Management of Common Geriatric Syndromes: Impact of Frailty

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Disclosures

• I do not have any personal or financial relationships to disclose.
• I will not discuss any off label use or investigational use in this presentation.
Objectives

• 1. Define frailty and discuss importance in health care.

• 2. Review prevention and management options.

• 3. Discuss some current geriatric research.
Geriatric Syndromes

- Frailty
- Sensory Loss
- Dizziness
- Syncope
- Nutrition

- Urinary Incontinence
- Wounds
- Falls/ Gait Abnormality
- Dementia/Delirium
- Sleep Disorders
Geriatric Syndromes

- Frailty
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Frailty
Question 1:

What is Frailty?

A) Movie starring Bill Paxton
B) Medical term used to describe a decline in functioning that makes a patient more vulnerable to stressors and that results in adverse events
C) Complex age-related clinical condition
D) All of the above
Answer to Question 1:

What is Frailty?

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B) Medical term used to describe a decline in functioning that makes a patient more vulnerable to stressors and that results in adverse events
C) Complex age-related clinical condition
D) All of the above
FRAILTY

• Increased VULNERABILITY + STRESSOR
  ➔ ADVERSE EVENTS
    ➔ Hospitalizations
    ➔ Falls
    ➔ Increased CG/LTC support
    ➔ Mortality

• Dynamic and potentially preventable
Frailty Assessment

Frailty Phenotype
- Weakness
- Slow Gait Speed
- Low Physical Activity
- Exhaustion
- Weight Loss

Frailty Index
(Sum of health deficits)/(total number of deficits measured)
However...

<table>
<thead>
<tr>
<th>Components</th>
<th>Frailty classification</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>Primary care</td>
</tr>
<tr>
<td>Frailty phenotype</td>
<td>Five items: weight loss, low physical activity, exhaustion, slowness, weakness</td>
<td>Frailty: ≥ 3 items; pre-frailty: 1–2 items; robust: 0 items</td>
</tr>
<tr>
<td>Frailty Index</td>
<td>30 or more accumulated health deficits: scores range from 0 (no deficits) to 1 (all deficits)</td>
<td>Continuous score; suggested cutoff score for frailty &gt;0.25</td>
</tr>
<tr>
<td>Electronic Frailty Index</td>
<td>As for the Frailty Index, with variables derived from routine electronic health records in primary care; also considered to be a case-finding instrument</td>
<td>Severe frailty: score &gt;0.36; frailty: score 0.24–0.36; mild frailty: score 0.12–0.24; fit: score ≤0.12</td>
</tr>
<tr>
<td>Clinical Frailty Scale</td>
<td>Visual and written chart for frailty with nine graded pictures: 1=very fit; 9=terminally ill</td>
<td>Frailty: score ≥5</td>
</tr>
<tr>
<td>FRAIL scale</td>
<td>Five items: fatigue, resistance, ambulation, illness, loss of weight</td>
<td>Frailty: ≥3 items; pre-frailty: 1–2 items; robust: 0 items</td>
</tr>
<tr>
<td>Study of Osteoporotic Fractures frailty criteria</td>
<td>Three items: weight loss, exhaustion, unable to rise from a chair five times</td>
<td>Frailty: ≥2 items; pre-frailty: 1 item; robust: 0 items</td>
</tr>
<tr>
<td>PRISMA-7</td>
<td>Seven self-reported items: age (&gt;75 years), male, social support, and ADLs</td>
<td>Frailty: score ≥3</td>
</tr>
<tr>
<td>Tilburg Frailty Indicator</td>
<td>15 self-reported items in three domains: physical, psychological, and social</td>
<td>Frailty: score ≥5</td>
</tr>
<tr>
<td>Geriatric 8 frailty questionnaire for oncology (G8)</td>
<td>Eight items: function (ADL and IADL), mobility, nutrition, comorbidity, cognition, depression, social support</td>
<td>Frailty: score ≥14</td>
</tr>
<tr>
<td>Groningen Frailty Indicator</td>
<td>15 self-reported items in four domains: physical, cognitive, social, psychological</td>
<td>Frailty: score ≥4</td>
</tr>
<tr>
<td>Short Physical Performance Battery</td>
<td>Three measured items: gait speed, standing balance, and repeated chair stands; each item scored from 0–4, maximum score of 12</td>
<td>Frailty: score ≥9</td>
</tr>
<tr>
<td>Edmonton Frailty Scale</td>
<td>Nine items: cognition, health (2 x), hospitalisation, social support, nutrition, mood, function, continence</td>
<td>Frailty: score ≥7</td>
</tr>
<tr>
<td>Multidimensional Prognostic Index</td>
<td>Eight items: comorbidity, nutrition, cognition, polypharmacy, pressure sores risk, living status, ADL, IADL</td>
<td>Frailty: score &gt;0.66; pre-frailty: score 0.34–0.66; robust: score ≤0.34</td>
</tr>
<tr>
<td>Kihon Checklist</td>
<td>25 dichotomous items in seven categories: physical strength, nutrition, eating, socialisation, memory, mood, and lifestyle; scoring as per the Frailty Index</td>
<td>Continuous score; suggested frailty cutoff score &gt;0.25</td>
</tr>
<tr>
<td>Frailty Risk Score</td>
<td>Formula: (age (per 10 years) × 4 + male sex × 10 + no partner × 5 + body mass index &lt;18.5 kg/m² × 12 + cardiovascular diseases × 4 + diabetes × 4 + number of drugs ≥2 × 5 + EMS &lt;20 × 5 + ADL motor deficit × 4 + ADL process deficit × 7. Also considered to be a case-finding instrument.</td>
<td>Very good: score ≤4; good: score 4.5–50; moderate: score 5.1–55; poor: score 56–61; very poor: score ≥61</td>
</tr>
<tr>
<td>Hospital Frailty Risk Score</td>
<td>109 summed items from ICD-10 frailty-relevant codes from administrative hospital data. Also considered to be a case-finding instrument.</td>
<td>Low risk: score ≤5; intermediate risk: score 5.1–15; high risk: score &gt;15</td>
</tr>
</tbody>
</table>
Question 2:

Which of the following is true about normal aging:

A) Loss of muscle mass
B) Loss of weight
C) Loss of hair
D) Loss of hearing of lower frequency sounds
Answer for Question 2:

Which of the following is true about normal aging:

A) Loss of muscle mass
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C) Loss of hair
D) Loss of hearing of lower frequency sounds
Prevention

- Maintaining muscle mass and strength
- Healthy Diet (Mediterranean)
- Screen for depression
- Decrease risk of comorbidity progression
Mediterranean Diet and Frailty

Treatment

- Exercise
- Diet
- Medication Review
- Treat sensory impairment
- Consider Assistive devices
- Discuss goals of Care

https://go4life.nia.nih.gov/exercise/overhead-arm-raise/
Question 3

What form of exercise has the best evidence for fall prevention?

A) Walking
B) Tai Chi
C) Weight Lifting
D) Yoga
Question 3

What form of exercise has the best evidence for fall prevention?

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Types of Exercise

- Aerobic
  - Swimming
  - Running
  - Cycling
  - Walking
- Resistance Training
  - Weight Lifting
  - Calisthenics
- Balance
  - Tai Chi
  - Tai Ji Quan*
  - Rock Steady Boxing
- Stretching/Flexibility
- Mix
  - Zumba
  - Yoga
  - Pilates
  - Orange Theory

**Exercise and Inpatient Functional Status**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Control Group</th>
<th>Intervention Group</th>
<th>Between-Group Difference (95% CI)</th>
<th>P Value Between Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary End Point: Change in Functional Capacity</strong></td>
<td></td>
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<tr>
<td>SPPB scale (balance, gait ability, leg strength)</td>
<td>0.2 (-0.1 to 0.5)</td>
<td>2.4 (2.1 to 2.7)</td>
<td>2.2 (1.7 to 2.6)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Barthel Index (ADLs)</td>
<td>-5.0 (-6.8 to -3.2)</td>
<td>1.9 (0.2 to 3.7)</td>
<td>6.9 (4.4 to 9.5)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td><strong>Secondary End Points</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cognitive status</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>MMSE</td>
<td>0.3 (-0.1 to 0.6)</td>
<td>2.1 (1.7 to 2.5)</td>
<td>1.8 (1.3 to 2.3)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Depression (GDS)</td>
<td>0.7 (0.4 to 0.9)</td>
<td>-1.3 (-1.7 to -1.1)</td>
<td>-2.0 (-2.5 to -1.6)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>QoL (EuroQol-5D)</td>
<td>-2.2 (-5.8 to 1.3)</td>
<td>11.0 (7.5 to 14.5)</td>
<td>13.2 (8.2 to 18.2)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Incident delirium (CAM), %</td>
<td>8.3</td>
<td>14.6</td>
<td>OR, 1.9 (0.9 to 4.0)</td>
<td>.12</td>
</tr>
<tr>
<td>Handgrip strength, kg</td>
<td>-0.8 (-1.2 to -0.5)</td>
<td>1.5 (1.1 to 1.8)</td>
<td>2.3 (1.8 to 2.8)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Abbreviations: ADLs, activities of daily living; CAM, Confusion Assessment Method; EuroQol-5D, EuroQol Questionnaire-5 Dimensions; GDS, Geriatric Depression Scale; MMSE, Mini-Mental State Examination; OR, odds ratio; QoL, quality of life; SPPB, Short Physical Performance Battery.

*All data, except for CAM, were derived from linear mixed-effects model. For each group, data are expressed as change from baseline (admission) to discharge, determined by the time coefficients (95% CI) of the model. For example, for the SPPB scale, 0.2 corresponds to the coefficient estimated from the model. The between-group difference was determined with time x group interaction coefficient. For CAM, data are the proportion of patients in whom delirium developed.*

*Explanations of scales used are given in the footnotes to Table 1.*

Don’t Forget: Assistive Devices!
Thank You!

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