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?

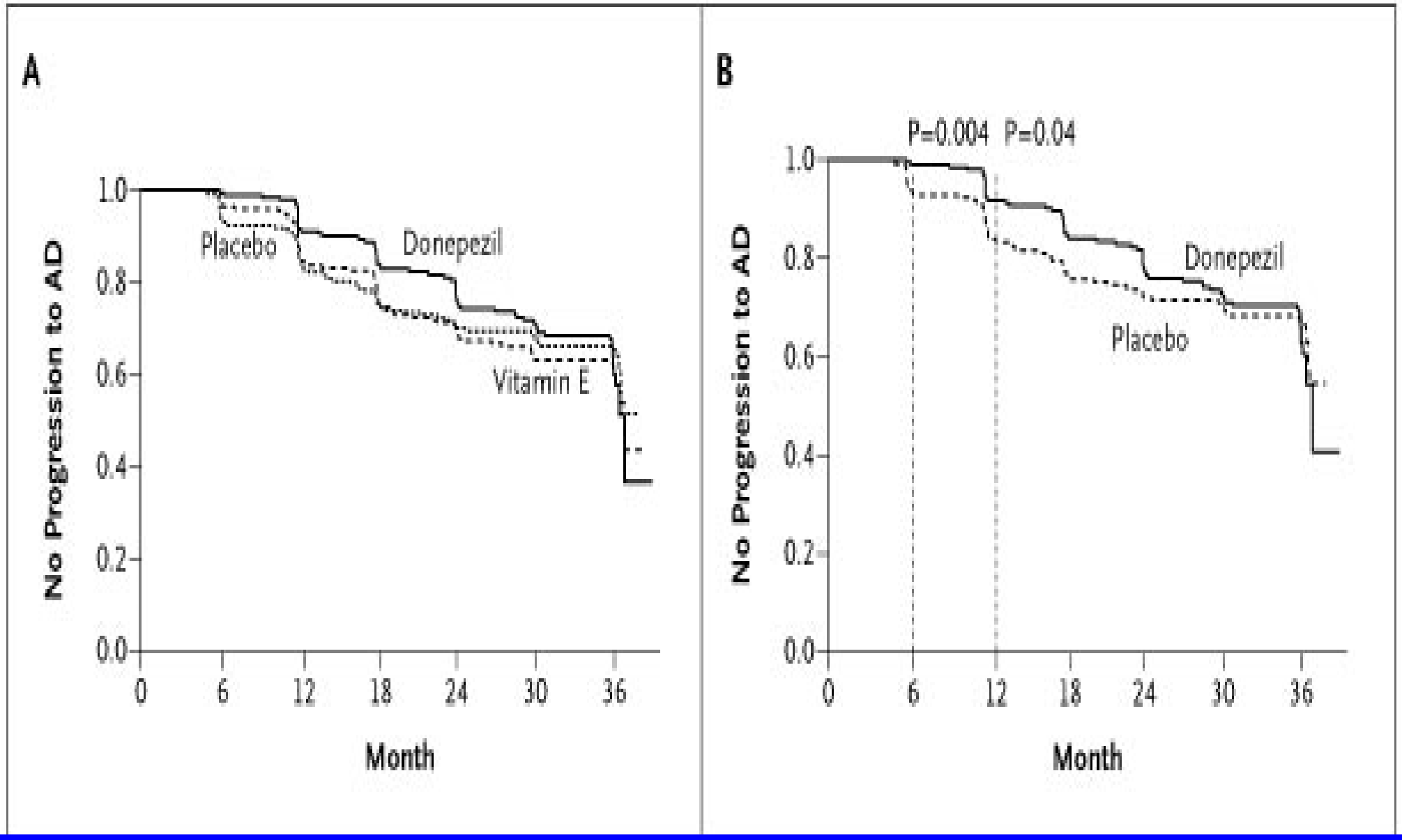
A) Cholinesterase inhibitors

B) High dose vitamin E

C) Statins

D) Ginkgo biloba

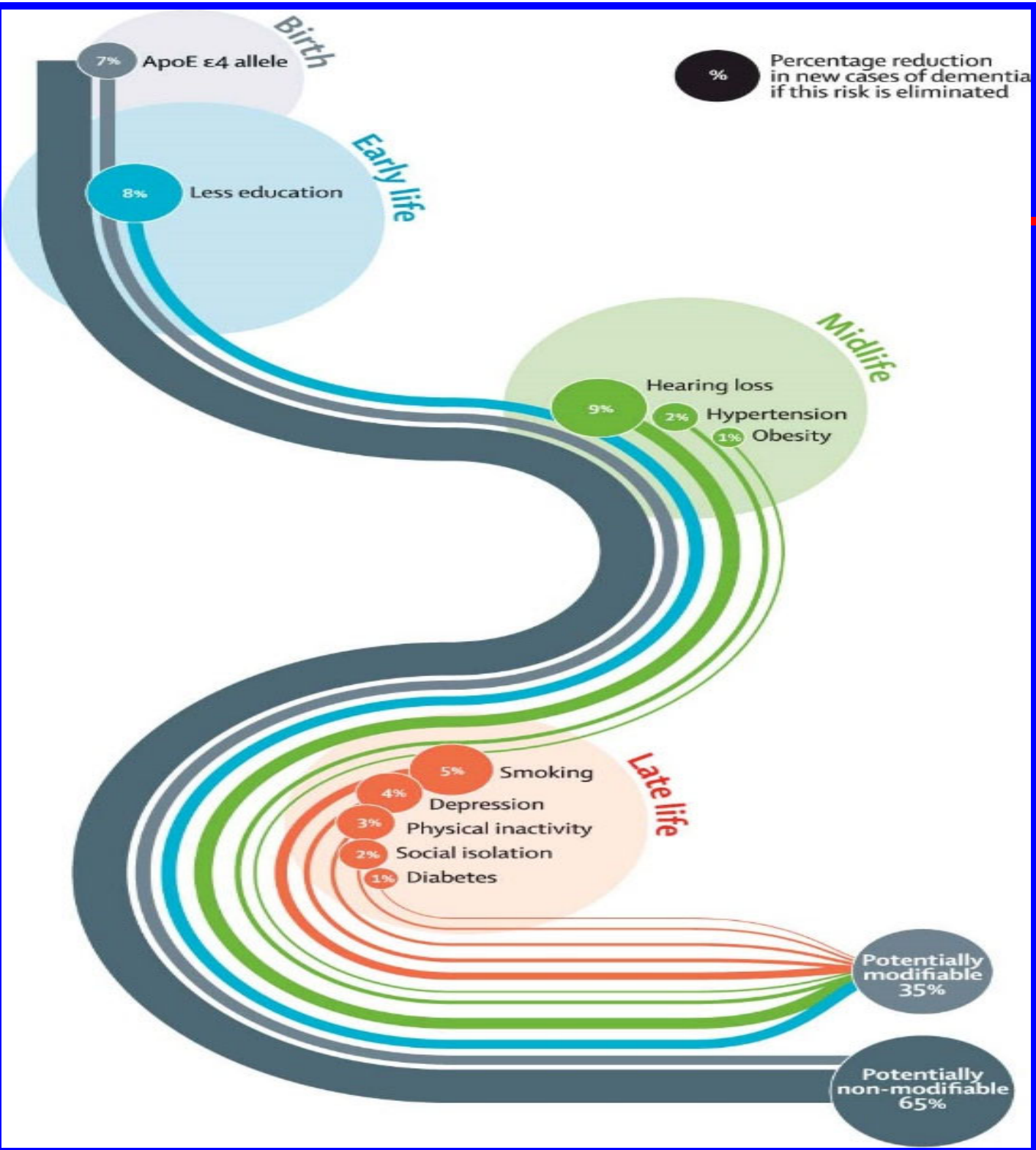
Vitamin E and Donepezil for Tx of MCI
NEJM 2005;352:2379-88.



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
- Correct any hearing or vision deficits
- 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

	Lewy Body Dz	AD
Sxms at Presentation	**% (range)**	**% (range)**
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 CTor MRI)	O (optional/rec)

Neurology 2001;56:1143

JAMA 1997;278:1363

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

Arch Intern Med 2003;163:2219

Dementia: Treatment and Management

- Finding reversible dementia is uncommon
- Attention to 3 'Ds'
  - 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 ↓ ≥ 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 (≥5%)

⇓

Adequate Caloric Intake?

NO ←

→ **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 → No Δ
- meal services
- exercise/↑activity
- appetite stimulants

→ 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

} ↑ effect at lower doses

- Weight Gain RR 3.8 compared to SSRI

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%

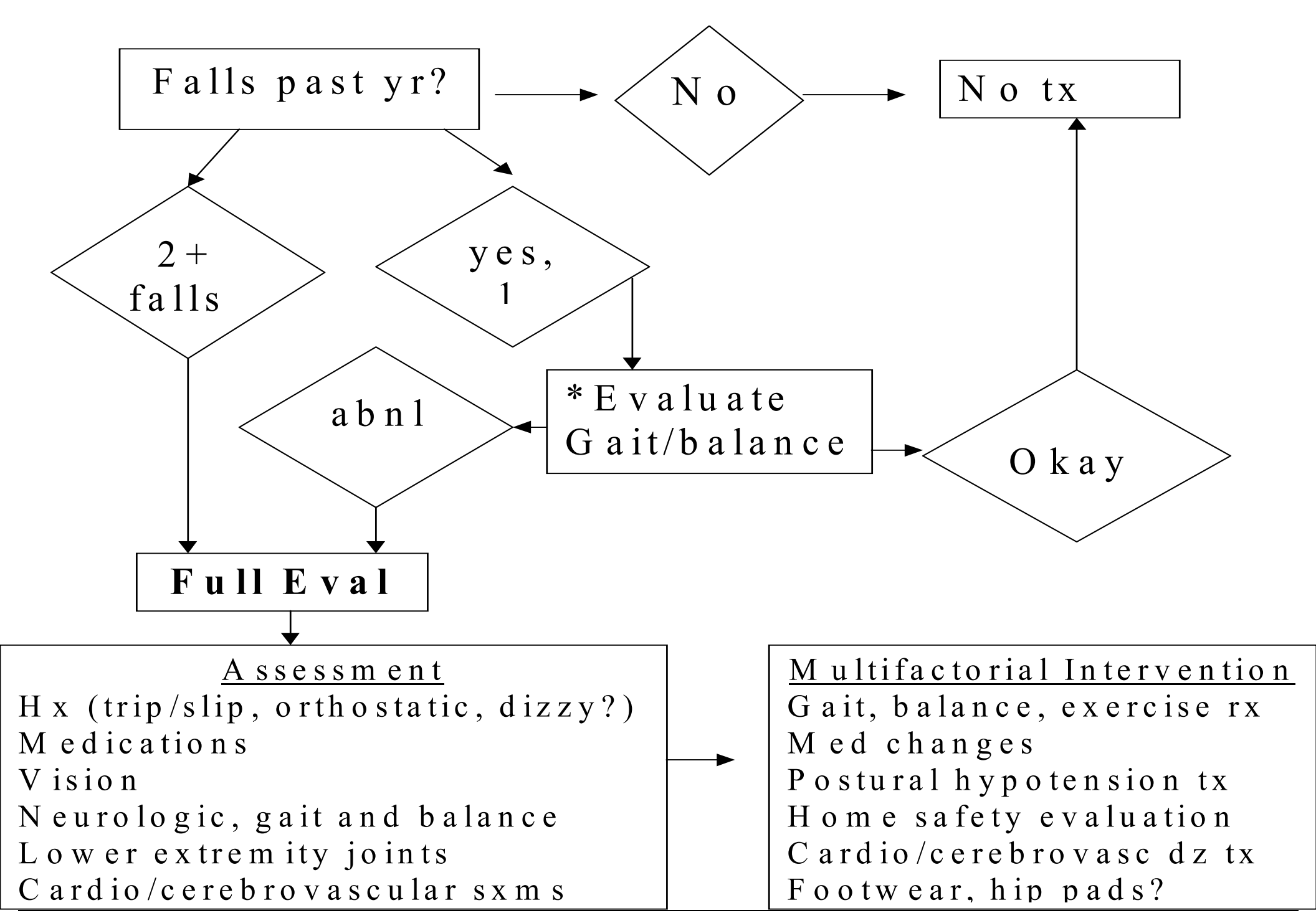
Screening to Enhance Function and Quality of Life

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



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 JAGS 2002;50:1629
Cochrane Database 2012 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 $\geq$ 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 c*ommunity-dwellin*g 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

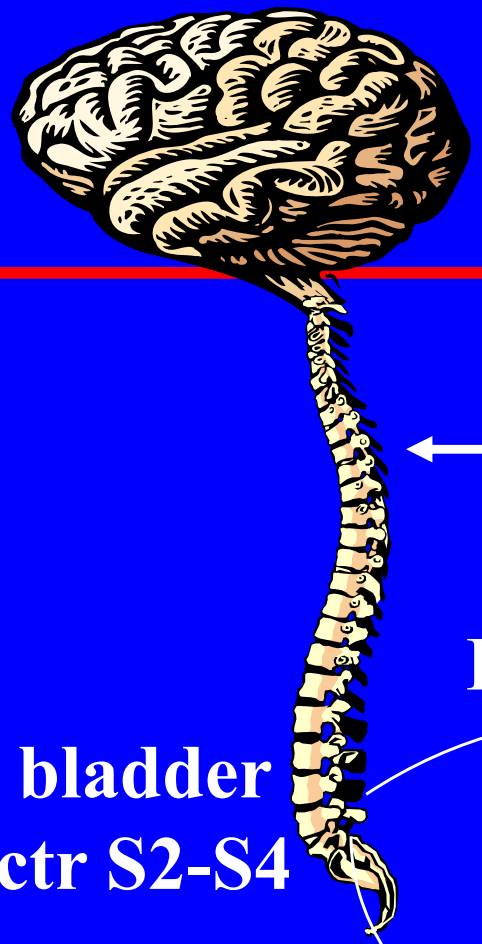
D. Reduce water intake

E. Start donepezil

Clinical Classification of UI

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

Bladder physiology: Sacral Reflex Arc



Urge is due to
Detrusor hyperreflexia and/or
Detrusor instability

Parasymp
ach

detrusor

Sacral bladder
reflex ctr S2-S4

bladder

symp
α-adr

int sphinct

ext sphinct

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)

  } less CNS effects

  - mirabegron – newest, no anti-ach or 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?

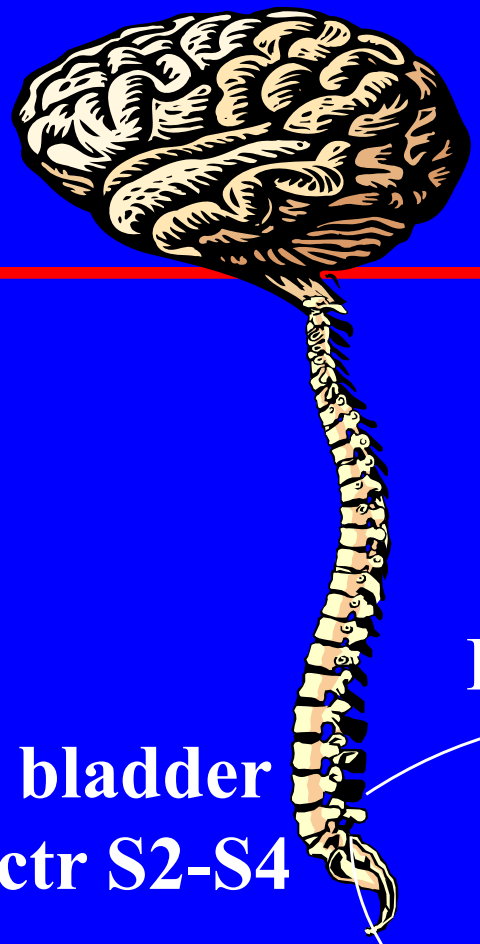
A) New use of Claritin (loratadine) 10mg

B) Inadequate dose of doxazosin

C) New use of Dristan (chlorphenaramine/phenylephrine)

D) Overuse of tramadol

Bladder physiology: Sacral Reflex Arc



Sacral bladder reflex ctr S2-S4

Parasymp ach

detrusor

bladder

symp α-adr

int sphinct

ext sphinct

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 $\rightarrow$ 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
2. A
3. B
4. C
5. B
6. D
7. C
8. B
9. C