

Management of Common Geriatric Syndromes: Impact of Frailty

Katherine Lott DO

November 1, 2019

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
- Sensory Loss
- Dizziness
- Syncope
- Nutrition
- Urinary Incontinence
- Wounds
- Falls/ Gait Abnormality
- Dementia/Delirium
- Sleep Disorders

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?

- 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**

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...

Dent et al. "Management of frailty: opportunities, challenges, and future directions" Lancet 2019; 394: 1376–86

	Components	Frailty classification	Setting		
			Primary care	Hospital	Long-term care facility
Frailty phenotype ²	Five items: weight loss, low physical activity, exhaustion, slowness, weakness	Frailty: ≥3 items; pre-frailty: 1-2 items; robust: 0 items	Yes	Yes	Yes
Frailty Index ^{23,24}	30 or more accumulated health deficits: scores range from 0 (no deficits) to 1 (all deficits)	Continuous score; suggested cutoff score for frailty >0.25 ²⁴	Yes	Yes	Yes
Electronic Frailty Index ²⁵	As for the Frailty Index, with variables derived from routine electronic health records in primary care; also considered to be a case-finding instrument	Severe frailty: score >0.36; frailty: score >0.24-0.36; mild frailty: score >0.12-0.24; fit: score ≤0.12	Yes	No	No
Clinical Frailty Scale ²⁶	Visual and written chart for frailty with nine graded pictures: 1=very fit; 9=terminally ill	Frailty: score ≥5	Yes	Yes	Yes
FRAIL scale ²⁷	Five items: fatigue, resistance, ambulation, illness, loss of weight	Frailty: ≥3 items; pre-frailty: 1-2 items; robust: 0 items	Yes	Yes	Yes
Study of Osteoporotic Fractures frailty criteria ²⁸	Three items: weight loss, exhaustion, unable to rise from a chair five times	Frailty: ≥2 items; pre-frailty: 1 item; robust: 0 items	Yes	Yes	No
PRISMA-7 ²⁹	Seven self-reported items: age (>85 years), male, social support, and ADLs	Frailty: score ≥3	Yes	No	No
Tilburg Frailty Indicator ³⁰	15 self-reported items in three domains: physical, psychological, and social	Frailty: score ≥5	Yes	No	No
Geriatric 8 frailty questionnaire for oncology (G8) ³¹	Eight items: function (ADL and IADL), mobility, nutrition, comorbidity, cognition, depression, social support	Frailty: score ≤14	No	Yes	No
Groningen Frailty Indicator ³²	15 self-reported items in four domains: physical, cognitive, social, psychological	Frailty: score ≥4	Yes	No	No
Short Physical Performance Battery ³³	Three measured items: gait speed, standing balance, and repeated chair stands; each item scored from 0-4, maximum score of 12	Frailty: score ≤9	Yes	No	No
Edmonton Frailty Scale ³⁴	Nine items: cognition, health (2 x), hospitalisation, social support, nutrition, mood, function, continence	Frailty: score ≥7	No	Yes	No
Multidimensional Prognostic Index ³⁵	Eight items: comorbidity, nutrition, cognition, polypharmacy, pressure sore risk, living status, ADL, IADL	Frailty: score >0.66; pre-frailty: score 0.34-0.66; robust: score <0.34	Yes	Yes	No
Kihon Checklist ³⁶	25 dichotomous items in seven categories: physical strength, nutrition, eating, socialisation, memory, mood, and lifestyle; scoring as per the Frailty Index	Continuous score; suggested frailty cutoff score >0.25	Yes	Yes	No
Frailty Risk Score ³⁷	Formula: age (per 10 years) × 4 + male sex × 10 + no partner × 5 + body mass index <18.5 kg/m ² × 12 + cardiovascular disease × 4 + diabetes × 4 + number of drugs ≥2 × 5, EMS <20 × 5 + ADL motor deficit × 4 + ADL process deficit × 7. Also considered to be a case finding instrument.	Very good: score <45; good: score 45-50; moderate: score 51-55; poor: score 56-61; very poor: score >61	No	Yes	No
Hospital Frailty Risk Score ³⁷	109 summed items from ICD-10 frailty-relevant codes from administrative hospital data. Also considered to be a case finding instrument.	Low risk: score <5; intermediate risk: score 5-15; high risk: score >15	No	Yes	No

EMS=Elderly Mobility Scale. ADL=activities of daily living. IADL=instrumental activities of daily living. ICD-10=International Statistical Classification of Diseases and Related Health Problems, 10th revision. Derived and modified from Dent and colleagues, 2016.³⁷

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**
- B) Loss of weight
- 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

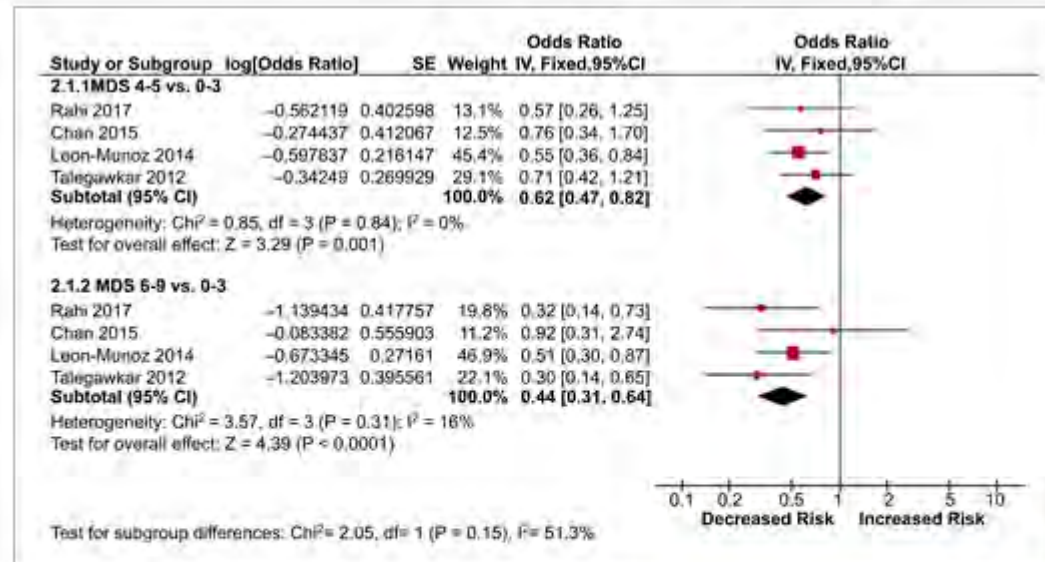


Figure 2

[Open in figure viewer](#) | [PowerPoint](#)

Forest plots of incident frailty risk according to Mediterranean diet score (4-5 vs 0-3; 6-9 vs 0-3).

Kojima, G., Avgerinou, C., Iliffe, S. and Walters, K. (2018), Adherence to Mediterranean Diet Reduces Incident Frailty Risk: Systematic Review and Meta-Analysis. *J Am Geriatr Soc*, 66: 783-788. doi:[10.1111/jgs.15251](https://doi.org/10.1111/jgs.15251)

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?

- A) Walking
- B) Tai Chi**
- C) Weight Lifting
- D) Yoga

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

* Li F, Harmer P, Fitzgerald K, et al. Effectiveness of a Therapeutic *Tai Ji Quan* Intervention vs a Multimodal Exercise Intervention to Prevent Falls Among Older Adults at High Risk of Falling: A Randomized Clinical Trial. *JAMA Intern Med.* 2018;178(10):1301–1310. doi:10.1001/jamainternmed.2018.3915



<https://tjqmbb.org/>

Exercise and Inpatient Functional Status

Table 2. Results of Primary and Secondary End Points by Group^a

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

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

^a 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 × group interaction coefficient. For CAM, data are the proportion of patients in whom delirium developed.

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

Martínez-Velilla N, Casas-Herrero A, Zambom-Ferraresi F, et al. Effect of Exercise Intervention on Functional Decline in Very Elderly Patients During Acute Hospitalization: A Randomized Clinical Trial. *JAMA Intern Med.* 2019;179(1):28–36. doi:10.1001/jamainternmed.2018.4869

Don't Forget: Assistive Devices!



Thank You!

Katherine Lott, DO
Comprehensive Care Center
2050 Pfingsten Rd., Suite 200
Glenview, IL 60026
847-503-2222
klott@northshore.org

