

Geriatrics

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Disclosures/Conflicts of Interest: None

Geriatrics: The Agenda

- ❑ **Dementia/cognitive impairment**
- ❑ **Weight Loss**
- ❑ **Falls**
- ❑ **Calcium & Vitamin D**
- ❑ **Urinary Incontinence**

Case Hx: Possible early impairment

76yo M semi-retired accountant c/o ↑forgetfulness

Pt/spouse note ↓ ability to remember names and ↑ misplacing items over past yr. Pt more irritable. He is aware of memory Δ's but feels getting along fine. He continues accounting work during tax season, enjoys usual activities: playing cards, attending theatre

PMH: DM, HTN well-controlled w/metformin & hctz

P.E. - unremarkable, non-focal neurologic, MMSE is 26/30 (error w/date, 1 of 3 STM recall, error copying figure)

Case Hx: Possible early impairment

76yo M semi-retired accountant c/o ↑forgetfulness

Question #1: What is patient's most likely dx?

- A) Vascular dementia
- B) Mild Cognitive impairment
- C) Alzheimer's disease
- D) Normal aging

Normal Aging

- ❑ **No consistent, progressive deviations on testing of memory**
- ❑ **Some decline in processing speed and depth of recall of new information: slower, harder**
- ❑ **Reminders work—visual tips, notes**
- ❑ **Absence of significant effects on function: ADLs or IADLs due to cognition**

Mild Cognitive Impairment (MCI)

- ❑ Grey zone between normal aging and dementia
- ❑ Most often memory problem without deficits in other domains (amnestic MCI)
- ❑ No functional impairment
- ❑ Predicts ↑ risk: 10-15%/yr progress to dementia

Neurology 2001;56:1133

Mild Cognitive Impairment

Question #2: Which med tx has shown some benefit for pts w/MCI?

A) Cholinesterase inhibitors

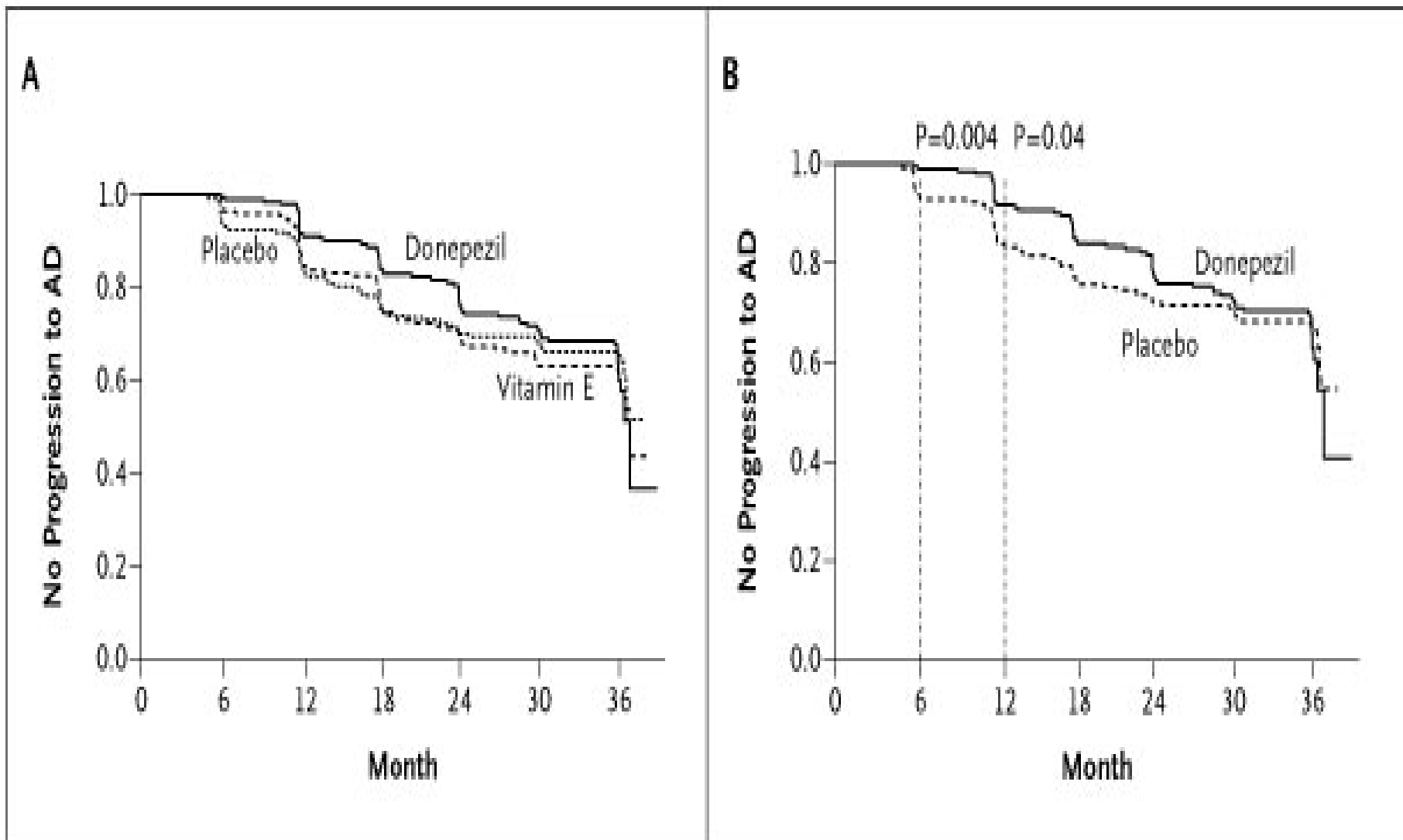
B) High dose vitamin E

C) Statins

D) Ginkgo biloba

Vitamin E and Donepezil for Tx of MCI

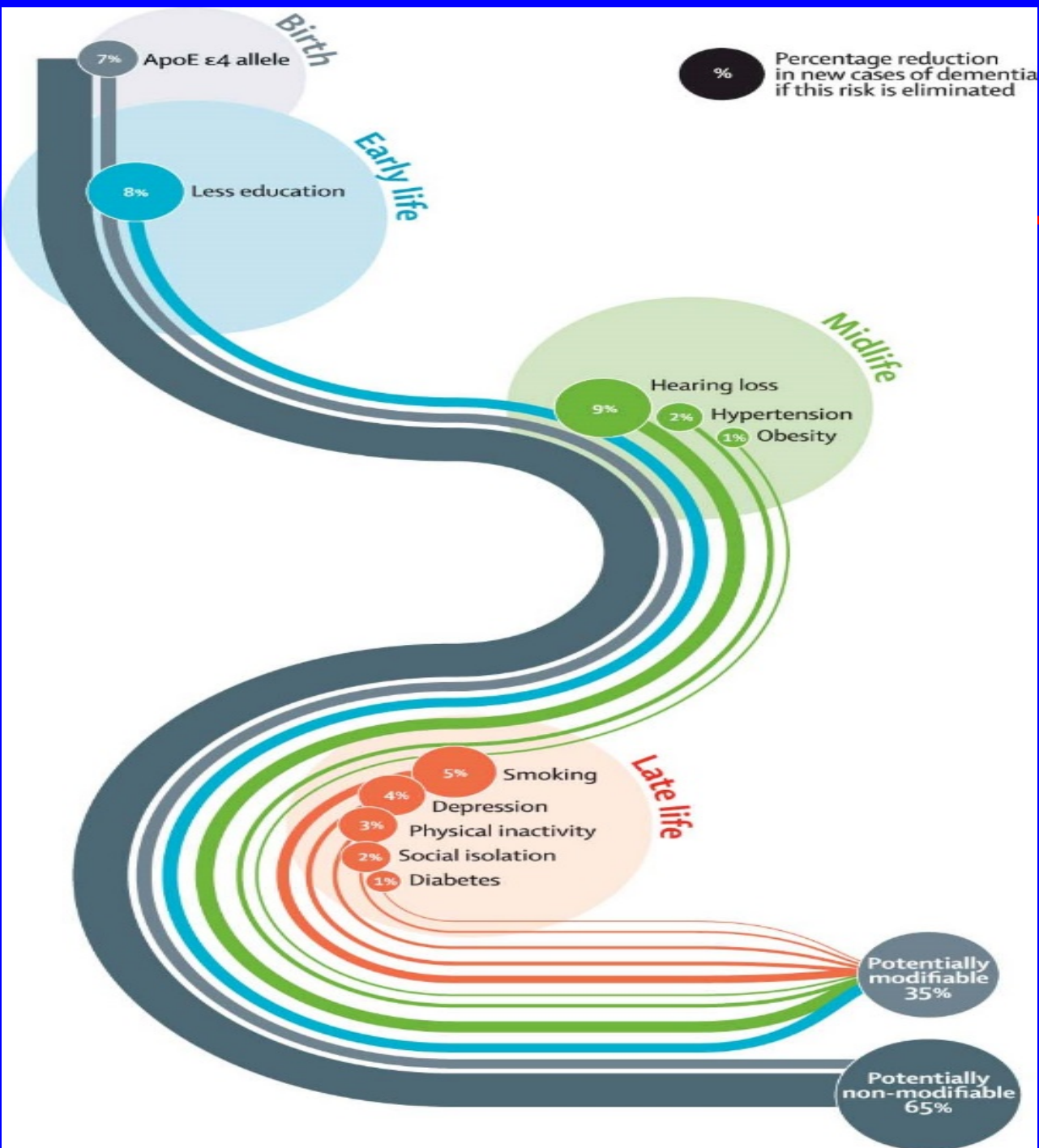
NEJM 2005;352:2379-88.



Mild Cognitive Impairment

Non-pharmacologic interventions that may help slow transition from MCI to dementia?

- **Physical activity** - 50 minutes walking 3 days/wk
JAMA 2008;300:1027-37
- 2x/wk resistance training
Arch Intern Med 2012;172:666
- **Mental activity** - games, crosswords, leisure activities
cognitive training
NEJM 2003;348:2508
Ann Intern Med 2010;153:182



Dementia Prevention

- Choose your parents wisely
- Stay in school
- Control BP
- Maintain hearing
- Don't smoke & avoid obesity
- Stay physically active & socially engaged

Ann Intern Med
2018;168(1):77-79

Dementia Etiologies: Question #3

Your 83 yo pt has had ↓ memory over past yr. His spouse relates episodes when pt doesn't respond at all for a few minutes then seems fine. He has had a couple falls this yr and occasionally sees things that are not there. Which clinical feature is most suggestive of dementia with Lewy bodies?

- A) Rapid disease progression**
- B) Cognitive fluctuations**
- C) Frequent falls**
- D) Visual hallucinations**

Dementia: Lewy Body vs AD

| <u>Sxms at Presentation</u> | <u>Lewy Body Dz</u> | <u>AD</u> |
|-----------------------------|---------------------|------------------|
| | <u>% (range)</u> | <u>% (range)</u> |
| Cognitive fluctuations* | 58 (8-85) | 6 (3-11) |
| Visual hallucinations* | 33 (11-64) | 13 (3-19) |
| Auditory hallucinations | 19 (13-30) | 1 (0-3) |
| Parkinsonism* | 43 (10-78) | 12 (5-30) |
| Neuroleptic sensitivity | 61 (0-100) | 15 (0-29) |
| Falls | 28 (10-38) | 9 (5-14) |

* 2 required for probable, 1 for possible LBD dx

* REM sleep d/o 4th criteria, often early **Br J Psych 2002;180:144**

Dementia: Epidemiology

Etiology

| | |
|-----------------------------|----------------|
| Alzheimer's | 50-70% |
| Multi-Infarct | 10-30% |
| Lewy Body/Parkinsons | 10-20% |
| ETOH | 5-10% |
| Other | < 5% |

Alzheimer's Dementia: DSM-V Criteria for "Major Neurocognitive Disorder" d/t AD 2013

- Evidence of signif cognitive decline from prior level of performance in one or more cog domains**
 - learning and memory**
 - language**
 - executive function**
 - perceptual-motor**
 - complex attention, social cognition**
- Sufficiently severe to interfere with usual funx**
- Insidious onset & gradual decline in memory and at least one other cognitive domain**
- Still a dx of exclusion: other causes excluded**

Dementia: Diagnostic Evaluation

**Am Acad Neurology
2001**

**Am Assoc Geri Psych, AD
Assoc, Am Geri Soc 1997**

| | | |
|-------------------|---------------------------------------|-------------------------|
| Hx/P.E. | X | X |
| CBC | X | X |
| SMA-17 | X | X |
| TSH | X | X |
| VDRL | +/- only if risks/endemic area | X |
| B12/Folate | X | X |
| CXR | X | X |
| EKG | X | X |
| Head Scan | X (noncontrast CT or MRI) | O (optional/rec) |

Dementia: Diagnostic Evaluation

“Reversible” Dementia

- ❑ **Drugs & Depression (pseudodementia) - 10-15%**
- ❑ **Other “reversible” causes < 5%**
 - **Hypothyroid, ↓ B12, NPH > tumor, subdural**
 - **Fully reversible cognitive impairment < 1%**
- ❑ **Clues to reversibility: duration <1yr , mild dz (MMSE>20), younger age**

Reversible Dementia?: Analysis of 5620 cases

| Etiology | Percent cases |
|-------------------------------|----------------------|
| AD | 56% |
| Vascular | 20% |
| Potentially Reversible | 9% |
| Actually reversed | 0.6% |
| Fully | 0.31% |
| Partially | 0.29 |

Dementia: Treatment and Management

- ❑ Finding reversible dementia is uncommon
- ❑ **Attention to 3 'D's'**
 - **Coexistent Disease: 50%** had unrecognized med dx
 - **Drugs - d/c all possible**
 - **Depression - consider, low threshold for tx trial**
- ❑ **25% improved with ↓ meds/ illness tx/ depression tx**

Woody at 83



Weight Loss in Older Adults

- **Definition** Wt ↓ \geq 5% body wt over 6-12 mo
- **Incidence** Common: 5-15% in elderly outpts
- **Dx** Confirm stated wt loss, wt hx

Weight Loss in Older Adults

Q #4: Your 81yo pt weight fell from 180 → 162 in past yr. He reports appetite ↓ & just not feeling well. ROS: occasional dyspepsia that ↓ w/tums; constipation; not sleeping well, tired by day; knee pain doing ok w/infreq ibuprofen. When asked about new stressors he notes his dog died last yr. What is the most likely cause of his weight loss?

- A) NSAID related gastritis
- B) Pancreatic cancer
- C) Depression
- D) Hypothyroidism

Weight Loss in Older Adults

The most common causes of weight loss in elderly patients are:

- 1. Depression 20-40%**
- 2. Gastrointestinal problems 10-20%**
- 3. Malignancy 10-20%**
- 4. Multifactorial, no single cause 25%**

Weight Loss in Older Adults: Etiology

□ The Nine D's

Depression #1

Dentition

Dysphagia

Dysgeusia

Diarrhea

#2 GI dx'es

Disease - Cancer #3

Drugs

Dementia

Dysfunction

10th D: "Don't know" ~ 25% of cases

Weight Loss in Older Adults

Guidelines for Responses

- Common causes
- **Diagnostic approach**
- Treatment algorithm

Weight Loss Dx Algorithm

Documented Weight Loss ($\geq 5\%$)



NO ← Adequate Caloric Intake? → **YES**



Adequate access to food?



Oral or swallowing problems?



ANOREXIA

Drugs?

Depression?

Disease?

Dysgeusia?



Malabsorption?



↑ metabolism/catabolism?



Endocrinopathy?

Malignancy?

Infection?

Hypoxemic lung dz?

Advanced heart failure

Weight Loss: Diagnostic Evaluation

- **Verify weight loss**
- **History and physical**
- **U/A, CBC, CMP, TFTs, CXR**
- **Further studies as signs/sxms direct**
- **Watchful waiting if w/u unrevealing**

Implementing Nutrition Interventions

Guidelines for Responses

- Common causes
- Diagnostic approach
- Treatment algorithm

Weight Loss Tx Algorithm

Identify and treat cause

Tx, no Δ

No dx

Improvement

Nutritional Support

caloric supplements

freq meals/snacks

enhance flavor/fav foods

meal services

exercise/ \uparrow activity

appetite stimulants

No Δ

prognosis?, TF?

Antidepressant Choices

- Question #5:** You decide this pt has depression based on ↓ appetite/wt, ↓ sleep, & ↑ fatigue. Which of the following would be the preferred medication choice?
- A) Fluoxetine
 - B) Mirtazapine
 - C) Bupropion
 - D) Ritalin

Mirtazapine (Remeron)

- Equal efficacy to SSRIs (superior early for veg sxms)
 - Sedating
 - Appetite stimulant
 - Weight Gain RR 3.8 compared to SSRI
- } ↑ effect at lower doses

CNS Drugs. 2010;24(1):35-53

J Psychopharmacol. 2008;22(8):843-8

Falls: Epidemiology quick hitters

- What % of older adults 65+ fall each year?
 - 10%
 - 33% ½ of these have multiple falls & risk recurrent falls 2x↑ if hx falls
 - 50%
 - 75%

Falls: Epidemiology quick hitters

- What % of falls result in serious injury, eg fx?
 - **< 5%** 3-5% → signif injury, only 20% falls prompt med eval → must screen for fall hx!
 - 10%
 - 20%
 - 33%

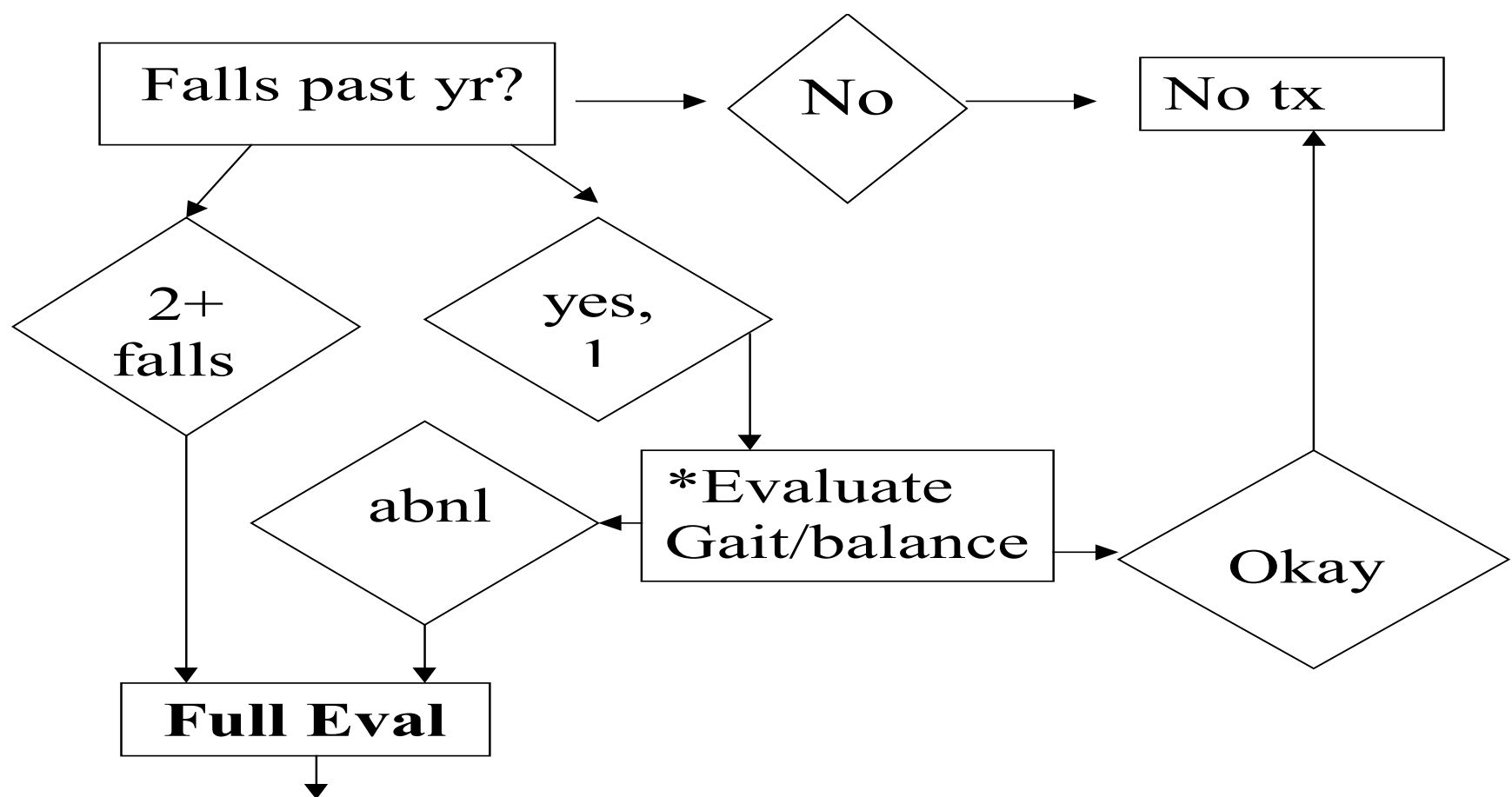
Screening to Enhance Function and Quality of Life

Injury Prevention

- ❑ Falls → #1 cause unintended injury & death in elderly
- ❑ 6th leading cause of death age 65+
- ❑ Screen: Inquire about falls annually

USPSTF 1996 www.preventiveservices.ahrq.gov

JAMA 2018;319:1696



Assessment
 Hx (trip/slip, orthostatic, dizzy?)
 Medications
 Vision
 Neurologic, gait and balance
 Lower extremity joints
 Cardio/cerebrovascular sxms

Multifactorial Intervention
 Gait, balance, exercise rx
 Med changes
 Postural hypotension tx
 Home safety evaluation
 Cardio/cerebrovasc dz tx
 Footwear, hip pads?

Adapted from American Geriatrics Society Guidelines 2001 & 2011

*Office testing and/or refer to specialist or physical therapist

Fall Risk Factors

Q#6: Your 86 yo F pt fell 3x last yr. She lives alone & is relatively sedentary.

PMH: DM, HTN, depression, OA, ARMD.

Meds: glipizide, amlodipine, hctz, paroxetine, ocuvite. Which of the following is most likely to reduce her fall risk?

- A) Physical therapy
- B) Vision assessment
- C) Calcium supplements
- D) Medication reduction

Falls Tx: Which Strategies Work?

- ❑ **Observational data → meds are key modifiable fall risk factor, with psychotropic agents (benzos, TCAs, neuroleptics) leading the list**
- ❑ **Single interventions shown to ↓ falls in RCTs**
 - **Withdrawal of psychotropic meds - RR 0.34**
 - **Home hazard assessment and modification - RR .66**
 - **Exercise: Tai Chi RR .51, strength & balance RR .8**
 - **Vitamin D supplements? - data mixed, possible if ↓**
 - Ann Intern Med 2002;136:733**
 - Cochrane Database 2012**
 - JAGS 2002;50:1629**
 - JAMA 2018;319:1696**

Calcium & Vitamin D

Q#7: A 72 y.o. F, on PPI for GERD, seeks counseling re: vitamins. She eats little dairy foods & asks your advice re: calcium & Vit D. Following National guidelines you recommend she takes the following supplements:

- A) Calcium 500mg + Vitamin D 400IU
- B) Calcium 1,000mg + Vitamin D 400IU
- C) Calcium 1,200mg + Vitamin D 800IU
- D) Calcium 1,200mg + Vitamin D 600IU

Vitamin D: Old RDA 200 IU/d too low

□ Inst Med (1997)

➤ age 50-70 400IU, age 71+ 600IU

□ Inst Med (2010)

➤ age 50-70 600 IU, age 71+ 800 IU

□ Is 800 IU enough?

➤ US Dept Agriculture, NOF, AGS rec 1000IU/d

➤ UL safety 4000 IU/d

➤ 25-OH Vitamin D level goal ≥ 20 vs 30ng/ml

Effects of Vitamin D on Risk of Falling

- ❑ **2004 Meta-analysis RCTs, OR(corr) 0.78 (0.64-.92), NNT 15**
- ❑ **Cochrane 2012: (-) community-dwellers but may have benefitted if low pre-tx Vitamin D level**
- ❑ **MOA**
 - **Vit D defic assoc w/proximal muscle weakness**
 - **Muscle has Vit D receptors that ↓ w/age**
 - **Muscle Vit D receptor → ↑ protein synthesis**
 - **↑Vit D levels assoc with ↑ muscle strength/LE funx**

Bischoff-Ferrari, et al. JAMA 2004;291:1999

New concern: Very high intermittent dose Vit D may ↑ fall risk

- **Vit D3 500,000 IU annually ↑ falls & ↑ fractures**

- **Adverse effect ↓ w/time from dose**

JAMA 2010;303:1815-1822

- **Vit D3 60,000 IU/month ↑ falls vs 24,000 IU/mo**

JAMA Intern Med 2016;176:175-83

- **Vit D3 100,000 IU/month ↑ falls**

- **but ↓ respiratory infxns**

J Am Geriatr Soc 2017;65:496-503

Vitamin D: Fall benefit data is mixed, possible risk, how best to proceed?

□ USPSTF April 2018 “recommends against Vit D supp to *prevent* falls in *community-dwelling* adult 65+

JAMA 2018;319:1696

□ Cochrane 2012 re: Vit D supplements & falls

➤ Possible benefit for older pts w/low levels < 20ng

Cochrane Database Syst Rev. 2012

□ American Geriatrics Society, NOF, Endo Society

➤ Rec goal > 30ng/mL, esp frail elderly; 1000+ IU/d

J Am Geriatr Soc. 2014;62(1):147

□ Institutionalized may benefit > community-dwellers

JAMA Intern Med 2016;176:171-2

Case History

HPI A 78-year-old F is seen in clinic with c/o urinary frequency, urgency and small volume leakage en route to bathroom. On a couple of occasions while out of home she had large volume incontinence when could not find a bathroom in time. She drinks 4 glasses of water daily to stay well hydrated

PMH HTN – well controlled w/HCTZ 25
GERD – on PPI
MCI – MMSE 27/30 (college ed pt)

Case History

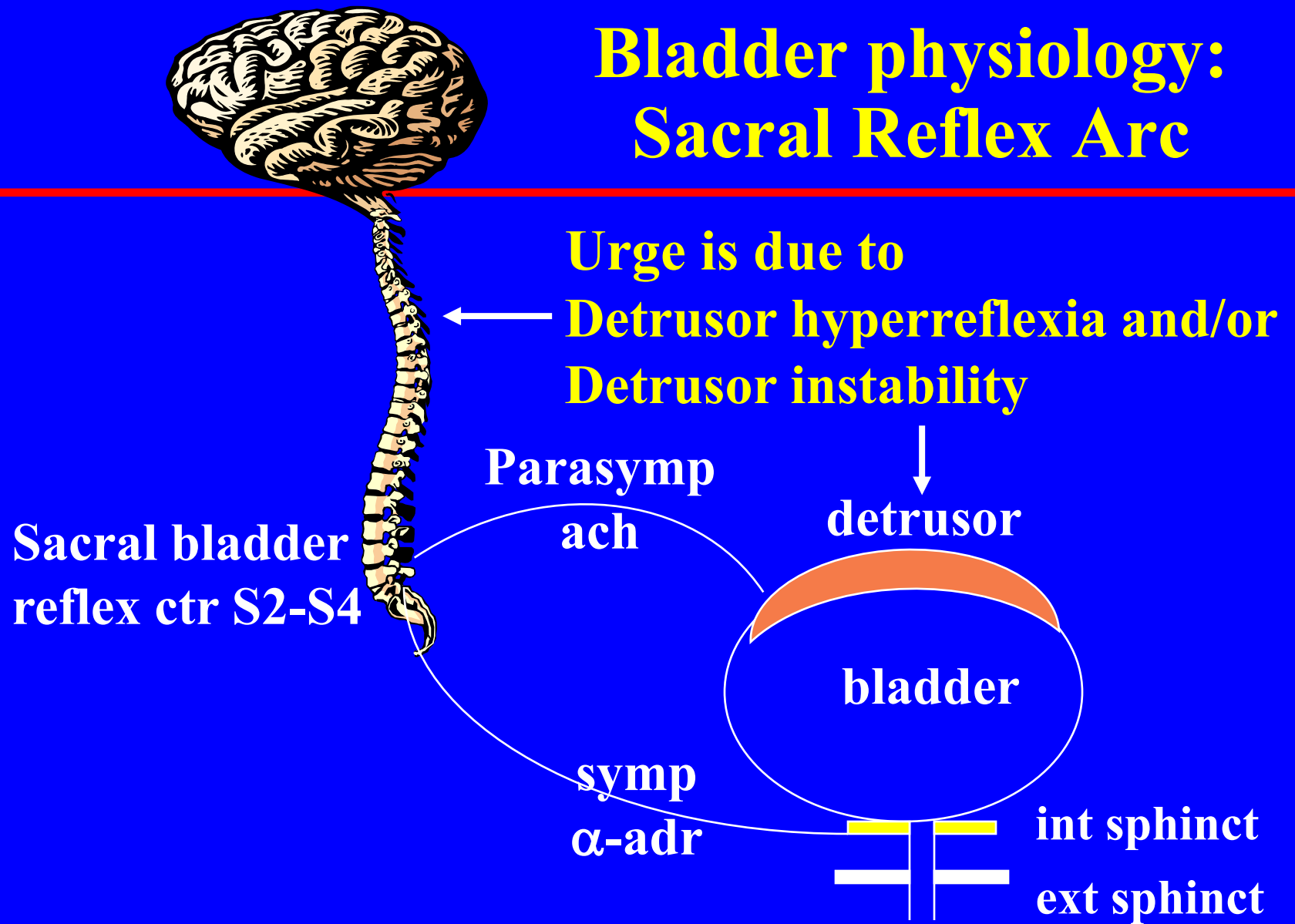
Question #8 : Which intervention is most likely to improve her continence?

- A. Stop HCTZ**
- B. Timed voids**
- C. Oxybutynin**
- D. Reduce water intake**
- E. Start donepezil**

Clinical Classification of UI

- **Urge - 2/3 of cases**
- **Stress (often mixed)**
- **Overflow**
- **Functional**

Bladder physiology: Sacral Reflex Arc



Urge Incontinence Etiology

Detrusor hyperreflexia

- **↓ CNS inhibition of sacral reflex arc**
- **Age related or idiopathic**
- **Due to lesion in central inhibitory pathways (eg, stroke, NPH, cervical stenosis)**

Urge Incontinence Etiology

Detrusor instability

- **Due to local bladder irritation**
 - **UTI**
 - **Bladder stones or tumors**
 - **Other inflammation (interstitial cystitis)**

- **BPH (detrusor hypertrophy)**

Urinary Urge Incontinence

- ❑ **Non pharmacologic approaches are the most effective**
- ❑ **Use alone or in conjunction with med rx'es**
 - **Timed voids**
 - **Bladder training**
 - **Urge suppression**
 - **Dietary habits (eg, citrus, soda, caffeine, etoh, ↓ fluids)**
 - **address ↓ mobility, urinal, commode, etc**

Urinary Urge Incontinence

Pharmacologic approaches: antispasmodic rx's

□ Old & New – efficacy similar

- oxybutinin (ditropan) – short/long acting & patch
 - tolteridine (detrol) – short/long acting
 - trospium chloride (sanctura)
 - solifenacin (vesicare)
 - darifenacin (enablex)
 - mirabegron – newest, no anti-ach or CNS effects
- } less CNS effects

□ Alone: 20% ↓ incont, combine w/non-pharm tx: 60% ↓

Case History & Q#9

HPI 81-year-old M presents to ED unable to void, dribbling small vol urine w/o control. Hx mild ↓FOS & nocturia x 3, managing okay until recent cold for which he took OTC rx

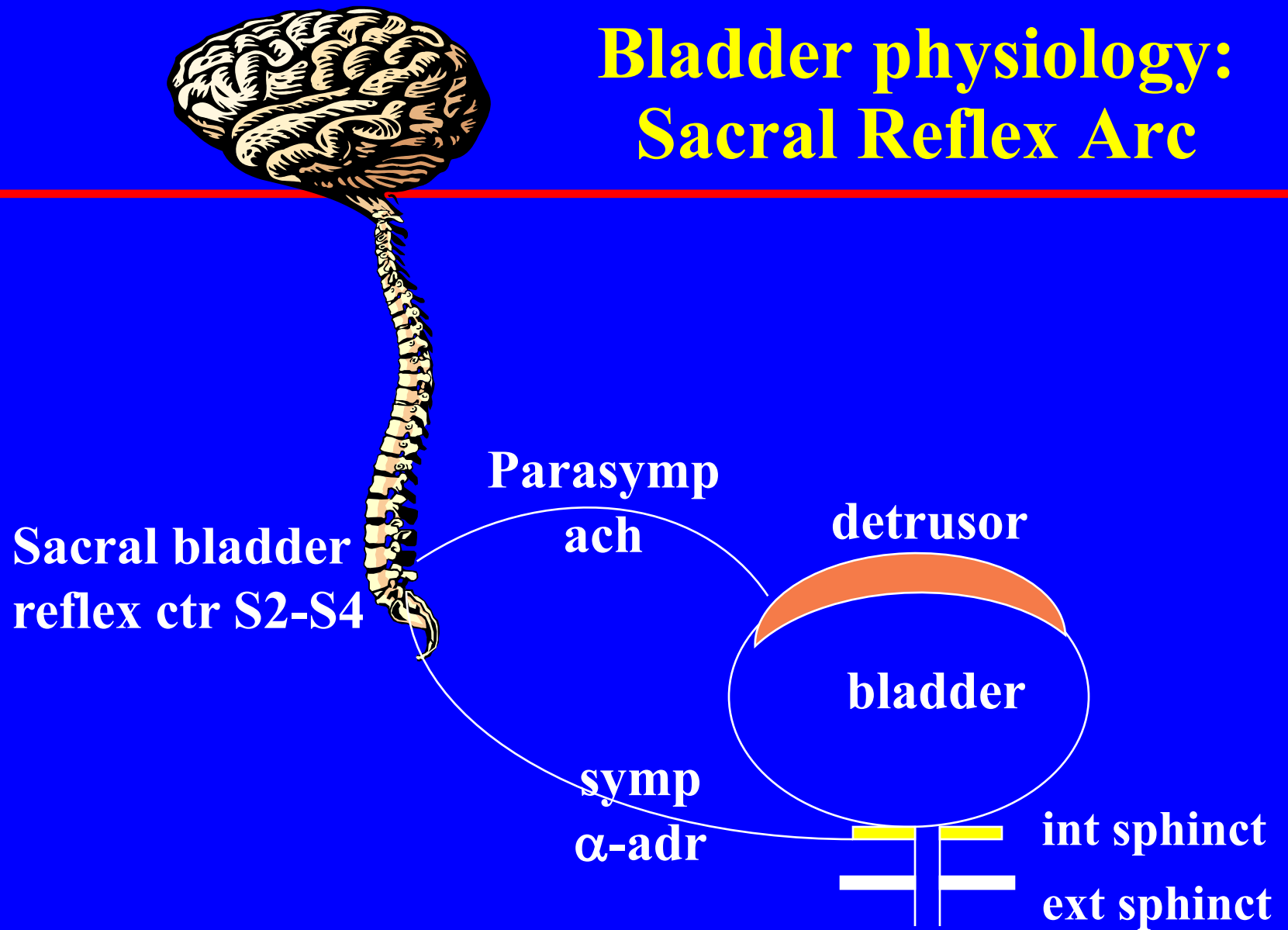
PMH BPH & HTN - sxms as above on doxazosin 8mg
OA knees – manages with prn tyl and tramadol

Exam – passes small amount urine, PVR 600cc

Which of the following is the most likely cause of his s/s?

- A) New use of Claritin (loratadine) 10mg
- B) Inadequate dose of doxazosin
- C) New use of Dristan (chlorpheniramine/phenylephrine)
- D) Overuse of tramadol

Bladder physiology: Sacral Reflex Arc



Overflow Incontinence

- ❑ Results from detrusor underactivity, bladder outlet obstruction, or both
 - PVR is elevated – nl < 30 cc, **overflow > 100cc**
 - Leakage is small, often continual
 - Urge and stress leakage symptoms may occur
 - Symptoms: dribbling, weak urinary stream, intermittency, hesitancy, frequency, nocturia

Overflow: Detrusor Underactivity

May result from:

- ❑ medications!!! (eg, TCAs, opiates, benadryl)
- ❑ neurologic causes (e.g., autonomic neuropathy)
- ❑ mechanical damage to spinal detrusor nerves (e.g., disc herniation, spinal stenosis, tumor)
- ❑ weakening of detrusor from chronic obstruction (eg, BPH → flaccid bladder)

Overflow Outlet Obstruction

Anatomic/outlet obstruction sources

- ❑ Stricture, radiation, severe prolapse, women w/prior vaginal or urethral surgery → GU/GYN referral
- ❑ Men with BPH
 - Meds – alpha-antagonists (eg, tamsulosin, alfuzosin), 5- α reductase inhibitors (eg, finasteride – 6m to onset)
 - Refer for cystoscopy, surgical treatment

Overview of Management of UI

- ❑ Correct underlying medical illnesses and **medications** that may contribute to UI
- ❑ Start with least invasive treatments
 - behavioral
 - medications
 - surgery

Answer Key: Geriatric Board Review Questions

1. B

6. D

2. A

7. C

3. B

8. B

4. C

9. C

5. B