Geriatrics

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Disclosures/Conflicts of Interest: None

MEDICAL CONTENT CATEGORY	Target %
Allergy and Immunology	2%
Cardiovascular Disease	15%
Dermatology	3%
Endocrinology, Diabetes, and Metabolism	10%
Gastroenterology	10%
Hematology	4%
Infectious Disease	10%
Miscellaneous	1%
Nephrology and Urology	6%
Neurology	4%
Obstetrics and Gynecology	3%
Medical Oncology	6%
Ophthalmology	1%
Otolaryngology and Dental Medicine	1%
Psychiatry	3%
Pulmonary Disease	8%
Rheumatology and Orthopedics	10%
Geriatric Syndromes	3%

Geriatrics: The Agenda

- Dementia/cognitive impairment
- Agitation
- Weight Loss
- Falls
- Calcium & Vitamin D
- Incontinence

Case 1

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 1

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

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

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Mild Cognitive Impairment

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

A) Cholinesterase inhibitors

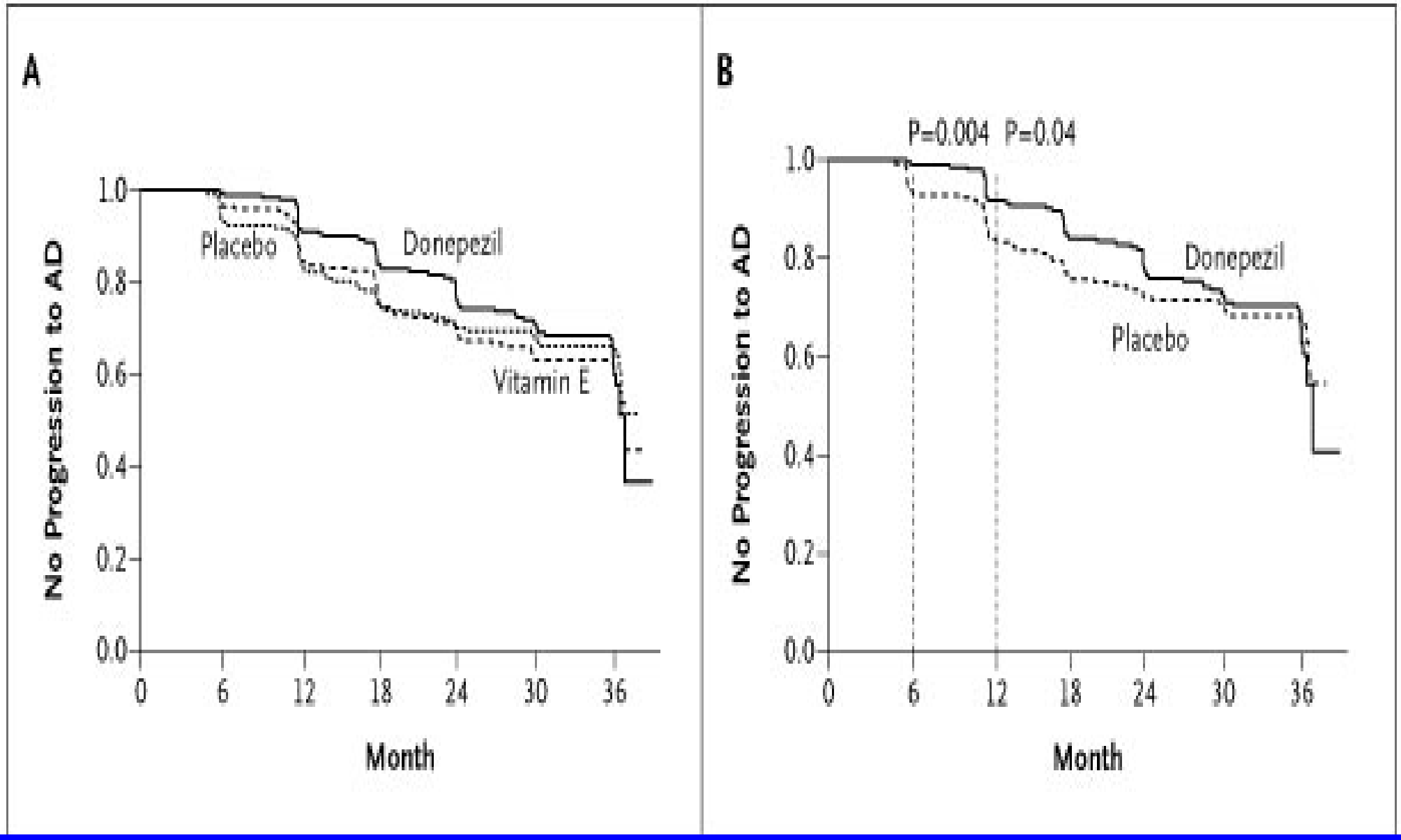
B) High dose vitamin E

C) Statins

D) Prevagen

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

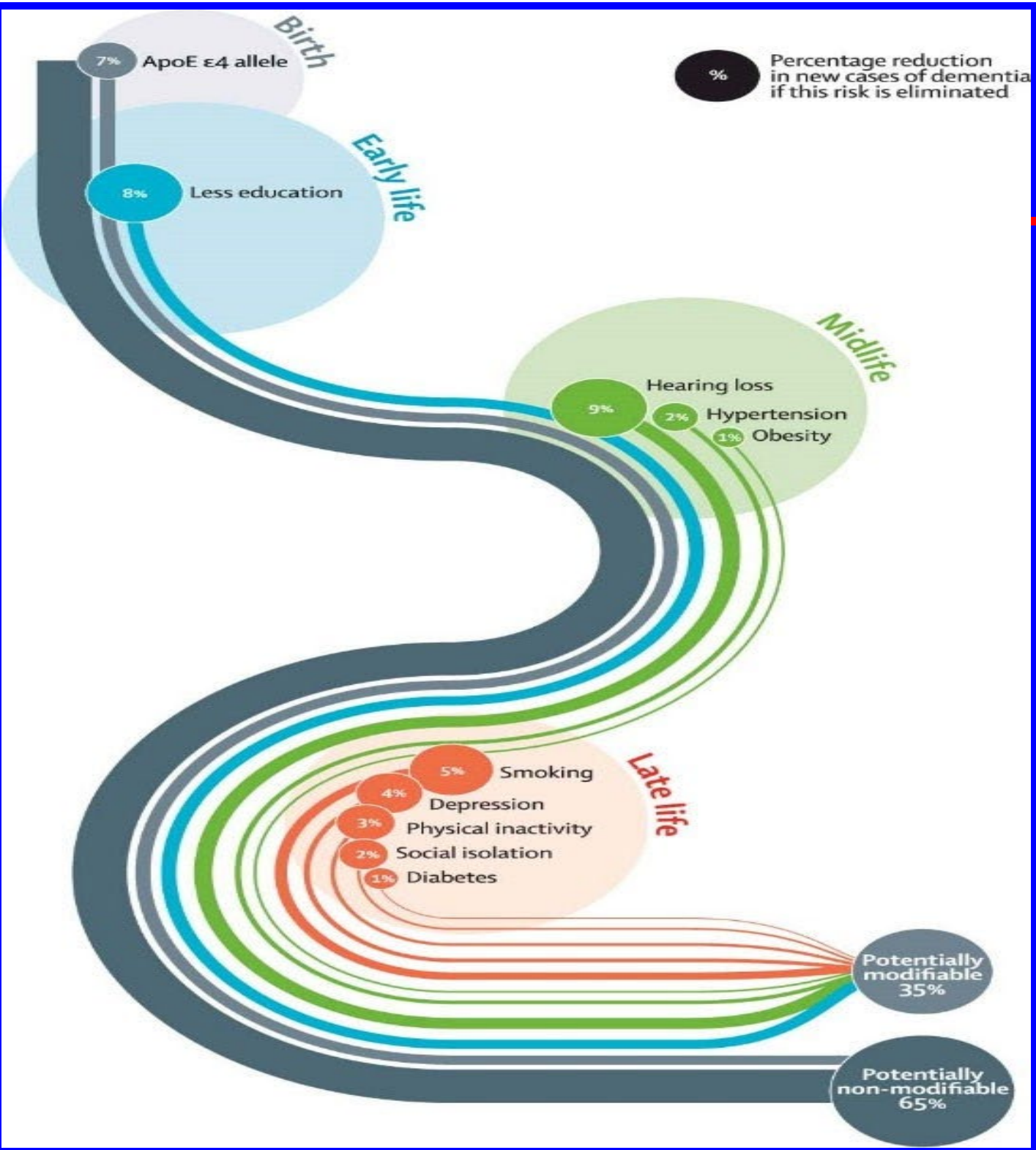
Arch Intern Med 2012;172:666

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 or drink & avoid obesity
- Stay physically active & socially engaged

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

Mild Cognitive Impairment

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

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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

Sxms at Presentation	Lewy Body Dz % (range)	Alzheimer's % (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

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Dementia: Epidemiology

Etiology

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

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

Evidence of significant 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 functions

Insidious onset & gradual decline in memory and at least one other cognitive domain

Clinical diagnosis - other causes should be excluded

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

Dementia and Agitation: Question #4

VA is a 86y/o with hx of moderate AD in an adult family home with increasing agitation at night including striking at staff and yelling. Which of the following would be least appropriate?

A) Start quetiapine before bedtime

B) Assess for untreated pain

C) Assess for an infection

D) Start sertraline before bedtime

Dementia and Agitation

- Antipsychotics increase mortality, end organ injury, fractures - should be **last resort**
- Agitation often due to unmet need that cannot be vocalized
  - Think about pain or infections
  - Antidepressants can also be helpful
- Caregiver education on behavioral interventions

BMJ 2024 Apr 17; 385:
Curr Psychiatry Rep. 2019 Jul 1;21(8):66

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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 #5: 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 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, TSH, CXR

Further studies as signs/sxms direct

Watchful waiting if w/u unrevealing

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?

Weight Loss in Older Adults

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Antidepressant Choices

Question #6: 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

Equal efficacy to SSRIs (superior early for vegetative symptoms)

Sedating
lower doses
Appetite stimulant

} **↑effect at**

Weight Gain RR 3.8 compared to SSRI

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

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

Antidepressant Choices

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Falls: Epidemiology quick hitters

What % of older adults 65+ fall each year?

- **10%**
- **33%**
- **50%**
- **75%**

Falls: Epidemiology quick hitters

What % of older adults 65+ fall each year?

- **10%**
- **33%** & **falls** — **½ of these have multiple falls risk recurrent falls 2x ↑if hx**
- **50%**
- **75%**

Falls: Epidemiology quick hitters

What % of falls result in serious injury, eg fx?

- **< 5%**
- **10%**
- **20%**
- **33%**

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

Fall Risk Factors

Q#7: 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

Fall Reduction - An approach

1. Gait assessment
2. Medication review (STOPPFall)
3. Assess risk factors for:
    a. Cardiovascular causes
    b. Cognitive impairment
    c. Parkinson's disease and related
4. Physical interventions (Tai Chi, home safety)

J Am Geriatr Soc . 2024 Jun;72(6):1669-1686.

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Calcium & Vitamin D

Q#8: 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 2000IU

Calcium & Vitamin D

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

A. Stop HCTZ

B. Timed voids

C. Oxybutynin

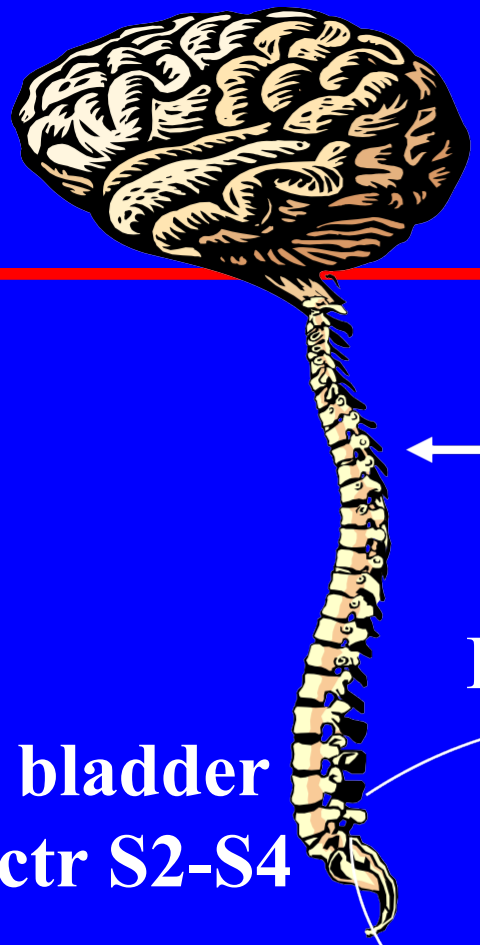
D. Reduce water intake

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

Sacral bladder
reflex ctr S2-S4

Parasymp
ach

detrusor

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

- **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

- **oxybutynin (ditropan) – short/long acting & patch**
- **tolterodine (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

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A. Stop HCTZ

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Question 10

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 - 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?

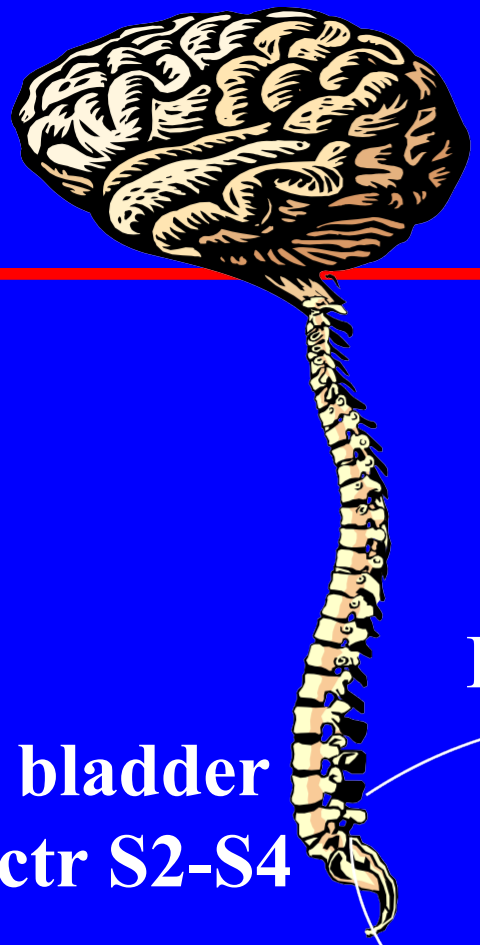
A) New use of **loratadine 10mg**

B) Inadequate **dose of doxazosin**

C) New use of **chlorpheniramine/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 → 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

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Answer Key: Geriatric Board Review Questions

1. B
2. A
3. B
7. D
8. C
9. B
10. C