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ELDER CARE

A Resource for Interprofessional Providers

Frailty

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Concept Homeostasis, the tendency toward equilibrium or steadiness of a biological system, requires adequate physiological reserves to respond to a challenge. Homeostenosis is the gradual diminishing of physiologic reserve that is seen with normal aging. Frailty occurs when reserves decline to a tipping point, when a patient cannot “right themselves,” after even the smallest stress. Frailty is not a part of normal aging; recognizing this syndrome when assessing vulnerable older adults can lead to improved health outcomes and more prioritized patient care.

While the concept of frailty is widely accepted, the criteria for diagnosis remains unclear. The two most validated measures of frailty include: syndromic or phenotypic frailty – described as a physical/biological state where frailty is evidenced by weakness, exhaustion, inactivity, weight loss, and slowness; and deficit accumulation or index frailty, where frailty is diagnosed by the cumulative number of medical co-morbidities and cumulative illnesses. Both frameworks find the most vulnerable patients, but a wide variation exists among tools when assessing pre-frail states. Validated tools for ethnically diverse groups are also being evaluated. See Table 1 for current assessment tools.

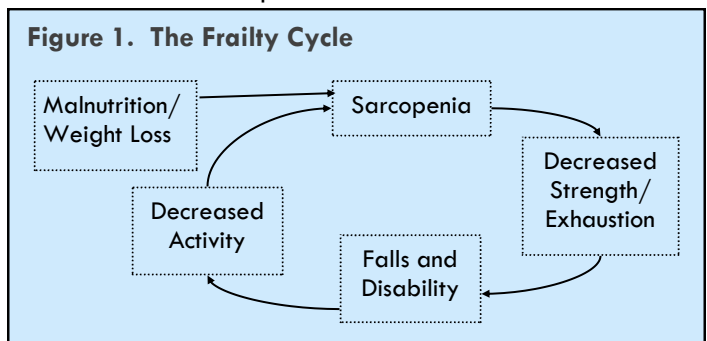
Demographics Frailty prevalence increases with advancing age, and higher rates are seen in women, minorities, older cancer patients, and in those with inadequate social structure. 4 to 16 percent of community-dwelling adults ≥ 65 yrs are frail and the rate increases in healthcare settings.

What Happens in Frailty?

Sarcopenia is the gradual physiologic loss of skeletal muscle mass that occurs with normal aging; severe sarcopenia is the critical physiologic state found in frailty (>2 standard deviations below the average muscle mass of a same-sex young adult). Dysregulation of multiple organ systems contribute to this loss of muscle mass; a decrease in endocrine hormone levels such as dehydroepiandrosterone sulfate, growth hormone, insulin-

like growth factor, sex steroids, and Vitamin D can occur, as well as chronic increases in cortisol. Activation of the immune system results in chronic exposure to inflammatory mediators, including increases in the pro-inflammatory cytokine interleukin 6 and C-reactive protein, leading to skeletal muscle dysfunction. White blood cells and monocyte counts may also be elevated, further suggesting a triggered inflammatory state. Activation of the immune response may initiate the clotting cascade. Chronic dysregulation in glucose metabolism, the autonomic nervous system, the renin-angiotensin system, and mitochondria can all contribute to sarcopenia.

Weight Loss Weight loss greater than 5% of total body weight over a year should prompt screening for frailty in patients over age 70. Extreme weight loss resulting in a low body mass index (BMI <18.5) is frequently present in individuals with frailty. It is important to keep in mind however, that frailty does also occur in individuals, often women, who are obese (BMI >30). Despite their high BMI, obese individuals can still lose weight due to malnutrition, and that can worsen the decline in muscle mass. Obese individuals also commonly limit their physical activity, which further contributes to loss of muscle mass. This combination of poor nutrition and weight loss in obese, inactive older adults results in sarcopenia and can lead to a frail state.



The Frailty Cycle Once severe sarcopenia develops, patients have limited strength and become fatigued/exhausted easily. They walk more slowly and are prone to

TIPS FOR DEALING WITH FRAILITY IN OLDER ADULTS

- Make frailty a part of your geriatric assessment, especially those patients > 70 yrs with $> 5\%$ total body weight loss.
- Choose the frailty instrument that best suits your practice model and population.
- Encourage a healthy diet and daily activity to help combat frailty.
- Utilize frailty status when assessing prognosis, performing preoperative assessment, and/or discussing goals of care.

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Table 1. Frailty Instruments

- [Fried Frailty Tool/Frailty Phenotype](#)
- [Deficit Accumulation or Index Approach](#)
- [Frail Scale](#)
- [Study of Osteoporotic Fractures](#)
- [Clinical Frailty Scale](#)
- [Edmonton Frail Scale](#)

falls and injuries that can lead to disability, further limiting mobility and physical activity. The decreased physical activity leads to yet more loss of muscle mass that contributes to further loss of function. While an older adult can enter this cycle at any place on the continuum, hospitalization, acute illness, and malnutrition are common entry points.

Clinical Implications of Frailty

Many other organ system illnesses may present with the nonspecific symptoms of weakness and exhaustion and must be considered when evaluating older adults for frailty. See Table 2 for examples. Frail patients are difficult to manage due to medical complexity and poor tolerance to treatments; diagnosing frailty can help in management. Frailty is associated with many adverse health outcomes,

Table 2. Differential Diagnosis of Frailty in Older Adults

- Cancer – Lymphoma, multiple myeloma, occult solid tumors
- Psychiatric disease – Depression, grief
- Rheumatologic disease – Polymyalgia rheumatica, vasculitis
- Endocrinologic disease – Hyperthyroidism, hypothyroidism, diabetes mellitus
- Cardiovascular disease – Heart failure, coronary artery disease, peripheral vascular disease
- Renal disease – Renal insufficiency
- Hematologic disease – Myelodysplasia, iron deficiency, anemia
- Nutritional deficits – Vitamin deficiencies, malnutrition
- Long COVID
- Neurologic disease – Dementia, movement disorders, lacunar infarcts

References and Resources

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Table 3. Frailty Use in Geriatric Care

- Prognostication for Life Expectancy
- Risk Assessment for Preoperative Evaluation
- Guidance for Goals of Care Conversations
- Decisions about “When to Stop Screening”
- Realignment of Goals to Palliative Care

including increased fall risk, longer lengths of hospital stay, need for discharge to nursing facilities, disability, and death.

Preoperative Assessment

Assessing frailty as part of preoperative evaluation of older adults considering surgery can better identify individuals at risk for poor outcomes and may help guide clinical decision-making. Frailty assessment is now recommended by the American College of Surgery and the American Geriatric Society for both planned and urgent surgeries to enhance risk assessment and perioperative management.

Interventions to Reduce Frailty

The evidence base regarding successful interventions to prevent and reduce progression of frailty is mixed. Table 4 lists practical interventions aimed at maintaining strength and mobility. Hormonal therapy (e.g., testosterone, growth hormone) is not currently recommended.

Conclusion

Frailty is an important, emerging geriatric syndrome. It can be argued that all other geriatric syndromes have frailty at their core. Assessing frailty helps to evaluate the health status of an older adult more accurately; this knowledge can help guide clinical decision making, particularly regarding screening tests, major procedural interventions, and overall goals of care.

Table 4. Frailty Interventions

- Exercise (particularly resistive)
- Occupational therapy
- Healthy diet with supplements if indicated
- Vitamin D (800-1000 international units/day)
- Deprescribing/Reduce polypharmacy

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