FRAILTY in the older person: handle with care

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Regional Geriatric Rounds
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Disclosure

- No conflicts of interest to disclose
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Dedication

To our team:
- Nursing
- Allied Health
Objectives

- What is Frailty?
- Why does it matter?
- How do I assess for Frailty?
Advising patients & loved ones

- Offering a treatment
- Benefit versus risk
- Informed consent

- How can we assess prognosis?
RISK

- Heart attack
- Stroke
- Death

Delirium
Immobility
Dependence
Prolonged hospital stay
Unable to return home
RISK

- Heart attack
- Stroke
- Death

- Delirium
- Immobility
- Dependence
- Prolonged hospital stay
- Unable to return home
CHADS\textsubscript{2}

- Risk of stroke in Atrial fibrillation
  - Congestive Heart Failure 1
  - Hypertension 1
  - Age > 75 1
  - Diabetes 1
  - Prior stroke 2
Measuring Risk

- Age

Independent risk factor:
- Heart Disease
- Stroke
- Cancer
- Dementia
- Etc.
BUT...
“He is a good 85.”

“She is an old 69.”

Her cells are old.
Robust versus Frail
While advanced age correlates with frailty it does not equal frailty.
Synonyms for Frailty

- Physiologic age
  [Versus chronological age]

- Vulnerable elders

- At risk elders
Dr. J.C. Brocklehurst

- Concept - 1982
- Rise in publications

Swinne, et al. Age & Aging
Predictors of Frailty

- Extreme age
- Vision loss
- Impaired cognition &/or mood
- Limb weakness
- Abnormities of gait or balance
- Sedative use
- Multiple chronic diseases
What is Frailty?

A physiologic syndrome characterized by decreased reserve and resistance to stressors, resulting from cumulative decline across multiple physiologic systems, and causing vulnerability to adverse outcomes.

- Linda Fried, 2003
Frailty: vicious cycle

More Frailty

Acute Illness  Incomplete Recovery
Frailty: mouse model

IL-10(tm/tm)

Does not express the anti-inflammatory cytokine interleukin 10 (IL-10)

Nature 512, 253 (21 August 2014)
Physiology of Frailty

Fried, LP 2003
Physiologic reserves allow us to maintain homeostasis in the presence of environmental, emotional, or physiological stress.

With homeostenosis, an insult that may be withstood in a younger person pushes the elderly beyond their functional capacity, causing decompensation, disease, or death.
Frailty, Comorbidity, & Disability

Fried, LP 2001
Features of Frailty

- Easily becomes sick  
  [lack of physiologic reserve]

- Progressive  
  [Cycle of Frailty]

- Not illness or disability
Frailty Prevalence

0-11% Older adults

Collard et al, JAGS 2012
Frailty – Window of Opportunity

Ferrucci L. 2002
Frailty Screening & Outcomes

IDENTIFYING factors

Outcomes

Sternberg, SA. JAGS 2011
Ways to Assess Frailty

- Rules based
  - Frailty Phenotype (Fried)

- Index variable
  - CSHA Frailty Index (70 items = x/70)

- Clinical judgement
  - Clinical Frailty Scale (Rockwood)
## Frailty Phenotype

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Criteria for frailty*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight loss</td>
<td>Lost &gt;10 pounds unintentionally last year</td>
</tr>
<tr>
<td>Exhaustion</td>
<td>Felt that everything I did in the last week was an effort or Could not get going in last week</td>
</tr>
<tr>
<td>Slowness</td>
<td>Time to walk 15 ft (cutoff depends on sex and height)</td>
</tr>
<tr>
<td>Low activity level</td>
<td>&lt;270 kcal of physical expenditure (calculated from activity scale incorporating episodes of walking, household chores, yard work, etc.)</td>
</tr>
<tr>
<td>Weakness</td>
<td>Grip strength measured hand dynamometer (cutoff depends on sex and BMI)</td>
</tr>
</tbody>
</table>

- Frail 3-5
- Pre-frail 1-2
- Not frail 0
Frailty Index

<table>
<thead>
<tr>
<th>Head and neck problems</th>
<th>Mood problems</th>
<th>Seizures, generalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and neck problems</td>
<td>Feeling sad, blue, depressed</td>
<td>Syncope or blackouts</td>
</tr>
<tr>
<td>Poor muscle tone in neck</td>
<td>History of depressed mood</td>
<td>Headache</td>
</tr>
<tr>
<td>Bradykinesia, facial</td>
<td>Tiredness all the time</td>
<td>Cerebrovascular problems</td>
</tr>
<tr>
<td>Problems getting dressed</td>
<td>Depression (clinical impression)</td>
<td>History of stroke</td>
</tr>
<tr>
<td>Problems with bathing</td>
<td>Sleep changes</td>
<td>History of diabetes mellitus</td>
</tr>
<tr>
<td>Problems carrying out personal grooming</td>
<td>Restlessness</td>
<td>Arterial hypertension</td>
</tr>
<tr>
<td>Urinary incontinence</td>
<td>Memory changes</td>
<td>Peripheral pulses</td>
</tr>
<tr>
<td>Toileting problems</td>
<td>Short-term memory impairment</td>
<td>Cardiac problems</td>
</tr>
<tr>
<td>Bulk difficulties</td>
<td>Long-term memory impairment</td>
<td>Myocardial infarction</td>
</tr>
<tr>
<td>Rectal problems</td>
<td>Changes in general mental functioning</td>
<td>Arrhythmia</td>
</tr>
<tr>
<td>Gastrointestinal problems</td>
<td>Onset of cognitive symptoms</td>
<td>Congestive heart failure</td>
</tr>
<tr>
<td>Problems cooking</td>
<td>Clouding or delirium</td>
<td>Lung problems</td>
</tr>
<tr>
<td>Sucking problems</td>
<td>Paranoid features</td>
<td>Respiratory problems</td>
</tr>
<tr>
<td>Problems going out alone</td>
<td>History relevant to cognitive impairment or loss</td>
<td>History of thyroid disease</td>
</tr>
<tr>
<td>Impaired mobility</td>
<td>Family history relevant to cognitive impairment or loss</td>
<td>Thyroid problems</td>
</tr>
<tr>
<td>Musculoskeletal problems</td>
<td>Impaired vibration</td>
<td>Skin problems</td>
</tr>
<tr>
<td>Bradykinesia of the limbs</td>
<td>Tremor at rest</td>
<td>Malignant disease</td>
</tr>
<tr>
<td>Poor muscle tone in limbs</td>
<td>Postural tremor</td>
<td>Breast problems</td>
</tr>
<tr>
<td>Poor limb coordination</td>
<td>Intention tremor</td>
<td>Abdominal problems</td>
</tr>
<tr>
<td>Poor coordination, trunk</td>
<td>History of Parkinson disease</td>
<td>Presence of snout reflex</td>
</tr>
<tr>
<td>Poor standing posture</td>
<td></td>
<td>Presence of palpmoment reflex</td>
</tr>
</tbody>
</table>
# Predictive Validity

<table>
<thead>
<tr>
<th>Model</th>
<th>Hazard Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Death</td>
</tr>
<tr>
<td>Rules-based</td>
<td>1.17 (1.13-1.20)</td>
</tr>
<tr>
<td>Frailty Index</td>
<td>1.26 (1.24-1.29)</td>
</tr>
<tr>
<td>Clinical Judgment</td>
<td>1.30 (1.27-1.33)</td>
</tr>
</tbody>
</table>

Rockwood K, et al. CMAJ. 1994
Clinical Frailty Scale

1 Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2 Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3 Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4 Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”, and/or being tired during the day.

5 Mildly Frail – These people often have more evident slowing, and need help in high order ADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6 Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.

7 Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).

8 Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9 Terminally III – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.

Rockwood, K. CMAJ 2005
Frailty & Prognosis

- Based on the Clinical Frailty Scale Scores
  - 1 – Very fit
  - 7 – Severely Frail

- Probability of Survival

- Avoidance of institutionalization

Rockwood, K 2005
Frailty & Prognosis

- Predicts clinically relevant outcomes
  - Incident disability
  - Death Rate

- Predictive value is *independent* of:
  - Co-morbidity
  - Disability
  - Disease specific severity indices

Rockwood, K. Canadian Study of Health & Aging (CSHA), 2005
Assessing Frailty
Frailty Assessment

4 Components
- Mobility
- Social
- Function
- Cognition
## Frailty: Mobility (1-5)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>Thriving / Well</td>
</tr>
<tr>
<td>3</td>
<td>Normal Aging</td>
</tr>
<tr>
<td>4</td>
<td>Vulnerable</td>
</tr>
<tr>
<td>5</td>
<td>Mild</td>
</tr>
<tr>
<td>6</td>
<td>Moderate</td>
</tr>
<tr>
<td>7</td>
<td>Severe</td>
</tr>
<tr>
<td>8</td>
<td>Very Severe</td>
</tr>
</tbody>
</table>

### 1-2 Thriving / Well
- Fit, Exercises regularly

### 3 Normal Aging
- Active, Occasional exercise

### 4 Vulnerable
- Starting to slow down and often tired during the day

### 5 Mild
- Walking slower and regularly uses (or needs to use) a cane or walker

### 6 Moderate
- ...

### 7 Severe
- ...

### 8 Very Severe
- ...
Frailty Assessment: Mobility
# Frailty: Mobility (6)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Moderate</td>
<td>Needs help of another person when going up/down stairs, walking on uneven ground, or getting in/out of bath or Has fallen more than once in the past 6 months, excluding slip on ice</td>
</tr>
<tr>
<td>7 Severe</td>
<td>...</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>...</td>
</tr>
</tbody>
</table>
# Frailty: Mobility (7-8)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Severe</td>
</tr>
<tr>
<td></td>
<td>Always need someone’s help or supervision when walking or Unable to propel self in manual wheelchair</td>
</tr>
<tr>
<td>8</td>
<td>Very Severe</td>
</tr>
<tr>
<td></td>
<td>Bed bound, unable to participate in transfers</td>
</tr>
</tbody>
</table>
Frailty Assessment: Social

Everything is worse when faced alone.
<table>
<thead>
<tr>
<th>Frailty Level</th>
<th>Social Functionality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Thriving / Well</td>
<td>In charge of organizing social event</td>
</tr>
<tr>
<td>3 Normal Aging</td>
<td>Socializes weekly &amp; would have a caregiver if needed</td>
</tr>
<tr>
<td>4 Vulnerable</td>
<td>Socializes less than weekly or might not have a caregiver if needed</td>
</tr>
<tr>
<td>5 Mild</td>
<td>Socializes rarely</td>
</tr>
<tr>
<td>6 Moderate</td>
<td>Mostly house-bound &amp; might have a caregiver if needed</td>
</tr>
<tr>
<td>7 Severe</td>
<td>...</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>...</td>
</tr>
</tbody>
</table>
Frailty: Social (7-8)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Severe</td>
<td>House-bound &amp; isolated; with caregiver stress or no caregiver available</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>Unable to participate in any social exchange, even when visited</td>
</tr>
</tbody>
</table>
Frailty Assessment: Function
## Frailty: Functional (1-4)

<table>
<thead>
<tr>
<th>Frailty Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Thriving / Well</td>
<td>Still working at job or high level hobby</td>
</tr>
<tr>
<td>3 Normal Aging</td>
<td>Subjective impairment (i.e., Does everything on own but finds things more difficult)</td>
</tr>
<tr>
<td>4 Vulnerable</td>
<td>Not dependent on others but symptoms often limit activities</td>
</tr>
<tr>
<td>5 Mild</td>
<td>...</td>
</tr>
<tr>
<td>6 Moderate</td>
<td>...</td>
</tr>
<tr>
<td>7 Severe</td>
<td>...</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>...</td>
</tr>
</tbody>
</table>
**Frailty: Functional (5-6)**

<table>
<thead>
<tr>
<th></th>
<th>Needs help with some instrumental activities of daily living (IADLs) (e.g., Housework, banking or medications)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Mild</td>
<td>Needs help with some instrumental activities of daily living (IADLs) (e.g., Housework, banking or medications)</td>
</tr>
<tr>
<td>6 Moderate</td>
<td>Needs assistance or dependence for IADLs &amp; cueing with basic activities of daily living such as dressing (e.g., Help choosing what to wear)</td>
</tr>
</tbody>
</table>
Frailty: Functional (7-8)

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Severe</td>
<td>Needs hands on help with BADLs (bathing, toileting, dressing)</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>Dependent for all aspects of daily life</td>
</tr>
</tbody>
</table>
Dementia: the X factor

- Common & incurable
- Under-recognized\(^1\) (missed \(\geq 75\%\))
- Predicts adverse outcomes\(^2\)
  - Many patients never fully recover from delirium\(^3\)
  - Delirium \(\rightarrow\) worsening dementia, death, LTC\(^4\)
- Interventions can worsen quality of life\(^5-7\)
- Dementia \(\Delta\) how/who of decision making & care planning

Frailty Assessment: Cognition
## Frailty: Cognitive (1-6)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 Thriving / Well</td>
<td>Thriving: impresses others with memory and thinking</td>
</tr>
<tr>
<td>3 Normal Aging</td>
<td>Normal aging: minor concerns</td>
</tr>
<tr>
<td>4 Vulnerable</td>
<td>Vulnerable: minor deficits on testing</td>
</tr>
<tr>
<td>5 Mild</td>
<td>Vague/incorrect recall of current events, can recall name of US president</td>
</tr>
<tr>
<td>6 Moderate</td>
<td>Incorrect recall of US president, can recall name of children/spouse No collateral present</td>
</tr>
</tbody>
</table>
### Frailty: Cognitive (7-8)

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 Severe</td>
<td>Vague/incorrect recall of children/spouse</td>
</tr>
<tr>
<td>8 Very Severe</td>
<td>Limited language skills with &lt; 10 words verbalized</td>
</tr>
</tbody>
</table>
PaTH Model of Care

- Created by 2 Geriatricians
  - Dr. Laurie Mallery
  - Dr. Paige Moorhouse
- Dalhousie University
- Halifax NS
- www.pathclinic.ca
### PATH in Action

| Encounter 1 | **Understand** Overall health status |
| Encounter 2 | **Communicate** Provide detailed information to patients &/or family |
| Encounter 3 | **Empower** The patient/family to make informed decisions beyond the clinic |
PaTH: Service Provided (n = 150)

Moorhouse, P & Mallery, L. JAGS 2012
PATH: Health Services Utilization

Decision Outcomes for Scheduled Treatments

- **Cardiac Surgery**: n = 53
  - Proceeded: 16%
  - Declined: 75%
  - Unsure: 9%

- **Other Surgery**: n = 11
  - Proceeded: 16%
  - Declined: 75%
  - Unsure: 9%

- **Hemodialysis**: n = 10
  - Proceeded: 16%
  - Declined: 75%
  - Unsure: 9%

- **Other Procedure**: n = 3
  - Proceeded: 16%
  - Declined: 75%
  - Unsure: 9%

71 patients had 77 procedures scheduled at the time of PaTH consultation.
Participant Experience

- Patients & caregivers / SDM
  - Very high patient and caregiver satisfaction
- Themes identified:
  - Service not provided elsewhere
  - Confidence in decisions
  - Discovery that there are options beyond aggressive medical interventions
  - Someone to call if needed
The case so far...

- Frailty shows predictive validity

- It is feasible to measure in clinical settings
  - Outpatient, inpatient, pre-op, pre-dialysis, LTC

- Once recognized it offers opportunities for targeted programs to align care plan with prognosis

- PaTH is one model:
  - Appropriate decisions, with high satisfaction
  - Better, less costly care
In Ottawa

- We are hoping to bring the PaTH Model of care to our patients
- Support for Frail – AT RISK patients
- Support for Clinicians & Teams caring for this population
Helping us move...

Frustrating

SATISFYING
Nursing & Allied Health

- You have a big role to play:
  - Assessing
  - Managing
  - Preventing
  - Educating

CARING
Thank you!

- Any questions?
- rellen@ottawahospital.on.ca