tolerated in Patients With Neurogenic Detrusor Overactivity: Results From the Double-Blind, Randomized, Active- and Placebo-Controlled SONIC Urodynamic Study

G. Amarenco,<sup>1\*</sup> M. Sutory,<sup>2</sup> R. Zachoval,<sup>3</sup> M. Agarwal,<sup>4</sup> G. Del Popolo,<sup>5</sup> R. Tretter,<sup>6</sup> G. Compion,<sup>7</sup> and D. De Ridder<sup>8</sup>

Neurology and Urodynamics

### Transcutaneous Posterior Tibial Nerve Stimulation for Treatment of the Overactive Bladder Syndrome in Multiple Sclerosis: Results of a Multicenter Prospective Study

Marianne de Sèze, M.D., Ph.D.<sup>1,\*</sup> Patrick Raibaut,<sup>2</sup> Philippe Gallien,<sup>3</sup> Alexia Even-Schneider,<sup>4</sup> Pierre Denys,<sup>4</sup> Veronique Bonniaud,<sup>5</sup> Xavier Gamé,<sup>6</sup> and Gérard Amarenco<sup>2</sup>

Neurology and Urodynamics 36:104-110 (2017)

**U** Long Term Sustained Therapeutic Effects of Percutaneous Posterior Tibial Nerve Stimulation Treatment of Neurogenic Overactive Bladder in Multiple Sclerosis Patients: 12-Months Results

Sibel Canbaz Kabay<sup>1</sup>, Sahin Kabay<sup>2</sup>, Emine Mestan<sup>2</sup>, Mustafa Cetinez<sup>2</sup>, Selahattin Ayas<sup>2</sup>, Mehmet Sevinç<sup>2</sup>, Hilmi Ozden<sup>2</sup>, and Handan Ozisik Karaman<sup>2</sup>

### Outcomes following percutaneous tibial nerve stimulation (PTNS) treatment for neurogenic and idiopathic overactive bladder

Katarina Ivana Tudor<sup>1,2</sup> · Jai H. Seth<sup>1</sup> · Martina D. Liechti<sup>1,3,4</sup> · Juliana Ochulor<sup>1</sup> · Gwen Gonzales<sup>1</sup> · Collette Haslam<sup>1</sup> · Zoe Fox<sup>5</sup> · Mahreen Pakzad<sup>1</sup> · Jalesh N. Panicker<sup>1</sup>

ARTICLE OPEN ACCESS CLASS OF EVIDENCE

**U** Low-dose onabotulinumtoxinA improves urinary symptoms in noncatheterizing patients with MS

Mark Tullman, MD, Emmanuel Chartier-Kastler, MD, PhD, Alfred Kohan, MD, Veronique Keppenne, MD, Benjamin M. Brucker, MD, Blair Egertle, MD, Meryl Mandel, BS, Jean Paul Nicandro, PharmD, Brenda Jenkins, BS, and Pierre Denys, MD

Correspondence: Dr. Tullman, mt279@ajgc.org

Neurology® 2018;91:e657-e665. doi:10.1212/WNL.0000000000005991

### Intradetrusor Injections of Onabotulinum Toxin A (Botox®) 300 or 200 U Versus Abobotulinum Toxin A (Dysport®) 750 U in the Management of Neurogenic Detrusor Overactivity: A Case Control Study

Benoit Peyronnet,<sup>1,2,3</sup> Evelyne Castel-Lacanal,<sup>4</sup> Mathieu Roumiguie,<sup>3</sup> Lucie Even,<sup>3</sup> Philippe Marque,<sup>4</sup> Michel Soulié,<sup>3</sup> Pascal Rischmann,<sup>3</sup> and Xavier Gamé<sup>2</sup>

# HYPERACTIVITÉ VÉSICALE ET SCLÉROSE EN PLAQUES

- FRÉQUENTE
- INVALIDANTE
- SOURNOISE
  
- DÉPISTAGE ET SUIVI RÉGULIER DES FACTEURS DE RISQUE URO-NÉPHROLOGIQUES
  
- ARSENAL THÉRAPEUTIQUE CROISSANT, EFFICACE SUR SYMPTÔMES CLINIQUES COMME URODYNAMIQUES
  
- ALGORITHME DE PRISE EN CHARGE CODIFIÉ
  
- INTÉRÊT DE LA MULTIDISCIPLINARITÉ

*Impact Neuro-Urologie 2023*  
*ICM Paris*