Symptomatic Management of MS:

Visible Symptoms

IOMSN
International Organization of Multiple Sclerosis Nurses

Goals of Symptom Management

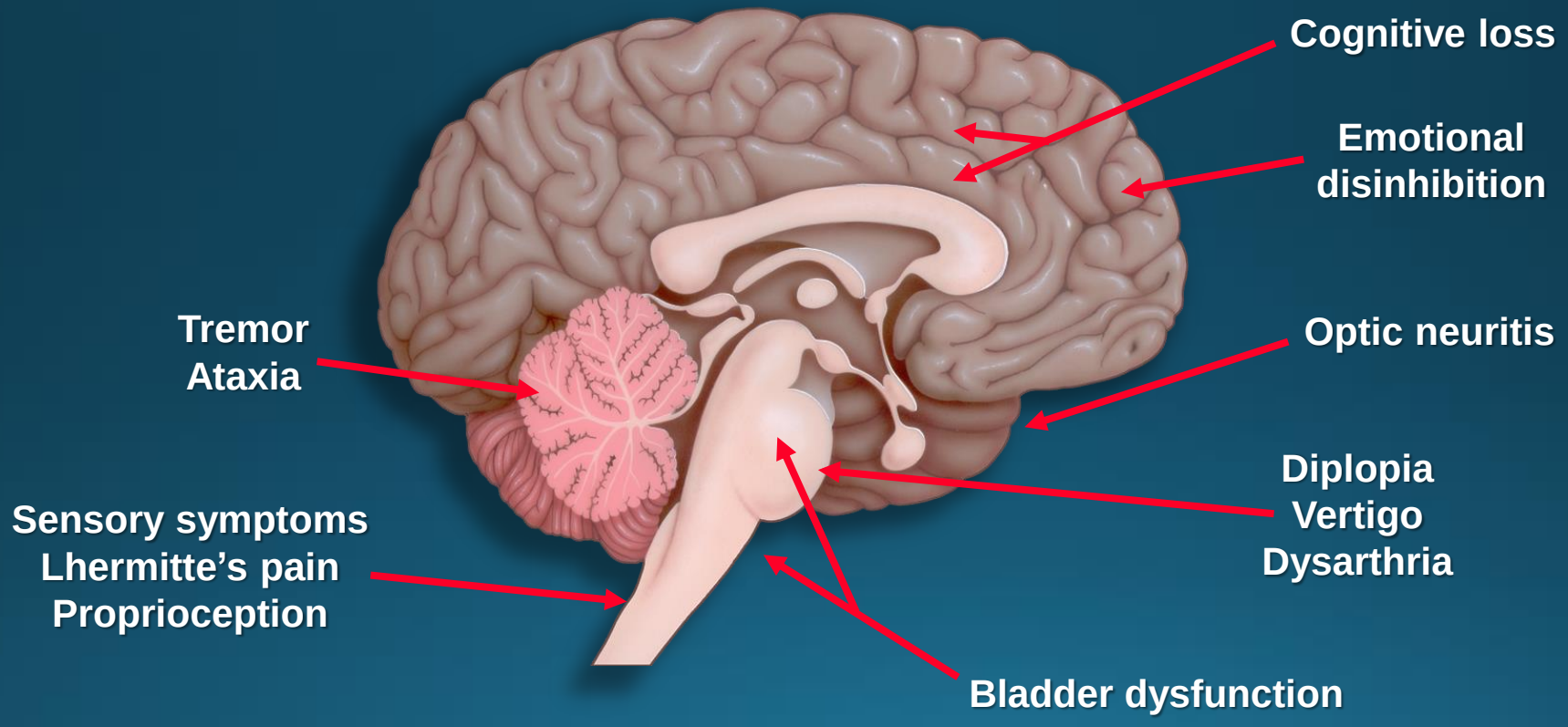
- Eliminate or reduce symptoms that impair functional abilities
- Improve quality of life
- Avoid secondary complications

Targeted and individualized treatment of symptoms is essential in management of MS

Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Neurologic Origins

Symptom presentation depends on lesion location



Miller AE. In *Handbook of Multiple Sclerosis*. 2001:213-232.

Important Primary Symptoms of MS

- Fatigue
- Cognitive Problems
- Bladder and Bowel Dysfunction
- Sexual Dysfunction
- Spasticity
- Altered Mobility
- Visual Disturbance
- Altered Sensation

Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.

Secondary Symptoms of MS

- Infections
- Falls
- Skin breakdown

Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.

Tertiary Symptoms

- Job loss
- Loss of intimacy
- Role changes/family disruption
- Social isolation

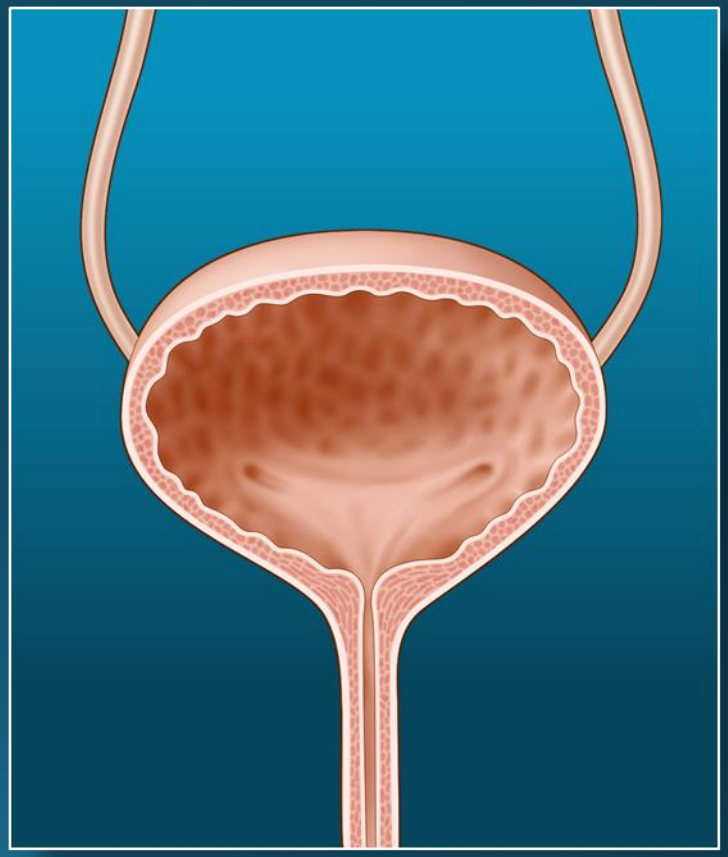
Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.

Case Study: Alan

- 59 year old man
- Diagnosis of MS 1999 (symptoms 1986)
- Secondary Progressive course
- Ambulates independently
- Reports bladder frequency, urgency, nocturia q 2 hours

Alan's Issues

- Bladder dysfunction



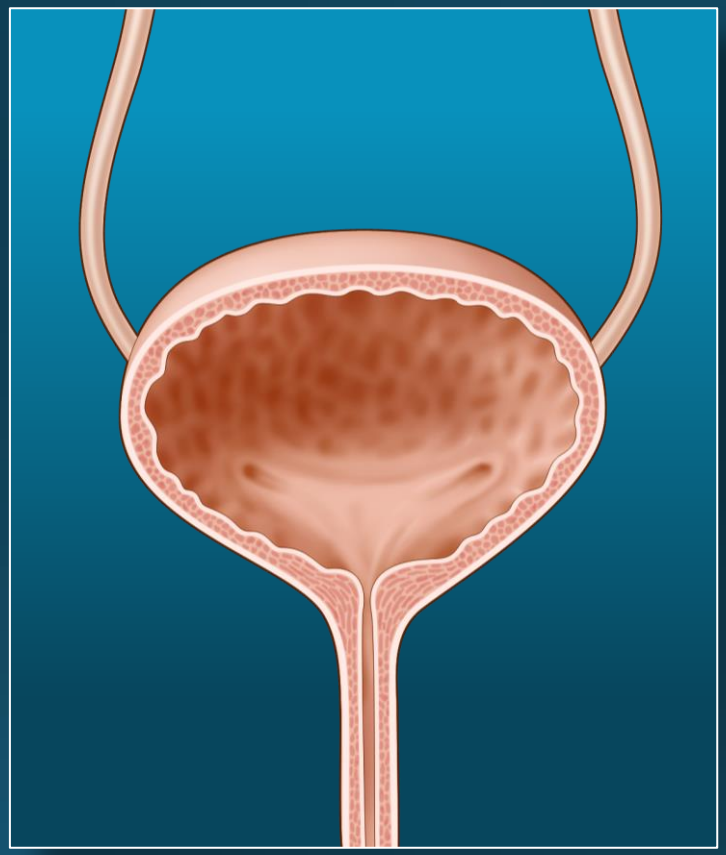
Bladder Dysfunction

- 70 - 80% of persons with MS may experience problems with bladder function

- Symptoms of Neurogenic Bladder include urgency, frequency, incontinence, hesitancy, incomplete emptying, nocturia
  - Inability to store
  - Inability to empty
  - Combined dysfunction, detrusor sphincter dysynergia

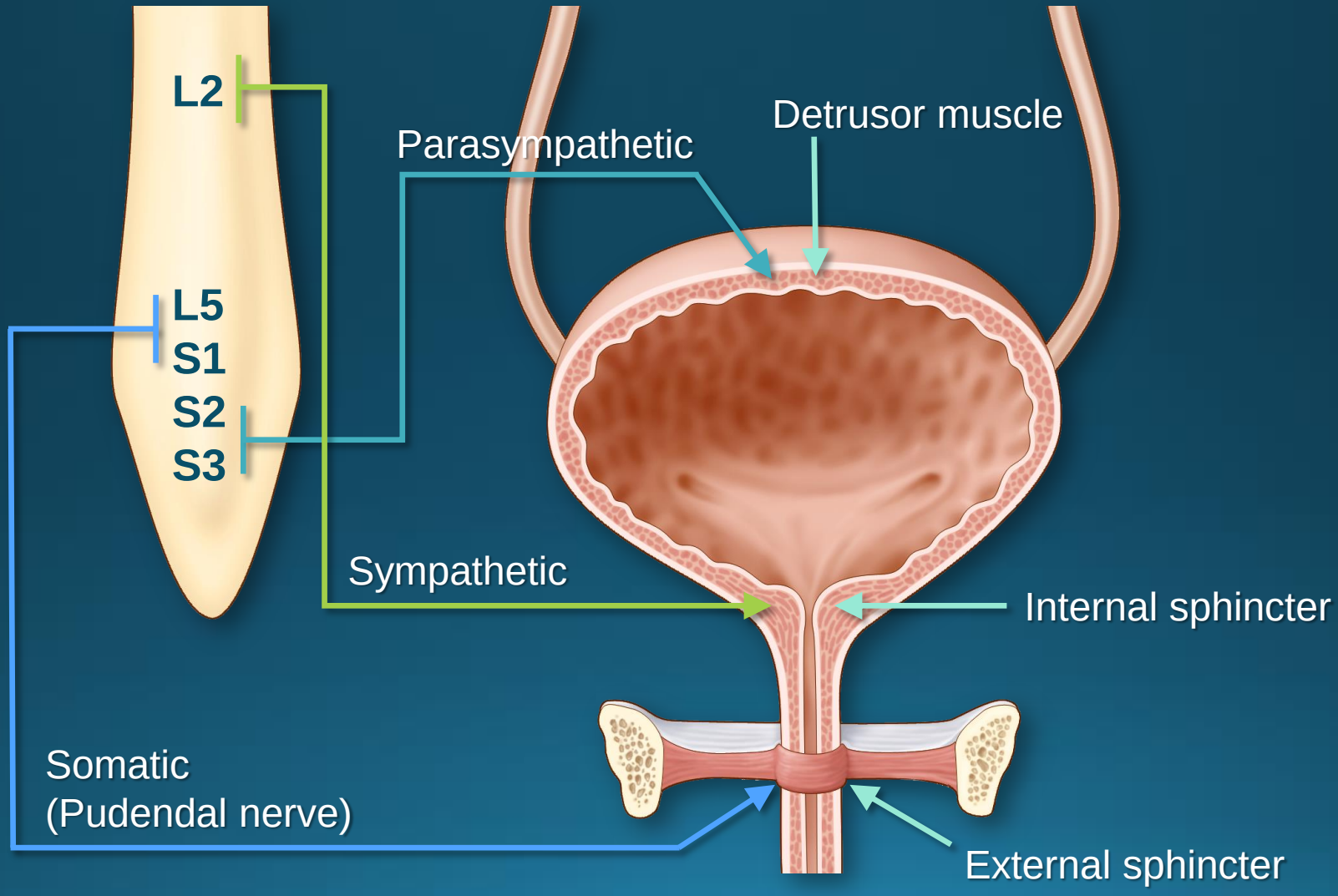
DasGupta, Fowler. *Drugs*. 2003;63(2):153–166; Fowler, et al. *Postgrad Med J.* 2009;85:552-559; Schapiro. *Int J MS Care*. 2011;13(S4):12–19; O'Leary, Dierich. *J Neurosci Nurs*. 2010; 42(2):E8–E23; Betts, et al. *J Neurol Neurosurg Psychiatry*. 1993;56(3):245–250; Bennett, et al. *Int J MS Care*. 2014;16(Suppl 1):19-24.

Bladder Physiology



- Initial urge 200-300cc
- Capacity 500+cc's
- Flow rate 15cc's/ second
- Voiding Pressure
  - 30-60cm/ women
  - 80 cm/ men
- Post void residual (PVR) negligible

Innervation of Bladder, Bowel Function



Common Bladder Symptoms

- Urgency
- Frequency
- Hesitancy
- Double voiding
- Involuntary urine
- Nocturia
- Urinary Tract Infections
- Dysuria

Consortium of Multiple Sclerosis Centers. Elimination dysfunction in multiple sclerosis. *Int J MS Care*. 2012;14(suppl 1):4-5.

Bladder Dysfunction

Inability to Store	Inability to Empty	Combination/DSD
Symptoms • Urgency/frequency • Incontinence • PVR <100 mL	**Symptoms** • Urgency, hesitancy • Double voiding • Frequency • Incomplete emptying • Nocturia • PVR >100 mL • History of UTI's	**Symptoms** • Urgency, hesitancy • Double voiding • Incomplete emptying • Dribbling incontinence • Diagnosed by urodynamic studies

PVR = post-voiding residual

Data from Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Assessment of Bladder Function

- **Thorough history : patients main concern**
  - Voiding patterns (voiding diary)
  - Fluid intake
- **Spontaneous void**
- **Measurement of Post Void Residual**
  - Determines the amount retained in the bladder after voluntary emptying
  - Evaluated by catheterization OR bladder ultrasound
- **Other causes of bladder dysfunction:**
  - Urinary tract infections (UTIs)
  - Pelvic floor relaxation in women
  - Benign prostatic hyperplasia (BPH) in men

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 8-14.

Sample Bladder Diary

Your Daily Bladder Diary

This diary will help you and your health care team. Bladder diaries help show the causes of bladder control trouble. The "sample" line (below) will show you how to use the diary.

Your name: _____

Date: _____

				ACCIDENTS		
						
Time	**Drinks**	**Urine**	**Accidental leaks**	**Did you feel a strong urge to go?**	**What were you doing at the time?**	
	What kind? / *How much?*	*How many times?* / *How much? (circle one)*	*How much? (circle one)*	*Circle one*	*Sneezing, exercising, having sex, lifting, etc.*	
Sample	Coffee / 2 cups	✓✓	sm (med) lg	Yes (No)	Running	
6–7 a.m.			sm med lg	Yes No		
7–8 a.m.			sm med lg	Yes No		
8–9 a.m.			sm med lg	Yes No		
9–10 a.m.			sm med lg	Yes No		
10–11 a.m.			sm med lg	Yes No		
11–12 noon			sm med lg	Yes No		
12–1 p.m.			sm med lg	Yes No		
1–2 p.m.			sm med lg	Yes No		
2–3 p.m.			sm med lg	Yes No		
3–4 p.m.			sm med lg	Yes No		
4–5 p.m			sm med lg	Yes No		
5–6 p.m.			sm med lg	Yes No		
6–7 p.m.			sm med lg	Yes No		

Treatments: Inability to Store

- Limit fluid intake
- Frequent bathroom breaks
- Quick access to bathroom
- Pads or protective undergarments
- Decrease use of bladder irritants (caffeine, aspartame, alcohol)
- Anticholinergic/antimuscarinic agents:
  - Oxybutynin (Ditropan/XL®),Oxybutynin transdermal
  - Tolterodine (Detrol®/LA), Solifenacin succinate (VESIcare®),
  - Darifenacin (Enablex®), Fesoterodine fumarate (Toviaz®)
  - Mirabegron (Myrbetriq®)

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care.* 2012; 14(suppl 1): 8-14.

Treatments: Inability to Empty

- Adequate fluid intake
- Structured, timed voidings
- Intermittent catheterization or indwelling catheter
- Alpha blockers
  - Tamsulosin (Flomax®)
  - Doxazosin (Cardura®)
- Anti-spasticity agents/nerve blocks

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 8-14.

Alan's Case: Bladder Dysfunction

- 59 year old man
- Diagnosis of MS 1999 (symptoms 1986)
- Exacerbating remitting course
- Ambulates independently
- Reports bladder frequency, urgency, nocturia q 2 hours

Alan: Assessment

- **Home/Work Situation:** Bathroom on main floor
- **Fluid Intake:** Adequate (over 6 L /day)
  - Last fluids of the day taken: Bedtime
  - Caffeine: 3 2L bottles Diet Coke/day
  - Diuretics: Yes
  - Alcohol: None
- **Spontaneous Void:** Unable
- **Post Voiding Residual/Bladder Scan:** 329 cc's
- **Discussed normal bladder function and abnormal bladder function as a result of MS.**
- **Reviewed bladder interventions and rationales for use.**

ASSESSMENT: Failure to empty bladder completely; drinks excessively during the day

Alan: Recommendations

1. Provide patient education; give Alan written information about bladder function and management tips

2. Recommend decrease Diet Coke intake to 2 bottles a day with goal of one bottle a day

3. Consider using medication (alpha blocker) to help empty bladder. (Alan will check with his family physician to make sure that it is not contraindicated with other B/P meds)

4. Follow up 2 months/ nurse visit for recheck

What Patients Need to Know

- Adequate fluid intake is 1 1/2 - 2 quarts/day (48-64 oz) Water is best (decaf tea or fruit juice is OK)
- Urge to void occurs about 1 1/2- 2 hours after drinking something
- Caffeine, aspartame and alcohol are bladder irritants
- Smoking is a bladder irritant
- Limiting fluid intake is harmful

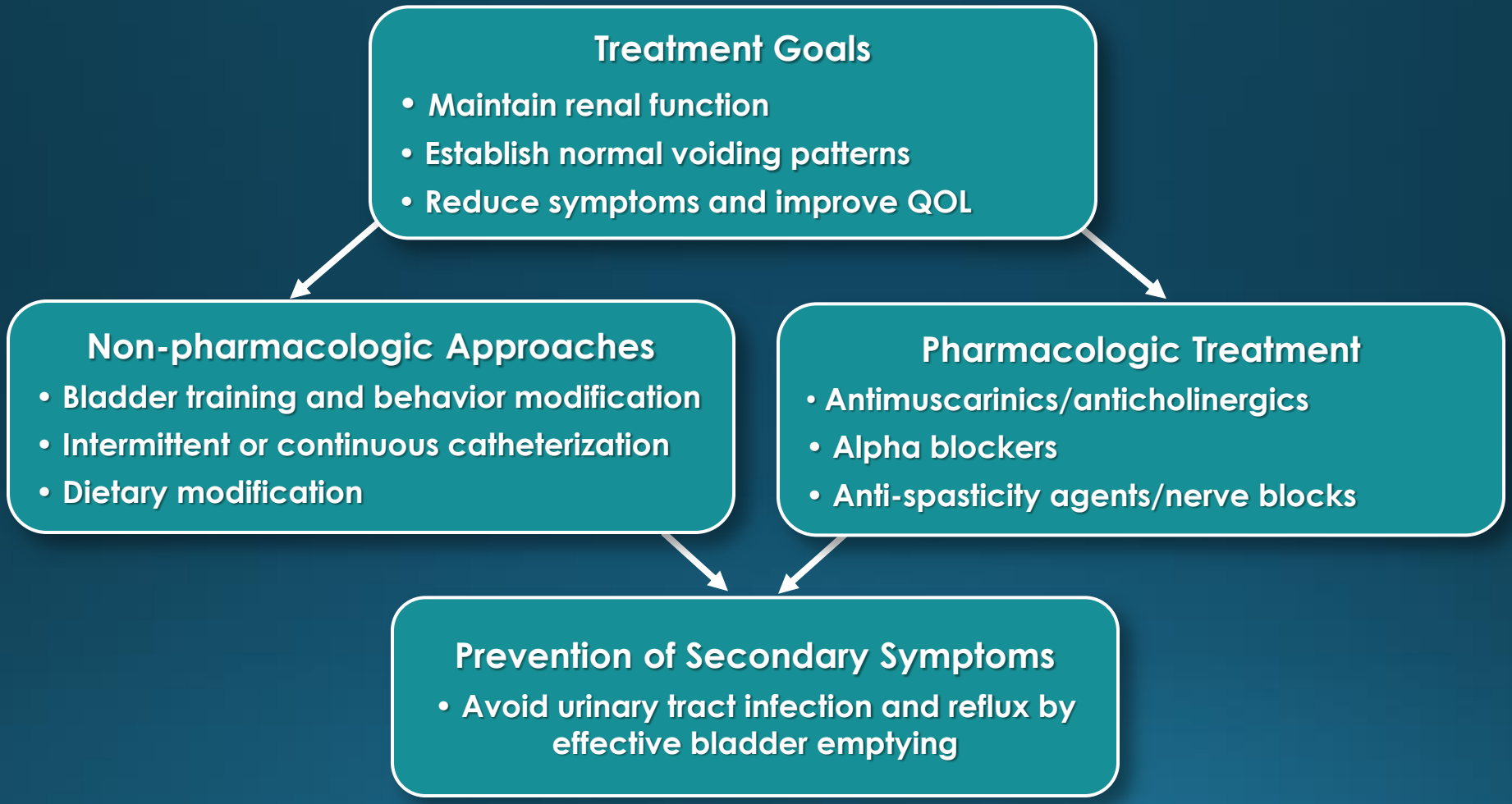
Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 8-14.

What Patients Need to Know

- Drink fluids all at once. If you sip, sip, sip you will feel the urge to go often
- Try to void about 1 1/2-2 hours after you drink
- Stop drinking fluids about 2 hours before bedtime
- Void right before bedtime
- It is not normal to leak urine, wake up more than once at night to void, or have frequent UTI's
- Symptoms of UTI's
- Effect of UTI's on MS symptoms
- Importance of early treatment of UTI's

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 8-14.

Summary: Management of Bladder Dysfunction



Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bladder Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 8-14.

Bowel Dysfunction

- 60% of persons with MS may experience problems with bowel function
- Common symptoms include constipation, diarrhea, incontinence
- Symptoms may be intermittent or constant
- Symptoms can occur at any time in the disease

DasGupta, Fowler. *Drugs*. 2003;63(2):153–166.
Bennett, et al. *Int J MS Care*. 2014; 16(Suppl 1):19-24.

Bowel Symptoms in MS

- **Constipation**
  - Slow bowel
  - Medications
  - Impaired motility
- **Bowel incontinence**
  - Diminished sphincter control
  - Hyperreflexic bowel

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bowel Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 15-20.

Summary: Bowel Dysfunction Management

Bowel training/dietary modification recommended for all bowel dysfunction

Constipation	Bowel Incontinence
▪ Fluids 1½ -2 quarts/d ▪ Daily fiber 20-30 grams/d ▪ Bulk forming agents ▪ Stool softeners/stimulants ▪ Laxatives/enemas ▪ Suppositories ▪ Exercise	▪ Medications/suppositories ▪ Bowel training/timed evacuations

Consortium of Multiple Sclerosis Centers. Assessment and Treatment for Bowel Dysfunction. *Int J MS Care*. 2012; 14(suppl 1): 15-20.

Namey MA. In: Comprehensive Nursing Care in Multiple Sclerosis. 2002.

Crayton H, et al. *Neurology*. 2004;63(11 Suppl 5):S12-S18.

Sexual Dysfunction in MS

- Approximately 50% of women with MS
- Approximately 75% of men with MS
- A significant impact on QOL
- Often an overlooked symptom of MS

Demirkiran M, et al. *Mult Scler.* 2006;12(2):209-214.
Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Primary Sexual Dysfunction in MS

- **Men and women can experience difficulties**
  - ↓ Libido
  - ↓ Erectile dysfunction/ejaculation
  - ↓ Altered genital sensation
  - ↓ Frequency/intensity of orgasms
  - ↓ Vaginal lubrication/clitoral engorgement
  - ↑ Bladder spasticity
  - ↑ Depression

Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.
Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Sexual Dysfunction Management

- **Exclude metabolic causes (eg, diabetes)**
- **Management strategies include**
  - Pharmacologic management
  - Treat underlying symptoms/secondary dysfunction
    - Spasticity, fatigue, paresthesias, bladder/bowel
  - Adjust medications
  - Positioning
  - Lifestyle changes
- **Key to successful management is open communication**
- **Counseling and culturally sensitive support**

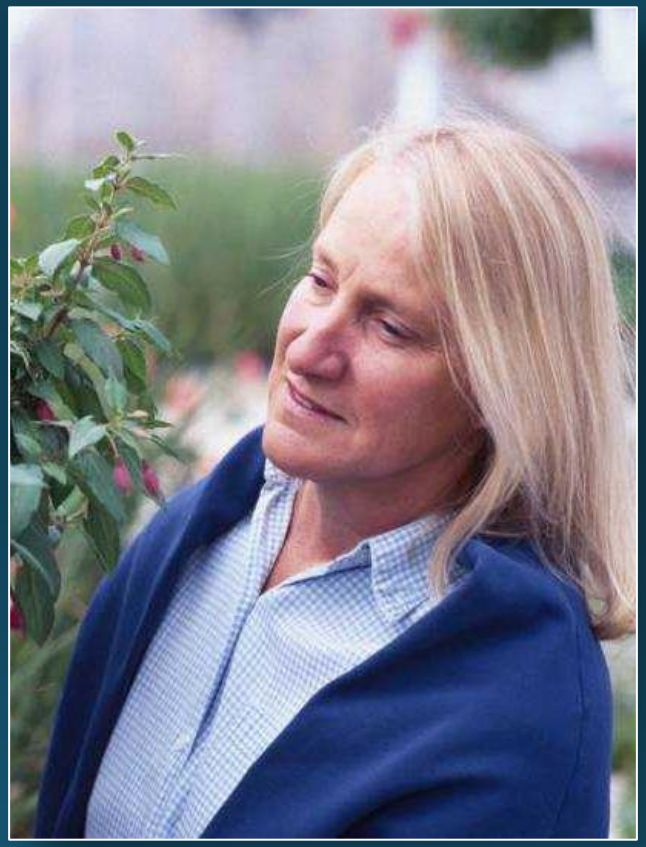
Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.

Pharmacologic Management of Sexual Dysfunction

Drug	Dose	Indication
Bupropion	150–300 mg/day	Decreased libido Decreased orgasm
Sildenafil	50–100 mg/day	Erectile dysfunction
Vardenafil	5–20 mg/day	Erectile dysfunction
Tadalafil	5–20 mg/72 hours	Erectile dysfunction
Estrogens	Vaginal preparations Topical creams	Vaginal dryness Clitoral sensitivity

Tullman M. *Continuum*. 2004;10:Chapter 7.
Fowler CJ, et al. *J Neurol Neurosurg Psychiatry.* 2005;76(5):700-705.
Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.
Halper J, Harris C. New York: Springer Publishing Company, 2012: 86.

Case Study: Ursula



- 58 year old woman
- Diagnosis 2003; progressive MS
- Treatments: steroids
- Walks with bilateral assistance
- Upper extremity ataxia, Lower extremity weakness with spasticity
- Lives alone; has home care

Ursula's Issues

- Mobility
- Stiffness
- Tremor/ataxia

Ursula's Medication List

- Gabapentin 300 mg at hs
- Baclofen 10 mg tab. Takes one orally TID and 2 at night
- Risedronate 35 mg tab 1 po Q week
- Amitriptyline 50mg q hs
- Vitamin E 400 unit softgel. Takes one(1) capsule BID
- Vitamin D 2000 IU day
- Antacid tablet chew po BID

Altered Mobility in MS

- **Possible causes:**
  - Spasticity
  - Weakness
  - Imbalance
  - Sensory loss
  - Vision changes
  - Peripheral neurological changes
- **Risks:**
  - Decreased safety (eg, increased risk of falls)
  - Impaired biomechanics
  - Pain
  - Immobility
  - Isolation
  - Reduced quality of life

Bennett, et al. *Int J MS Care*. 2014; 16(Suppl 1):1-11; Halper, Perrin Ross. *Int J MS Care*. 2010; 12: 13–16; Schapiro. *Managing the Symptoms of Multiple Sclerosis*. 5th ed. New York: Demos Medical Publishing; 2007. Schapiro R, Schneider D. In: *Comprehensive Nursing Care in Multiple Sclerosis*. 2002:41-44.

Management of Mobility

- Rehabilitation therapy (physical and occupational therapy)
- Assistive devices, orthoses, and adaptive equipment
- Exercise
- Medications (ie. trial of dalfampridine, "walking pill")
- Surgery (orthopedic surgery or neurosurgical interventions for spasticity)

Bethoux F, McKee K. Multiple Sclerosis and Ambulation. In Rae-Grant A, Fox R, Bethoux F: *Multiple Sclerosis and Related Disorders: Clinical Guide to Diagnosis, Medical Management, and Rehabilitation*. New York: Demos Medical Publishing; 2013: 226–234.

Bennett, Bethoux,, Brown, et al. Comprehensive management of mobility impairment and complex symptoms in multiple sclerosis: A focus on walking. *Int J MS Care*. 2014; 16(Suppl 1):1-11.

Spasticity in MS

- **Hypertonicity of muscles "tightness, pulling, tugging, aching"**
- **Results from demyelination in descending CNS pathways**
- **Different muscle groups involved depending on lesion location**
- **Spasticity may increase over time without new CNS lesions**
- **Results in:**
  - Increased resistance to stretch
  - Accentuation of deep tendon reflexes and clonus
  - Uncontrolled flexor responses and extensor spasms
  - Limited mobility
  - Excessive energy expenditure
  - Pain and discomfort

Bennett S, Bethoux F, Brown T. Motor Control Breakout Group Discussion. *Int J MS Care*. 2014; 16(Suppl 1):12-18.
Crayton H, et al. *Neurology*. 2004; 63(11 Suppl 5):S12-S18.
Johnson J, Porter B. In: *Advanced Concepts in Multiple Sclerosis Nursing Care*. 2001:117-136.

Modified Ashworth Scale

Score	Criteria
0	No increased tone
1	Slight increased tone (catch and release at end of ROM)
1+	Slight increase in tone manifested by a catch followed by min. resistance throughout the remainder of the ROM (less than half the ROM)
2	Marked increase in tone through most of ROM but affected part(s) move easily
3	Considerable increased tone, passive movement difficult
4	Affected part(s) rigid in flexion or extension

Bohannon RW, Smith MB. *Phys Ther*. 1987;67(2):206-7. ROM = range of motion

Spasticity Management

Non-pharmacologic

- Stretching
- Positioning
- Seating
- Range of motion
- Orthotics
- Physical therapy

Pharmacologic

- Baclofen
- Tizanidine
- Gabapentin
- Levetiracetam
- Diazepam
- Onabotulinum toxin A

Surgical

- Baclofen pump

Data from Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Spasticity Management

Non-pharmacologic Interventions

- Early intervention
- Stretching, exercising
- Orthotics
- Relaxation techniques

Bennett S, Bethoux F, Brown T. Motor Control Breakout Group Discussion. *Int J MS Care*. 2014; 16(Suppl 1):12-18.

Spasticity Management

Pharmacologic Interventions

Baclofen

- Stimulates gamma-aminobutyric acid (GABA) receptors
- Initiated at 5 mg bid-tid and titrated upward
- Typical effective dose 30-90 mg/day
- Adverse events (AEs): drowsiness, dry mouth, and lightheadedness
- Do not discontinue abruptly (seizures, hallucinations, agitation)

Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Spasticity Management

Pharmacologic Interventions

Tizanidine

- Centrally acting α2-adrenergic receptor agonist
- Initiate at bedtime (sedation) 1-4 mg if possible; if initiate at daytime 1-2 mg QID, then titrate up to 4-8 mg QID (max 32 mg/day)
- AE: sedation, hypotension, weakness, constipation, dry mouth
- Counsel patient about activities requiring alertness (driving, etc.) and use of alcohol
- Liver function test and CBC should be performed

Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Spasticity Management

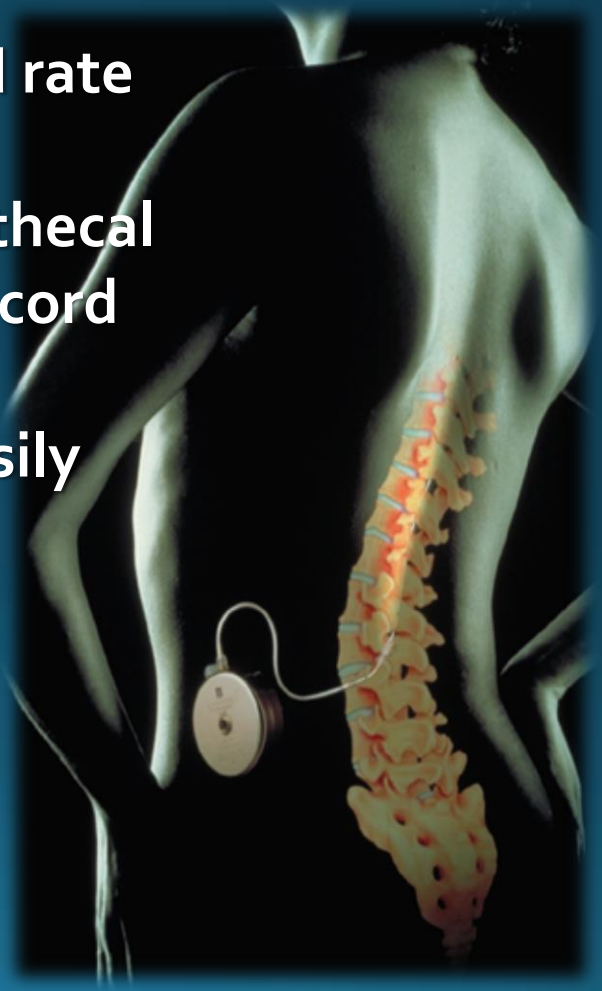
Pharmacologic Interventions

- **Benzodiazepines (diazepam, clonazepam, etc.)**
  - May cause daytime sedation; therefore, take at bedtime
- **Gabapentin**
- **Combination of baclofen, tizanidine, and benzodiazpines may help those patients who are unresponsive to monotherapy**
- **For combination therapy, lower doses are used, which may minimize adverse events (AEs)**

Crayton H, et al. *Neurology.* 2004;63(11 Suppl 5):S12-S18.

Intrathecal Baclofen (ITB™) Therapy

- Pump infuses drug at programmed rate
- Catheter delivers drug to the intrathecal (subarachnoid) space of the spinal cord
- Programmer allows for precise, easily adjustable dosing



Crayton H, et al. *Neurology.* 2004;63(Suppl 5):S12-S18.

Tremor in MS

- Caused by MS lesions in cerebellum and its pathways
- Can affect head, limbs, trunk, eye movements, and speech
- Titubation
- Difficult to treat

Halper J, Harris C. Nursing Practice in Multiple Sclerosis: A Core Curriculum. 3rd ed. New York: Springer Publishing Company, 2012.
Frenette J, et al. In: *Symptom Management in Advanced Concepts in Multiple Sclerosis Nursing Care*. 2001:200-204.

Tremor Management

Non-pharmacologic

- Proximal stability
- Self-care strategies
- Weight-bearing activities
- Weighting (utensils, assistive devices)
- Coordination exercises

Pharmacologic

- Clonazepam
- Gabapentin
- Primidone
- Propranolol
- Levetiracetam
- Topiramate

Surgical

- Deep brain stimulation

Frenette J, et al. In: *Symptom Management in Advanced Concepts in Multiple Sclerosis Nursing Care*. 2001:200-204.

Ursula's Issues/ Interventions

- **Mobility issues**
  - Use assistive devices as needed, PT locally, focus on safety
- **Tremor/ataxia**
  - Did not tolerate medications
- **Spasticity**
  - Daily stretching, low dose baclofen

Nursing Implications

- **Symptom management follows the same general rules as disease management**
- **Diagnose the problem and intervene early**
- **Identification of symptoms is key**
  - Need to confirm the nature of the symptoms and link to MS (MS or not MS)
  - Secondary causes (comorbidities may contribute to symptoms)
- **Use multimodal, multidisciplinary management**
- **Identify interventions (non-pharmacologic and pharmacologic)**
- **Monitor and adjust treatment plan as needed over time**

Summary: Symptom Management

- Clinical approach to symptom management is what health care providers do best and most often
- MS symptoms affect quality of life of individuals with multiple sclerosis
- Left untreated, symptoms may worsen or precipitate other symptoms, producing a cycle of inter-related symptoms.
- Nurses listen, respond with care and concern, and make referrals

My Perspective

- Many new treatment options
- Promising research on the horizon
- Choices for patients
- Improved control
- Hope for the future

QUESTION-AND-ANSWER SESSION

Thank you for your participation!

- To receive credit for today's program, please complete the evaluation test at: https://www.surveymonkey.com/s/CaringWebinarFourEvaluation
- For upcoming *Caring for the Patient with MS* Webinars, please visit our web page at: http://www.iomsn.org/component/content/article/239
- For additional IOMSN educational opportunities and future webinars programs, please visit IOMSN at: www.IOMSN.org
- We look forward to seeing you for our next CNE webinars:
  - WEBINAR 5 … Symptomatic Management of MS: Invisible Symptoms on October 20th
  - WEBINAR 6 … Adherence on November 17th