Update in Geriatric Medicine
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Geriatric Topics to be Reviewed
1. Screening in older adults
2. Falls
3. Osteoporosis
4. Delirium
5. Medications
6. Urinary Incontinence
7. Dementia

Projected US Population Aged 65 and Older 2010-2050 in Millions

- By age 75, growing disparity in “biological” age among women of same chronological age:
  - 25% live an average of 6.8 more years
  - 50% live an average of 11.9 more years
  - 25% live an average of 17 more years.
1. Health Screening in Older People

- When should we stop getting mammograms?
- S
- Do I need a colonoscopy?
- Do I have to get a flu shot?

U.S. Preventative Services Task Force “USPSTF”

- Establishes critical standards for reviewing preventive interventions
- Rates the evidence for and against interventions
- Provides recommendations that are based on the weight of the evidence
- A high standard of evidence is particularly important for asymptomatic persons if the intervention has potential to do harm

USPSTF Grading of Evidence for Screening in Periodic Health Exam

- “A” Good evidence : Strongly recommends
- “B” Fair evidence: Recommends
- “C” Poor evidence: No evidence for or against
- “D” Fair evidence to recommend against
- “I” Insufficient evidence to recommend for or against

Deciding when to discontinue specific interventions requires individual discussion of potential risks and benefits. This should be documented.

Breast Cancer Screening: Mammography

- **USPSTF: “B” Grading (update 12/09)**
  - Recommends biennial screening for women age 50 to 74
  - Evidence lacking to recommend for or against however after age 70 (Grade I)
- **AGS**
  - annual or biennial mammography until age 75
  - biennially or at least every 3 years with no upper age limit for woman with life expectancy of at least 4 or more years
### Breast Cancer Screening: Clinical Breast Exam
- **USPSTF “D” Grading (Updated 12/09)**
  - Was an “I” recommendation (2002)**
- Indirect evidence that CBE detects substantial # of cases if only screening test
- Consider doing annual breast exam regardless of age, especially in those choosing against mammograms

### Colorectal Cancer Screening
- **American Cancer Society**
  - Total colon exam every 10 years or
  - FOBT yearly/ Sigmoidoscopy every 5 yrs
- **USPSTF “A” Grade Age 50-75 (Update 2008)**
  - Annual FOBT and periodic sigmoidoscopy or colonoscopy in adults beginning at age 50
- **USPSTF “C” Grade Age 76-85**
  - Recommends against routine screening unless considerations support
  - Questions of whether colonoscopy decreases mortality
- **USPSTF “D” Grade Age 85**

### Cervical Cancer Screening
- **USPSTF Grade “A”** for women sexually active with cervix without adequate screening (update 2003)
- **USPSTF “D” Grading**
  - recommends the cessation of screening at age 65 if two normal previous tests and not at high risk for cervical CA
  - Low yield in ≥65 due to declining incidence after middle age
  - ACP supports this
- **USPSTF “D” Grade** if complete hysterectomy for benign disease
- **AGS**
  - Pap smears every 1-3 years until age of 70, stop if normal

### Prostate Cancer Screening
USPSTF Men over 75 “D” Grade
- Adequate evidence that the incremental benefits of treatment for prostate cancer detected by screening are small to none for this population of men ≤ 10 years life expectancy
- The potential harms outweigh any benefits.
- Screening is associated with complications: erectile dysfunction, urinary incontinence, bowel dysfunction and death.

### Hypertension Screening
- **USPSTF “A” Grade (update 12/07)**
  - Should occur at each visit or every one to two years in all elderly normotensive persons who are candidates for active medical treatment
  - Hype study (2008): Treatment is beneficial and is associated with reduced risks of death from stroke, death from any cause, and heart failure
- **ACP**
  - Every 1 to 2 years and with office visits

### Screening for Other Diseases
Screening Dyslipidemia

- USPHTF (Update June 2008)
  - “A” Grade: Men aged 35 and older
  - “A” Grade: Women aged 45 and older increased risk
- No age to stop screening
  - Repeat screening less important once done
- Older adults may have greater absolute benefit from treatment compared to younger adults

Abdominal Aortic Aneurysm Screening

- USPSTF “B” Grade for one-time screening for AAA by ultrasonography in men aged 65 to 75 who have ever smoked (Update 2005)
  - Screening and surgical repair of large AAAs (5.5 cm or more) in men aged 65-75 who ever smoked leads to decreased AAA-specific mortality
  - Performed in an adequate setting

Abdominal Aortic Aneurysm Screening

- USPSTF “C” Grade: no recommendation for or against screening for AAA in men aged 65 to 75 who have never smoked.
- USPSTF “D” Grade recommends against screening in women

Diabetes Type II in Adults with Risk Factors

- USPSTF “B” Grading (Update 12/2009)
  - Recommends screening for diabetes mellitus in adults with hypertension and/or hyperlipidemia
  - Medicare reimburses for these screening tests
- USPSTF “I” Grade for screening for DM2 in asymptomatic adults BP < 135/80
  - Screening is part of an integrated approach to reducing CV risk in those older adults with risk factors

Osteoporosis Screening

- USPSTF “B” Grade for Women ≥65 (Update January 2011):
  - Recommends screening in women ≥65 as well as in younger women whose fracture risk is equal or greater than that of a 65 year old white woman who has no additional risk factors
  - The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of screening for osteoporosis in men. Grade “I”

Dementia Screening

- USPSTF concludes routine screening for dementia is an “I” rating (Update 2003)
- Clinicians should assess cognitive function whenever cognitive impairment or deterioration is suspected, based on direct observation, patient report or concerns raised by family members, friends or caregivers
Mini-Cog

- In the Mini-Cog, the patient is told three items (such as apple, table, and penny).
- Repeat back and remember those three items.
- Draw a clock face with numbers, draw hands of the clock to indicate a certain time, such as 10:50.
- After the patient has drawn the clock face, asked to repeat back the three items.
- The test is scored as follows:
  - Recall of 0 items indicates dementia.
  - Recall of 1-2 items with an abnormal clock face indicates dementia.
  - Recall of 1-2 items with a normal clock face indicates no dementia.
  - Recall of all 3 items indicates no dementia.

Immunizations and Prophylaxis

IMMUNIZATIONS AND PROPHYLAXIS

CDC Advisory Committee on Immunization Practices (ACIP)
& USPSTF Recommendations

Immunizations: Influenza

Annual Influenza Vaccinations for all those aged 65 and older is widely recommended.

Immunizations: Pneumococcal

- Recommends for all persons age 65 or older and many persons under 65 with comorbid conditions or risk factors.
- 23 valent vaccine use.
- If > 5 years has elapsed since first dose and patient is under 65, repeat vaccine.
- New vaccine prevnar 13 vaccine FDA Approved 50 years and older.

Immunizations: Tetanus, Acellular Pertussis, Diphtheria

- Updated October 2010, ACIP recommended expanded use of Tdap.
- If never received it, receive 2 doses 1-2 months apart with booster 6 months later.
- Neurological or hypersensitivity reaction is an absolute contraindication.
- Over 50% of cases of tetanus per year occur in elderly.
- If contact with infant 12 months or younger single dose.

2. Falls

- One out of three adults age 65 and older falls each year.
- Among adults 65 or older, falls are the leading cause of injury death.
- Most common cause of nonfatal injuries and hospital admissions for trauma.
- Over 90% of hip fractures are caused by falls.
- 10-20% excess mortality after hip fracture.
Causes of Falls-Multifactorial

- Muscle weakness
- Sensory loss
- Cerebral microvascular disease
- Peripheral neuropathy
- Orthostatic hypotension (post-prandial, drugs)
- Dehydration
- Arthritis (spinal stenosis, arthritis)

Gait Evaluation

“Get Up and Go”
- Stand from chair without using hand
- 20 foot walk
- 360 degree turn

Watch for:
- Shuffle: Parkinsons
- Ataxic: Cerebellar
- Petit-Pas (short step upright, nl arm swing CVD)
- Foot drop: Peroneal
- Sensory: Neuropathy
- Hemiparetic: stroke
- Pain: arthritis

Interventions to Prevent Falling in Older Adults: Review for the U.S. Preventive Services Task Force


Michael, et al

Background

- 30%-40% of community-dwelling persons >65 y.o. fall at least once per year
- Falls were the leading cause of fatal and nonfatal injuries among people >65 y.o.
- In 2000, cost for these injuries was $19 billion
- This is an evidence based review of the benefits and harms of outpatient interventions to prevent falls in older adults for the U.S. Preventive Services Task Force

The Study

- Reviewed 3423 abstracts and 638 articles to identify RCTs of primary care interventions among community-dwelling older adults that reported falls or fallers as an outcome
- Tried to answer:
  1. Do interventions reduce falls?
  2. Are there adverse effects with these interventions?
Interventions grouped into 5 main categories:
1. Multifactorial assessment and management (h/o falls, med use, visual acuity, chronic med conditions, home environment, gait/balance assessment, strength)
2. Single clinical treatment (Vitamin D, vision correction, medication management)
3. Education or behavioral counseling
4. Home-hazard modification
5. Exercise or physical therapy

Results
- Exercise or physical therapy interventions and vitamin D supplementation > 700 I.U. reduce the risk for falling among community-dwelling older adults (but not a single large oral dose of Vit D 500,000 IU)
- Vision correction did not help, and multifocal lens use showed increase in falls

Results, cont
- Multifactorial clinical assessments with comprehensive managements of identified risk factors reduce the risk for falling by a small amount which was not statistically significant.
- Med assessment and withdrawal alone did not lead to reduced fall rate
- Home assessment (adding nonslip tape to rugs, grab bars) showed decreased falls in only 1 study

Vitamin D Reduces Falls
BMJ 2009; 339:b3692 Bischoff-Ferrari, Dawson-Hughes, et.al:
- Mean age 80
- Vitamin D in doses of 700 IU to 1000 IU/day reduced falls by 19%
- Doses < 700 IU/day did not prevent falls
- Vitamin D has direct effects on muscle strength due to specific vitamin D receptors in human muscle tissue

Conclusions
- USPSTF in its draft recommends:
  - Exercise or physical therapy has moderate net benefit in preventing falls in older adults
  - Vitamin D >700 I.U. has moderate net benefit
  - Multifactorial risk assessment w/management of risks has a small net benefit in preventing falls in older adults
  - Multifocal lens shows increased falls

Falls
- The USPSTF recommends exercise or physical therapy and vitamin D >700 I.U. supplementation to prevent falls in community-dwelling adults aged 65 years or older who are at increased risk for falls. Grade: B Recommendation
Falls

- The USPSTF does not recommend automatically performing an in-depth multifactorial risk assessment to prevent falls in community-dwelling adults aged 65 years or older because the likelihood of benefit is small. Grade: C Recommendation

3. Osteoporotic Fractures

- After age 60, lifetime risk of vertebral fracture is 16% in women, 5% in men
- Lifetime risk of hip fracture is 17% in women, 6% in men
- Adults who sustain a fracture are 50-100% more likely to have another fracture
- 10-20% excess mortality after hip fracture
- Only 50% can resume walking after hip fx
- Vertebral fx-pain, kyphosis, poor body image

Osteoporotic Rib Fractures in Older Men
BMJ 2010;340c1069 (March 15, 2010)
Barrett-Connor et al

- Incidence of rib fractures (R.F.) was 3.5/1000 person/years
- 24% of all non-spine fractures were R.F.
- Risk factors were age >80, low bone density, and history of rib fractures
- H/O rib fracture increased the risk of rib, hip and wrist fracture by 2-fold
- Only 14/82 were treated with bone specific drugs after R.F.
4. Delirium in Older People

- Acute confusional state
- Common, serious, often unrecognized, often preventable
- Serious complications:
  - Increased morbidity, mortality, functional and cognitive decline, institutionalization
  - Caregiver burden

**DSM-IV Criteria for Delirium**

- Disturbance in consciousness with reduced attention
- Change in cognition (memory deficit, disorientation, language deficit)
- Acute onset and fluctuation course
- Evidence of underlying medical etiology
- Can be hypoactive (lethargy, more common in elderly 75%, higher mortality) or hyperactive (agitated)

**CONCLUSION**

- Inouye, SK. Ann Intern Med 1990;113:941-8

1. Acute onset and fluctuating course
2. Inattention
3. Disorganized thinking
4. Altered level of consciousness

**CONFUSION ASSESSMENT METHOD**

- Inouye, SK. NEJM 2006;354:11157-65

**Comparison of Delirium and Dementia**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Delirium</th>
<th>Dementia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onset</td>
<td>Abrupt</td>
<td>Insidious</td>
</tr>
<tr>
<td>Duration</td>
<td>Hours to days</td>
<td>Months-ys</td>
</tr>
<tr>
<td>Attention</td>
<td>Impaired</td>
<td>Normal</td>
</tr>
<tr>
<td>Consciousness</td>
<td>Fluctuating, decreased</td>
<td>Clear</td>
</tr>
<tr>
<td>Speech</td>
<td>Incoherent</td>
<td>Ordered</td>
</tr>
</tbody>
</table>

**Predisposing Factors**

- Older age, male
- Dementia
- Poor activity level
- Visual, hearing impairment
- Dehydration, malnutrition
- Multiple drugs
- Severely ill, stroke, fracture
Precipitating Factors

• Drugs (sedatives, narcotics, anticholinergics, ETOH or drug withdrawal)
• Stroke
• Environmental (ICU, restraints, bladder catheter, pain)
• Acute illness (infections, hypoxia, anemia, dehydration)
• Surgery

Inouye, SK. NEJM 2006; 354: 11157-65

MEDICATIONS ASSOCIATED WITH DELIRIUM

• Sedative-hypnotics
  - Benzo diazepines (Dolmane, Valium)
  - Barbiturates
  - "Sleepers" (Choral hydrate)
• Narcotics
• Anticholinergics
  - Antihistamines (Benadryl, Atarac)
  - Antispasmodics (Belladonna, Lomotil)
  - Tri cyclic antidepressants
  - Antiarrhythmics (Quinidine, Sotalol)
• Analgesics (Oxicetil, Norpace)
• Cardiac (Digitalis, Lidocaine)
• Antihypertensives (Beta-blockers, Aldomet)
• Miscellaneous
  - B2-blockers
  - Lithium
  - Steroids
  - Anticonvulsants
  - Metoclopramide
  - NSAIDs

Delirium Management

1. CAM (Confusion Assessment Method)
2. Search for underlying cause (review meds, underlying illness or pain, alcohol or drug withdrawal, metabolic workup). Neuroimaging <5% of cases
3. Back rub, warm drink, relaxation tapes
4. If drugs needed (usually for hyperactive), prefer antipsychotics (haloperidol) over benzos, which reduce agitation, but may prolong cognitive deficits

DEdelirium Management PHARMACOLOGIC APPROACHES

Indications: reserved for patients with severe agitation which will:
  1. cause interruption of essential medical treatments (e.g., intubation)
  2. pose safety hazard to patient or staff

Treatment:
• Haloperidol 0.25-0.5 mg po or IM (IV short acting, risk of Torsades)
• Repeat dose Q 30 minutes until patient manageable (maximum haloperidol dose 3-5 mg/24 hours)
• Maintenance: 50% loading dose in divided doses over next 24 hours
• Taper dose over next few days

Sharon Inouye

5. Drug Therapy in Older Adults

• Hospitalizations for adverse drug events (ADE) will likely increase as Americans live longer, have more chronic conditions and take more meds
• Adults >65: 40% take 5-9 meds, 18% take >10

Adverse Drugs & Hospitalizations
• 99,628 emergency hospitalizations for ADE’s in U.S. adults each year 2007-2009
• Nearly half were adults >80
• 2/3 unintentional overdoses (excessive doses or supra-therapeutical drug effects)
• 4 med classes implicated in 67% cases:
  - Warfarin 33%
  - Oral antiplatelets 13%
  - Insulins 13%
  - Oral hypoglycemics 11%
• High risk meds only in 1.2 % admissions
Factors Contributing to Risk of Adverse Drug Effects in Elderly

- Multiple co-existing illnesses
- Polypharmacy (drug-drug interactions)
- Body change with aging (Absorption, Distribution, Metabolism, Excretion)
  - Increased body fat, decreased muscle mass, decreased creatinine clearance

6. Urinary Incontinence

- Highly prevalent, significantly impacts quality of life; very costly
  - Women by age
    - 20-39 7%
    - 40-59 17%
    - 60-79 23%
    - >80 32%
  - Men: 1/3 the rate in women until age 65
  - Nursing home: 60-78%

Comorbidity

- Many changes in lower urinary tract that predispose to stress or urge UI (overactive bladder, dropped pelvic organs)
- But incontinence is not just a Urinary Tract condition

Factors that Cause or Worsen UI

<table>
<thead>
<tr>
<th>Comorbid Disease</th>
<th>Neurological/Psychiatric</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Diabetes</td>
<td>-Stroke</td>
</tr>
<tr>
<td>-CHF</td>
<td>-Parkinson’s disease</td>
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<tr>
<td>-DJD</td>
<td>-Dementia (advanced)</td>
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<tr>
<td>-Sleep apnea</td>
<td>-Depression (severe)</td>
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<tr>
<td>-Severe constipation</td>
<td></td>
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<tr>
<td>Function and Environment</td>
<td></td>
</tr>
<tr>
<td>-Impaired cognition</td>
<td>-Impaired mobility</td>
</tr>
<tr>
<td>-Inaccessible toilets</td>
<td>-Lack of caregivers</td>
</tr>
</tbody>
</table>

Medications that Cause or Worsen UI

- ACEI-cough
- Edema causing: -nifedipine, -amlidipine, -"glitazones"
-"glitazones"
-NSAIDs
-Gabapentin
-Cholinesterase inhibitors

Screen for UI in all Women >65

- “Have you had any problems with bladder or urine control?”
- “Do you ever leak urine when you don’t want to?”
- Must evaluate:
  - Abrupt onset of UI
  - Hematuria
  - Pelvic Pain

Ouslander JG, NEJM 2004;350:786
1. Lifestyle Treatment of UI
   - Caffeine
   - Fluid intake
   - Constipation
   - Smoking
   - Weight loss
     - 47% decrease in UI in obese women losing 17 lbs.
     - Brown JS et al. Diabetes Care 2006;29:385

2. Behavioral Treatment of UI
   - Bladder training: “Mind Over Bladder”
   - 2 Parts:
     1. Void on schedule during day (Start Q2H)
     2. Urge suppression (Feel urge, wait, squeeze quickly, distract yourself, wait, walk to bathroom)
   - Efficacy >35% reduction in urge UI over control
     - 3. Pelvic Muscle Exercises
       - Brown JS et al. Diabetes Care 2006;29:385

3. Drug Therapy
   - Oxybutynin (Ditropan XL, Oxytrol patch, Gelnyque) Worst for dry mouth
   - Tolterodine (Detrol, Detrol XL)
   - Fesoterodine (Toviaz)
   - Trospium (Sanctura)
   - Darifenacin (Enablex) Worst for constipation
   - Solifenacin (Vesicare) "
   - All equally effective; decrease UI by ≈ 70%

7. Dementia
   - Not a specific disease
   - Progressive cognitive impairment severe enough to interfere with social or occupational functioning
   - Changes in personality and behavior are frequently seen
   - Alzheimer’s Disease is most common type of dementia and is the 5th leading cause of death in U.S. for people >65
   - Staging helpful for prognosis, hospice
     - Ruth Kandel

Alzheimer’s Disease Early Stage
   - Insidious onset
   - Gradual progression of sx by report or observing
   - No other cause for decline
   - Mood disorder can be seen
   - Functional decline (managing finances, getting lost)
   - Difficulty learning new information, rapid forgetting
   - Impaired reasoning, visuospatial skills, language

Alzheimer’s Disease Middle Stage
   - More remote
   - Executive dysfunction: problems planning, judgment, abstract thought
   - Apraxia (impaired ability to perform skilled movements despite intact motor function)
   - Agnosia (failure to recognize objects despite intact sensory function)
   - Behavioral problems, functional decline
### Alzheimer’s Disease Late Stage
- Memory severely compromised
- Do not recognize family
- Loss of verbal abilities
- Non-ambulatory
- Incontinent

### Lewy Body Dementia
- 20% of cases of dementia
- Short term memory better preserved
- More impairment of visuospatial skills
- Visual hallucinations
- Falls and syncope
- Depression
- Fluctuations in alertness
- Parkinsonian features

### Vascular Dementia
- 2nd leading cause of cognitive impairment
- Often coexists with Alzheimer’s disease
- Acute onset
- Cardiovascular risk factors (BP, DM, smoking, CAD, TIA, CVA, A fib, cholesterol)

### Workup of Dementia
- Mini-Cog (3 items + clock)
- Folstein Mini-Mental State Exam
- MOCA (Montreal Cognitive Assessment)
- SLUMS (St Louis University)
- B12, TSH, ? Head imaging

### Treatment
- Safety (driving, medication, fall risk, stove)
- Caregiver stress
- Long term planning
- Behavior problems
- Cholinesterase Inhibitors, memantine
  - similar efficacy for all meds
  - modest overall benefit in slowing decline
  - side effects-GI, cramps, nightmares

### Question #1
- The USPSTF recommends which one of the following for breast cancer screening in women ages 50-74:
  a) Annual mammogram
  b) Biennial mammogram with annual clinical breast exam
  c) Biennial mammogram with no clinical breast exam
  d) Annual mammogram with annual breast exam
Answer Question #1

- #3. **USPSTF “D” Grading (Updated 12/09)** for clinical breast exam unless mammograms are no longer being done

Answer #2

B. Lewy body dementia

Question #2

Visual hallucinations are associated with which type of dementia?

- a) Alzheimer’s dementia
- b) Lewy body dementia
- c) Vascular dementia
- d) Dementia of Parkinson’s disease