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How a Comprehensive Geriatric Assessment Can Improve Clinical Outcomes

AUGUST 4TH, 2017

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BOARD CERTIFIED GERIATRIC CLINICAL SPECIALIST

Learning Objectives

Identify at least three factors contributing to the need for specialized assessment of the frail older adult.
List at least three benefits of a geriatric assessment.
List at least three components of a geriatric assessment.
Identify at least three tools used in a geriatric assessment.
Apply at least three components of the geriatric assessment to practice situations in an interdisciplinary setting.
Predictors of Successful Aging

No single commonly-accepted definition

Rowe and Kahn noted that many of the age-related changes historically regarded as “normal” part of aging were instead preventable (Rowe, Kahn, 1987)

Their model of successful aging included:

- Low level of disability
- High cognitive and functional capacity
- Active engagement in life

Predictors of Successful Aging

Others have defined successful aging as:

- Adding life to the years (Havighurst, 1961)
- Getting satisfaction from life (Havighurst, 1961)
- Positive or ideal functioning (Ryff, 1989)
- Having strategies for coping (Fisher, 1992)
- Reaching one’s potential and being at a level of physical, social, and psychological well-being that is pleasing to self and others (Gibson, 1995)
Predictors of Successful Aging

Consistent predictors of successful aging
- Presence of physical functioning, in particular ADL performance
- Absence of hearing problems, arthritis, and disability
- Not currently smoking (never too late to stop)
- Global cognitive functioning
- Greater physical exercise
- Lower systolic blood pressure
- Less severe or absence of depression


Predictors of Successful Aging

Psychological well-being contributes to successful aging when not interrupted by physical or psychiatric disorders
- Aging adults are able to negotiate life changes such as relocation, physical illnesses, and financial strain with little long term impact
- They maintain a strong social support network in most cases
- Personality traits such as resilience and “can-do” attitude seem to protect against negative long term impact when encountering adverse life experiences
I have the wish to die young, but as late in life as possible

GREEK PROVERB

A multi-disciplinary evaluation in which the multiple problems of older persons are uncovered, described, and explained, if possible, and in which the resources and strengths of the person are catalogued, need for services assessed, and a coordinated care plan developed to focus interventions on the person's problems.

1987 NIH CONSENSUS CONFERENCE ON GERIATRIC ASSESSMENT METHODS FOR CLINICAL DECISION-MAKING
Three-step process:
1. Targeting appropriate patients
2. Assessing patients and developing recommendations
3. Implementing recommendations

Domains of the Comprehensive Geriatric Assessment
AMA White Paper on Elderly Health Characteristics Seen in Elderly

- Modified speed of recovery
- Atypical disease presentation
- Altered pharmacokinetics / pharmacodynamics
- Increased susceptibility to drug reactions
- Poor adaptation to environmental change (homeostenosis)

Arch Intern Med 1990; 150:2459-72

AMA White Paper on Elderly Health Common Geriatric Syndromes

- Dementia
- Delirium
- Depression
- Debility
- Malnutrition
- Incontinence
- Falls
- Frailty
- Family stress
- Fecal impaction
- Sleep disorders

Arch Intern Med 1990; 150:2459-72
### Chronic Disease Prevalence, Cost and Physician Use Among Medicare Beneficiaries

<table>
<thead>
<tr>
<th>Number of Chronic Conditions</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4 or more</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of all Medicare beneficiaries</td>
<td>18%</td>
<td>17%</td>
<td>22%</td>
<td>19%</td>
<td>24%</td>
</tr>
<tr>
<td>Average Medicare expenditures</td>
<td>$211</td>
<td>$1,154</td>
<td>$2,394</td>
<td>$4,701</td>
<td>$13,973</td>
</tr>
<tr>
<td>Percentage that sees more than 10 different physicians per year</td>
<td>6%</td>
<td>18%</td>
<td>40%</td>
<td>61%</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Leff et al., Guided Care and the Cost of Complex Healthcare: A Preliminary Report. American Journal of Managed Care 15(8):555-559, 2009

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### Comprehensive Geriatric Assessment

#### Randomized Controlled Trials
- a cost-effective intervention that improves
  - Quality of Life
  - Quality of Health
  - Quality of Social Care

Benefits are most apparent during a transition of care, new onset of an illness or a life transition
### Comprehensive Geriatric Assessment

#### Who needs a CGA?
- Patients with living situations in transition
- Recent development or progression of physical or cognitive impairments
- Individuals with fragmented specialty medical care
- Establishing patient competency and capacity
- In anticipation of medical-legal issues

#### Appropriate Times for This Include
- After hospital discharge
- On an annual or periodic basis
- Home assessment services
- Continuity care

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**American Physical Therapy Association**

**Annual Checkup by a Physical Therapist**

*An annual physical examination to determine health status and identify health risks of individuals in their community.*

**Why Provide an Annual Checkup**

- **Clinics/Benefits:** Physical therapists have the education, experience, and expertise necessary to provide a comprehensive assessment of a client’s overall health status. They can then develop an individualized treatment plan to address any identified health issues.

**Implementing an Annual Checkup**

1. Assess the Annual Checklist Form, Template
2. Determine your referral network
3. Determine how you’ll track results for each checkup
4. Determine payer requirements
5. Practice the checkup visit

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**Continued**

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OK its important...how do I have time to do this on top of my treatment?

• Choose quick, effective, sensitive tools
• Can show continued medical necessity when functional or clinical objective gains (ROM, MMT) are plateauing or even regressing
• Self-administered questionnaires

Who can benefit from a CGA?

Too Healthy
• One or a few medical conditions
• Needing prevention measures only

Appropriate and will Benefit
• Multiple biopsychosocial issues that are likely to respond to treatment
• Disorders that require physical therapy or monitoring

Too Ill to Benefit
• Critically ill or medically unstable
• Terminally ill
• Disorders with no effective treatment
• Dependent in all ADLs
Use of Clinical Judgment vs. Assessment Tools

Physical and Functional Domain
Frailty: What is it and What Causes it?

Definition:
- Vulnerability which precedes disability
- Physiologic decline in multiple body systems marked by loss of function
- Loss of physiologic reserve
- Increased vulnerability to disease and death.

What Causes It?
- Dimensions- physical, social, cognitive, psychological, co-morbidities
- Physiologic correlates:
  - Weakness
  - Fatigue
  - Sarcopenia is likely a key component

Changes in muscle with age

Loss of muscle fibers
Loss of motor neurons at the spinal cord level
Reduction in type II fibers from 60% to 30%
Increased infiltration of muscle with fat
Table 1. Operationalizing a Phenotype of Frailty

<table>
<thead>
<tr>
<th>A. Characteristics of Frailty</th>
<th>B. Cardiovascular Health Study Measure*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shrinking: Weight loss (unintentional)</td>
<td>Baseline: &gt;10 lbs lost unintentionally in prior year</td>
</tr>
<tr>
<td>Sarcopenia (loss of muscle mass)</td>
<td>Grip strength: lowest 20% (by gender, body mass index)</td>
</tr>
<tr>
<td>Weakness</td>
<td>“Exhaustion” (self-report)</td>
</tr>
<tr>
<td>Poor endurance: Exhaustion</td>
<td>Walking time/15 feet: slowest 20% (by gender, height)</td>
</tr>
<tr>
<td>Slowness</td>
<td></td>
</tr>
<tr>
<td>Low activity</td>
<td>Kcals/week: lowest 20%</td>
</tr>
<tr>
<td></td>
<td>males: &lt;383 Kcals/week</td>
</tr>
<tr>
<td></td>
<td>females: &lt;270 Kcals/week</td>
</tr>
</tbody>
</table>

C. Presence of Frailty

Positive for frailty phenotype: ≥3 criteria present
Intermediate or prefrail: 1 or 2 criteria present

Survival curve estimates (unadjusted) over 72 months of follow-up by frailty status at baseline

Exhaustion

**Exhaustion**: Using the CES–D Depression Scale, the following two statements are read.
- I felt that everything I did was an effort
- I could not get going.

The question is asked “How often in the last week did you feel this way?”
- 0 = rarely or none of the time (<1 day)
- 1 = some or a little of the time (1–2 days)
- 2 = a moderate amount of the time (3–4 days)
- 3 = most of the time.

Subjects answering “2” or “3” to either of these questions are categorized as frail by the exhaustion criterion.

Physical Activity

Based on the short version of the Minnesota Leisure Time Activity questionnaire, asking about:
- Walking
- Chores (moderately strenuous)
- Mowing the lawn, raking, gardening
- Hiking, jogging, biking
- Exercise, cycling
- Dancing, aerobics
- Bowling, golf,
- Singles tennis, doubles tennis, racquetball
- Calisthenics, swimming

Kcals per week expended are calculated using standardized algorithm.

This variable is stratified by gender.

- **Men**:
  - Those with Kcals of physical activity per week <383 are frail.
- **Women**:
  - Those with Kcals per week < 270 are frail
Walk Time

Stratified by gender and height (gender-specific cutoff a medium height).

Cutoff for Time to Walk 15 feet criterion for frailty

Men
  ◦ Height < 173 cm > 7 seconds
  ◦ Height > 173 cm > 6 seconds

Women
  ◦ Height < 159 cm > 7 seconds
  ◦ Height > 159 cm > 6 seconds

Grip Strength

<table>
<thead>
<tr>
<th>Gender and BMI</th>
<th>Cutoff for grip strength (Kg) criterion for frailty</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Men</strong></td>
<td></td>
</tr>
<tr>
<td>• BMI &lt; 24</td>
<td>&lt;29</td>
</tr>
<tr>
<td>• BMI 24.1–26</td>
<td>&gt;30</td>
</tr>
<tr>
<td>• BMI 26.1–28</td>
<td>&gt;30</td>
</tr>
<tr>
<td>• BMI &gt; 28</td>
<td>&gt;32</td>
</tr>
<tr>
<td><strong>Women</strong></td>
<td></td>
</tr>
<tr>
<td>• BMI &lt; 23</td>
<td>&lt;17</td>
</tr>
<tr>
<td>• BMI 23.1–26</td>
<td>&lt;17.3</td>
</tr>
<tr>
<td>• BMI 26.1–29</td>
<td>&lt;18</td>
</tr>
<tr>
<td>• BMI &gt; 29</td>
<td>&lt;21</td>
</tr>
</tbody>
</table>
Short Physical Performance Battery

Sequence of Tests

Balance
- Side-by-side stand
- Semi tandem stand
- Tandem Stand

Gait speed over 3 or 4 meters

Chair rise tests
- 5 times sit to stand timed
SCORING:

A. Side-by-side-stand
Hold for 10 sec: □ 1 point
Not held for 10 sec: □ 0 points
Not attempted: □ 0 points
If 0 points, end Balance Tests
Number of seconds held if less than 10 sec: __.__ sec

If participant did not attempt test or failed, circle why:
- Tried but unable 1
- Participant could not hold position unassisted 2
- Not attempted, you felt unsafe 3
- Not attempted, participant felt unsafe 4
- Participant unable to understand instructions 5
- Other (specify) 6
- Participant refused 7

B. Semi-Tandem Stand
Hold for 10 sec: □ 1 point
Not held for 10 sec: □ 0 points
Not attempted: □ 0 points (circle reason above)
If 0 points, end Balance Tests
Number of seconds held if less than 10 sec: __.__ sec

C. Tandem Stand
Hold for 10 sec: □ 2 points
Hold for 3 to 9.99 sec: □ 1 point
Hold for < 3 sec: □ 0 points
Not attempted: □ 0 points (circle reason above)
Number of seconds held if less than 10 sec: __.__ sec

D. Total Balance Tests score: ____________ (sum points)

GAIT SPEED TEST SCORING:

Length of walk test course: Four meters □ Three meters □

A. Time for First Gait Speed Test (sec)
1. Time for 3 or 4 meters: __.__ sec
2. If participant did not attempt test or failed, circle why:
- Tried but unable 1
- Participant could not walk unassisted 2
- Not attempted, you felt unsafe 3
- Not attempted, participant felt unsafe 4
- Participant unable to understand instructions 5
- Other (specify) 6
- Participant refused 7
Complete score sheet and go to chair stand test

3. Aids for first walk: None □ Cane □ Other □

For 4-Meter Walk:
- If time is more than 8.70 sec: □ 1 point
- If time is 6.21 to 8.70 sec: □ 2 points
- If time is 4.82 to 6.20 sec: □ 3 points
- If time is less than 4.82 sec: □ 4 points

For 3-Meter Walk:
- If time is more than 6.52 sec: □ 1 point
- If time is 4.66 to 6.52 sec: □ 2 points
- If time is 3.82 to 4.65 sec: □ 3 points
- If time is less than 3.82 sec: □ 4 points
Patients with poor SPPB scores at hospital discharge (0–4) had a greater risk of rehospitalization or death (odds ratio: 5.38, 95% confidence interval: 1.82–15.9) compared with those with better SPPB scores (8–12).

Patients with early decline in SPPB score after discharge also had steeper increase in activity of daily living difficulty and higher risk of rehospitalization or death over the next year.

Patients with declining SPPB score 1 month after a hospital stay had an adjusted threefold risk of hospitalization or death within 1 year as compared to those with stable or improving SPPB.

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Physical Environment and Social
Home Safety

Home environment assessment and modification is advocated to help prevent falls and optimize success in the home.


HomeFAST

25 yes/no questions

- Flooring
- Furniture
- Lighting
- Bathroom
- Storage and Kitchen
- Stairways and Steps
- Environmental Mobility, Footwear, Pets

The Home Falls and Accidents Screening Tool (HOME FAST)


**Definition:** Home refers to both the inside and outside of a person’s residential property. As the checklist will be used for visits during the day, answers need to consider the same home environment at night.

**FLOORS**

1. Are the walkways free of cords and other clutter?
   - Definition: No cords or clutter (e.g. boxes, newspapers, objects) across or entwining on walkways/doorways. Includes furniture and other items which obstruct doorways, or hallways, items behind doors preventing doors opening fully, raised thresholds in doorways.
   - 1 = Yes  
   - 2 = No

2. Are the floor coverings in good condition?
   - Definition: Carpets/mats lie flat, no tears/not threadbare/no cracked or missing tiles – including coverings on stairs.
   - 1 = Yes  
   - 2 = No

3. Are the floor surfaces non-slip?
   - Definition: Score ‘no’ if lino or tiles are in the kitchen, bathroom or laundry, in addition to any polished floor, or tiles/lino surfaces elsewhere. Can only score ‘yes’ if, in addition to other rooms, the kitchen, bathroom and laundry have non-slip or slip resistant floor surfaces.
Social Factors & Mortality

Multiple studies show association – but how?
- A caring network encourages healthy choices and practices
- A caring network improves adherence to treatments
- Groups or individuals provide actual physical or financial help
- Effects on immune and neuroendocrine function

Social Factors & Mortality

Social integration (attachments to groups) & social support (attachments to people)
- Attendance at church or associations improve function
- Participation in voluntary groups associated with decreased mortality
- Social supports associated with improved health outcomes
  - e.g., better recovery from MI, CVA

Intervention studies: increased self-efficacy (= personal capacity to effect change & control events, i.e. promote 'can do')
- Maintain sense of well-being, able to adapt to stressors
- Disease, disability, spouse illness or death, relocations
- Live longer
- Better health status, better cognitive status
UNPAID CAREGIVING IN AMERICA

Caregiver
Average age of caregivers: 50
Hispanic caregivers have an average age of 43.
Caregivers are typically adult women who are helping one person.

Recipient
Average age of recipient: 77

Where Do They Live?
- 51% in their own home
- 20% with caregiver
- 16% in nursing home
- 5% assisted living
- 2% retirement community

Live less than 20 minutes away from the recipient.

Work Balance

Cost to Caregivers

Two in three caregivers said they made some workplace adjustments due to caregiving in 2009, up from six in ten in 2004.

74% Percentage of caregivers have worked while caregiving.

$450 Billion Informal, unpaid caregivers contributed $450 billion in assistance to adults 55+ in 2003.

8.5 million caregivers in the U.S. 15 years of age and over contribute to this figure.

Housework  Transportation  Groceries

http://blog.aarp.org/2012/12/12/infographic-caregiving-in-america/
Elder abuse is common.

Elder abuse can happen at home.
- 90% of all abusers are family members.
- Most abusers are adult children, spouses and partners.

Elder abuse can also happen in institutions.
- Nursing homes
- Long-term care facilities

Data about elder abuse in hospitals, nursing homes, and other long-term facilities is scarce. But a survey of nursing home staff in the United States suggests that rates may be high.

Many staff members had seen elder abuse or committed it:
- 35% witnessed physical abuse
- 30% committed physical abuse
- 40% committed psychological abuse

But only 4% of elder abuse is reported. Why?

Older people may:
- Feel isolated
- Scared about reporting
- Too disabled or too old
- Fear retaliation

In many countries, older people have nowhere to turn for help — because there are limited systems in place to address elder abuse.

What are the risk factors for committing elder abuse?
- Using or abusing drugs or alcohol
- High stress levels
- Depression
- Lack of social support
- Lack of training in how to care for older people
- Emotional or financial dependence on the older person

What are the risk factors for suffering elder abuse?
Older people with dementia are at special risk.
- As many as 2 out of 3 people with dementia have been abused.

But elder abuse doesn’t only happen to the frail and sick. It can happen to any older person.
Elder abuse is preventable – and everyone has a role to play.

We can help ensure that older people live in safety — without fear of being hurt, exploited, or neglected.

The public can:
- Watch for signs of elder abuse
- Learn how to get help and report abuse

Older people can:
- Stay connected to family and friends
- Learn more about their rights
- Use professional services for support where available
- Make sure their financial and legal affairs are in order

Family and informal caregivers can lower their risk of committing abuse by learning ways to cope:
- Get help from family or friends
- Take breaks
- Get support from local health and social services

The health sector can help stop elder abuse in communities, hospitals, and institutions.

There are promising strategies, such as developing:
- Professional awareness campaigns to help health care workers recognize elder abuse
- Caregiver support to reduce stress
- Caregiver training on dementia
- Residential care policies to define and improve standards of care

However, most nations report that they still don’t have formal action plans to address elder abuse. A recent survey of 135 countries found that:
- Only 40% had national plans
- Only 17% had a national survey

We also need more research about elder abuse — its risk factors, consequences, and solutions — especially in low- and middle-income countries.
Visible Signs of Physical Abuse

- Bruising
- Scarring
- Fractures
- Cuts near neck and wrist area
- Black Eyes
- Cowering
- Bleeding Scalp
- Scratches


Behavioral Warning Signs of Physical Abuse

- Withdrawn
- Confused
- Depressed
- Angry
- Frightened
- Feelings of Helplessness
- Anxiety

Visible Signs of Psychological or Emotional Abuse

- Verbal assaults
- Threats
- Intimidation
- Lacking Emotional Support
- Yelling
- Swearing
- Humiliating Remarks
- Disrespect
- Harassment
- Isolation
- Controlling Activities

Behavioral Signs of Psychological or Emotional Abuse

- Depression
- Withdrawal
- Fearful
- Nervous
- Extreme Weight Loss
- Cowering

Visible Signs of Sexual Abuse

Reports of Unwanted Touching
Reporting of Sexual Assault or Battery
Rape
Sodomy
Explicit Photographs


Behavioral Warning Signs of Sexual Abuse

Soreness or Bleeding in the Genital Area
Sudden Change in Behavior
Wanting to be Isolated
Fearful
Depression
Feelings of Helplessness
Anxiety

Visible Signs of Financial Abuse

Unpaid Bills
Threatening to withhold money by caregiver
Unexplained withdrawal of financial resources
Lack of necessities such as clothing, food, or personal items.
Forced signatures of financial documents
Limited access to financial accounts


Behavioral Warning Signs of Financial Abuse

Nervous
Fearful
Depression
Angry
Feelings of helplessness
Disoriented
Confusion

Visible Signs of Neglect

- Untreated medical conditions
- Malnourished
- Dehydration
- Poor Personal Hygiene
- Torn or dirty clothing
- Health or safety hazards in the home
- Poor cleanliness of housing unit

Behavioral Warning Signs of Neglect:

- Memory loss
- Disorientation
- Depression
- Confusion
- Issues with hoarding
- Isolation

**Elder Abuse Screening Test**

This screening test can be used to identify people at risk of elder abuse and may need some help from Adult Protective Services.

- Are you afraid of someone?
- Is someone making you feel unsafe?
- Do you feel lonely?
- Have you been hurt by someone?
- Are you being forced to do things you don’t want to do?
- Do you help someone financially?
- Are you signing forms you do not understand?
- Do you trust your family members or caregiver?

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**Barriers to Disclosure**

Fear
- Love for the abuser
- Lack of/ or impaired understanding
- Shame and/ or guilt
- Unaware of resources/ options
- Acceptance of the abuse or neglect as normal.

Source: Abuse and Neglect of Older Adults - Resource and Training Kit for Service Providers, Health Canada 1994
Trusted Professionals:

- Adult Protective Services (APS)
- Local Police
- Family Physicians
- Clergy
- Healthcare Workers
- Social Workers
- Mental Health Workers (DHHS) Dept. of Health & Human Services
- Shelter Workers
- County Senior Services
- Income and other Support services (SSA)
- Support Groups

What to do:

SPEAK UP!!!!!

If you suspect abuse, neglect or exploitation, call Adult Protective Services

Call any time day or night to make a report. Staff will investigate allegations within 24 hours after the report is received.

If it is an emergency call 911
Cognitive and Mood

AGING VS DISEASE CONTINUUM

- **Normal Aging**
  - Primarily intact cognition, subtle processing speed slowing & less efficient attention & executive reasoning

- **Mild Neurocognitive Disorder**
  - Decline from lifelong abilities in 1 or more areas of thinking + inefficiency in daily activities

- **Major Neurocognitive Disorder**
  - Needs help with daily activities + substantial decline in 1 or more cognitive abilities
Ten communication strategies

Eliminate distractions, i.e. TV or radio
Approach the person slowly and from the front; establish & maintain eye contact
Use short, simple sentences
Speak slowly
Ask one question or give one instruction at a time
Use “yes” or “no” rather than open-ended questions
Repeat messages using the same wording
Paraphrase repeated messages
Avoid interrupting the person; allow plenty of time to respond
Encourage the person to “talk around” or describe the word he/she is searching for

Cognitive and Mood Domains

Common Tools:
- MMSE – Mini Mental State Exam
- SLUMS Test
- SPMSQ (short portable mental status questionnaire)
- Clock Drawing Tasks
- Time and Change Test
- 7 minute screen
- Orientation-Memory-Concentration Test
- Trail making testing
- EXIT-25
Mini-Cog

Step 1: Three Word Registration
◦ Remember these three words “Banana, Sunrise, Chair”

Step 2: Clock Drawing
◦ Say: “Next, I want you to draw a clock for me. First, put in all of the numbers where they go.” When that is completed, say: “Now, set the hands to 10 past 11.”
◦ Move to Step 3 if the clock is not complete within three minutes.

Step 3: Three Word Recall
◦ Ask the person to recall the three words you stated in Step 1. Say: “What were the three words I asked you to remember?”
◦ Record the word list version number and the person’s answers below.
### Trail Making Test - B

<table>
<thead>
<tr>
<th>Average</th>
<th>Deficient</th>
<th>Rule of Thumb</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 secs</td>
<td>&gt; 273 secs</td>
<td>Most in 3 mins</td>
</tr>
</tbody>
</table>

1 > A > 2 > B > 3 > C.....

Time the patient as he or she connects the "trail." If the patient makes an error, point it out immediately and allow the patient to correct it. Errors affect the patient’s score only in that the correction of errors is included in the completion time for the task.

Results for both TMT A and B are reported as the number of seconds required to complete the task; therefore, higher scores reveal greater impairment.

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### Delirium

Delirium is an acute or fluctuating onset of confusion disturbances in attention, disorganized thinking, and/or decline in level of consciousness.

Often reversible with treatment, wax and wane throughout the day.
Delirium Causes

Differential Diagnosis include the following but not limited to:

- Medications
- Infections
- Withdrawal
- Acute metabolic toxins
- CNS pathology
- Hypoxia
- Trauma
- Constipation
- Urinary retention

Most important predisposing factor:
Baseline cognitive impairment

Delirium subtypes

Hyperactive Delirium:
- agitation, aggression, restlessness and hallucinations

Hypoactive Delirium:
- usually sedated, can be un-arousable

Mixed Delirium:
- both hypoactive and hyperactive behavior
Delirium  Predisposing factors

- Advanced age
- Underlying cognitive impairment or dementia
- Hearing and/or visual impairment
- Polypharmacy: benzodiazepines, narcotics, anticholinergics
- Chronic kidney disease (CKD)
- Substance use such as alcohol
- Anesthesia

4-AT test
CAM- Confusion Assessment Method

The Confusion Assessment Method (CAM) Diagnostic Algorithm

Feature 1: Acute Onset or Fluctuating Course
This feature is usually obtained from a family member or nurse and is shown by positive responses to the following questions. Did the patient have difficulty focusing attention, for example, being overly distracted, or have difficulty keeping track of what was being said?

Feature 2: Inattention
This feature is shown by a positive response to the following question: Did the patient have difficulty focusing attention, for example, being overly distracted, or have difficulty keeping track of what was being said?

Feature 3: Disorganized thinking
This feature is shown by a positive response to the following question: Was the patient’s thinking disorganized and incoherent, such as rambling or irrelevant conversation, unclear or illogical flow of ideas, or unpredictable switching from subject to subject?

Feature 4: Altered Level of consciousness
This feature is shown by any answer other than “alert” to the following question: Overall, how would you rate this patient’s level of consciousness? Alert (normal), vigilant (hyperalert), lethargic (drowsy), easily aroused, stupor (difficult to arouse), or coma (unresponsive)?

The diagnosis of delirium by CAM requires the presence of features 1 and 2 and either 3 or 4.

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Symptoms of late-life depression

- Changes in sleep pattern and appetite
- Irritability, restlessness
- Diminished sex drive
- Social withdrawal
- Lack of energy and/or motivation
- Recurrent thoughts of death, suicidal ideation
- Feelings of worthlessness or guilt
- Memory problems and confusion
- Difficulty concentrating and making decisions
- Vague, multiple somatic complaints

CONTINUED
Depression Assessment Tools

Geriatric Depression Scale
- 54-80% sensitivity; 80-93% specificity

CES-D (Center for Epidemiologic Studies – Depression)
- 92% sensitivity; 84% specificity

Yale One Question Depression Screen
- reported with use in VA clinic
- Question: Do you often feel sad or depressed?
- 69% sensitivity; 90% specificity

Hamilton Depression Rating Scale
- less useful, is for following Tx changes than for screening

10% of greater than 65-year-olds have depressive symptoms
1% will have major depressive disorder
Depression is associated with physical decline in community dwelling adults and hospitalized patients

PHQ-9

PHQ-9 score ≥10 had a sensitivity of 88% and a specificity of 88% for major depression

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Medical and Pharmacologic Domains

**Definition**
- More than 5 medications
- More medications than clinically indicated
- Inappropriate prescribing
  - Medication Appropriateness Index (MAI)
  - Beers Criteria Medication List

**Important Risk Factors**
- Age
- Multiple Providers
- Hospitalization
- Increase in medications moving from prescription to over-the-counter
- Increase in herbas and alternative therapies
Consequences of Polypharmacy

1. Non-adherence — increases directly with # of meds
2. Adverse drug events (ADE) — # of medications/polypharmacy is the strongest and most consistent predictor of an ADE
3. Drug-drug interactions — if you take 6 drugs, you have an 80% chance of AT LEAST one drug interaction
4. Increases healthcare utilization and cost — one of every 5 admissions for patients 65 and older is linked to an ADE
5. Geriatric Syndromes — contributes to cognitive impairment, falls, hip fractures, urinary incontinence, disability, and delirium
6. Inappropriate prescribing begets more inappropriate prescribing
7. Mortality — HR of 1.27-2.23 independent of age, comorbidities, functional status, etc.

Medication Appropriateness Index (MAI)

1. Is there an indication for the drug?
2. Is the medication effective for the condition?
3. Is the dosage correct?
4. Are the directions correct?
5. Are there clinically significant drug-drug interactions?
6. Are there clinically significant drug-disease interactions?
7. Are the directions practical?
8. Is the drug the least expensive alternative?
9. Is there unnecessary duplication with other drugs?
10. Is the duration of therapy acceptable?

Clinical Considerations

- Consider new symptom may be a side effect rather than a new diagnosis/disease
- Get an accurate list of meds — include over-the-counter drugs and nutraceuticals
- Does benefit clearly outweigh the risk of an additional med?
- Use non-pharmacologic means whenever possible
- Start low go slow... but get there
- Dose for aging physiology
  - Renal — ↓ GFR, tubular secretion, and blood flow
  - Vₐ changes — ↑ % body fat, ↓ lean body mass and ↓ total body water
- Reassess constantly and stop medications whenever possible
  (Set a precise target of treatment — stop/change medications if not achieved)

Consider appropriateness/interaction of the medication with:

- Competing Risks — life expectancy, comorbidities, prognosis
- Occult physiologic changes — occult disease, CRF, ↓ cognition, ↓ reserves
- Functional Status — ADL/ADL loss, sensory loss, disability
- Support Systems — living situation, caregiver burden, access to care/transportation
- Patient-Centered Care — preferences/expectations, treatment burden
- Geriatric Syndromes — falls, frailty, delirium, dizziness, incontinence
Visual impairment

Prevalence of functional blindness (worse than 20/200)
- 71-74 years = 1%
- > 90 years = 17%
- Nursing home residents = 17%

Prevalence of functional visual impairment
- 71-74 years = 7%
- > 90 years = 39%
- Nursing home residents = 19%

Complains of difficulty with:
- Driving
- Watching TV
- Reading
- Performance of ADLs
Low vision

On the spectrum between normal vision and blindness or near-blindness

Persons with low vision need to be encouraged to maximize the usefulness of remaining vision

- Powerful Glasses
- Handheld or Stand Magnifiers
- Closed Circuit Video Units
- Large Screen Computers
How to test with an Amsler Grid

If the patient needs reading glasses, ask them to wear them while using the Amsler Grid. The grid should be about the same distance from your eyes that any other reading material would be.

Cover one eye, the focus on the dot in the center
Do any of the lines look wavy, blurred or distorted?
All lines should be straight, all intersections should form right angles and all of the squares should be the same size.
Are there any missing areas or dark areas in the grid?
Can you see all corners and sides of the grid?
Don’t forget to test both eyes.

Report any irregularity to eye doctor immediately. You can mark areas of the chart that the client is not seeing properly and have them bring it to the eye exam.

Rosenbaum Near Vision Screener Instructions

The Rosenbaum near vision card is intended to measure near acuity at a distance of 14” (36 cm) from the patient.

Preparation:
- Be sure the Rosenbaum is evenly illuminated.
- Have the patient wear their current Rx (contacts or glasses)

Recommended Process:
1. Occlude the patient’s left eye (to examine the right eye).
2. Starting with the side that has the large ‘95’ on the top, ask the patient to select the smallest line and read out loud each number (E or O,X,O). Challenge the patient to see if they can read the next smallest line correctly until mistakes are made.
3. Document the Snellen (Jaeger or Point) value as appropriate for that line (if read correctly). Record as the right eye.
4. Change which eye is occluded and repeat for the left eye.
5. If the patient cannot read the ‘95’, repeat the process at half the distance and record the results.
6. If they are still unable to read the largest number, see if they can count your fingers at 5 feet, or detect the direction of your hand motion at 2 ft and record the results.
Hearing impairment

Prevalence:
- 65-74 years = 24%
- >= 75 years = 40%

National Health Interview Survey
- 30% of community dwelling older adults
- 30% of >= 85 years are deaf in at least one ear

Can lead to social isolation, perception by others of cognitive decline and depression

Whisper Test
Incontinence and Falls

“Weekly or more frequent urge incontinence was associated independently with an increased risk of falls and non-spine, nontraumatic fractures in older women.

Urinary frequency, nocturia, and rushing to the bathroom to avoid urge incontinent episodes most likely increase the risk of falling, which then results in fractures.

Early diagnosis and appropriate treatment of urge incontinence may decrease the risk of fracture”

Shared Risk Factors for Falls, Incontinence, and Functional Dependence

During 1 year observation of 927 older adults > 72 yo, “urinary incontinence was reported by 16%, at least two falls by 10%, and functional dependence by 20% of participants.

The four independent predisposing factors for the outcomes of incontinence, falling, and functional dependence included:

1. slow timed chair stands (lower extremity impairment)
2. decreased arm strength (upper extremity impairment)
3. decreased vision and hearing (sensory impairment)
4. either a high anxiety or depression score (affective impairment).

There was a significant increase in each of incontinence, falling, and functional dependence as the number of these predisposing factors increased

Other domains to be assessed

Health behaviors
- Tobacco and alcohol use

Social assessments
- Especially elder abuse if applicable

Economic assessment

Health promotion and disease prevention

Values history:
- advanced directives, end-of-life care

Post assessment planning:

Must act upon information
Even monitoring or ceasing treatment is acting upon it
Don’t just think intervention or education (although those are important!)
Prevention, sustained wellness
PRISM AND RIMES!
<table>
<thead>
<tr>
<th></th>
<th>Examples:</th>
<th>Who/What</th>
<th>When</th>
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</thead>
<tbody>
<tr>
<td>Refer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intervene</td>
<td>1. Polypharmacy</td>
<td>1. PCP or pharmacist</td>
<td>ASAP</td>
</tr>
<tr>
<td></td>
<td>2. Weight loss</td>
<td>2. PCP or nutritionist</td>
<td>in 2 weeks</td>
</tr>
<tr>
<td>Monitor</td>
<td>1. Pelvic manual traction for LBP</td>
<td>1. X20° intermittent at 45° BW at 45 degrees pull manually</td>
<td>3x/wk in PT</td>
</tr>
<tr>
<td></td>
<td>2. Pec stretching</td>
<td>2. Manual pec stretch with transition to HEP</td>
<td>3x/wk in PT</td>
</tr>
<tr>
<td>Educate</td>
<td>1. Glasses are lost Blood pressure</td>
<td>1. Did the patient locate them?</td>
<td>Next session</td>
</tr>
<tr>
<td></td>
<td>2. Hx of HTN</td>
<td>2. Hx of HTN</td>
<td>Each PT visit</td>
</tr>
<tr>
<td>Stop</td>
<td>1. No driving until glasses are found!</td>
<td>1. Contact family or community center for transportation arrangements</td>
<td>ASAP</td>
</tr>
</tbody>
</table>
Power vs strength

Strength is the ability to apply a maximum amount of force
The ultimate goal is to increase the amount of weight you can lift for a single repetition (referred to as one rep max or 1RM)
Speed of lifting doesn’t matter

Power is ability to exert force at higher speeds
100# Boulder at the bottom of a hill
- Strength = Slowly methodically pushing the boulder up a hill
- Power = Running full speed ahead and hitting the boulder to get it up the hill

Power found to be a strong predictor of loss of function
- e.g. climbing stairs

Power! Lopes et al 2014

Progressing to power
After an older adult can do 2 sets with good form and no pain
American College of Sports Medicine recommended that healthy elderly people should perform:
- 1 to 3 sets
- light to moderate resistance (40%-60% of 1RM)
- 6 to 10 repetitions
- high-movement velocity

“The power training with high movement speed can activate earlier the fast-twitch motor threshold units, enhancing the initial firing rate in the beginning of muscle contraction.”

Therapy for Functional Decline

Frail:
- Fails chair rise without using arms, or
- Slow 6 meter walk (>10 seconds)

Intervention: 6 month home-based PT to improve function, balance, muscle strength, transfers and mobility vs control education program.

Outcome: change in function score at 3, 7 & 12 months. Intervention significantly slowed functional decline


Exercise Reducing Disability

Systematic Review: What works?
Multicomponent: endurance, flexibility, balance, strength
Duration: 3, 9, 12 mos.
Intensity: 2-3 supervised/week, with/without daily home program


Group-Based Exercises Reduces Fall Risk and is Maintained

98 women, 75-85 with low bone mass.
Interventions: 6 mo resistance or agility training, or general stretching
Primary outcome= fall risk
Fall risk at end of 12 mo
- 43.3% lower with resistance training
- 40.1% lower in the agility-training
- 37.4% lower in the general stretching group

Low-Moderate Vs High-Intensity Progressive Resistance Training in Frail Elders

Measured dose–response to free weight resistance program in 22 NH elders

Low-moderate (LI) & high (HI) of the knee extensor (KE) muscles

Results:

◦ KE strength & endurance, stair-climbing power, and chair-rising time improved in the HI and LI groups

◦ 6-min walk distance improved in HI but not in the LI group

◦ Changes in strength were related to changes in functional outcomes

◦ Strong dose–response relationships between training intensity & strength gains, & between strength gains and functional improvements


“The great secret that all old people share is that you really haven’t changed in seventy or eighty years. Your body changes, but you don’t change at all. And that, of course, causes great confusion.”

~Doris Lessing
Conclusion

A Comprehensive Geriatric Assessment (CGA) has demonstrated usefulness in improving the health status of frail, older patients. Therefore, elements of the CGA should be incorporated into the care provided to these elderly individuals.

CGA is most effective when targeted toward older adults who are at risk for functional decline (physical or mental), hospitalization or nursing home placement. Persons who have impairments in basic or instrumental ADLs

Suffer from a geriatric syndrome (falls, urinary or fecal incontinence, dementia, depression, delirium, or weight loss)

Whose health care utilization patterns indicate a high risk of subsequent hospitalization or nursing home placement

Conclusion

A routine CGA examines, at the very least, a patient's:

- Mobility
- Continence
- Mental Status
- Nutrition
- Medications
- Personal, family, and community resources

CGA requires an interdisciplinary team to conduct medical, functional, and psychosocial assessments, develop a written, comprehensive plan of care, and coordinate the healthcare providers and family members who are responsible for the execution of the plan of care.
Questions?


References


