Frailty – Elders At Risk
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Frailty is a common geriatric syndrome associated with aging that is predictive of a decline in health. It is characterized by a loss of physiologic reserves that makes older adults more vulnerable to poor health outcomes. There is consensus by frailty experts Fried and Rockwood to define frailty as: “A medical syndrome with multiple causes and contributors that is characterized by diminished strength, endurance, and reduced physiologic function that increases an individual's vulnerability for developing increased dependency and/or death.”

Four to sixteen percent of community-dwelling adults age 65 and older are frail, and 28-40% percent are pre-frail, with higher prevalence found in healthcare settings. Frailty is more common with increasing age, and in women, minorities, and the poor.

Frailty is frequently conceptualized as a biological decline that results in weakness, weight loss, slowness, exhaustion, and inactivity. However, another widespread theory postulates that frailty develops due to an accumulation of medical conditions, poor nutrition, and functional and cognitive declines.

Pathophysiology
There is growing evidence that an accumulation of pro-inflammatory responses to cell death and senescence, including secretion of interleukin-6 and other cytokines, are important in the development of frailty. In addition, hormonal changes are also associated with frailty, including decreased levels of dehydroepiandrosterone sulfate (DHEA-S) and growth hormone. These hormones all play a role in maintaining muscle strength, endurance and mobility. Low vitamin D levels may also be involved. The result is a loss of functional capacity and limited energy reserve at a cellular level and in day-to-day activities. When faced with stressors such as illness, fractures, hospitalizations or surgeries, frail adults lack the ability to regain their former functional status.

What Happens in Frailty?
Frailty is associated with weakness, slowness, reduced activity, low energy, and unintended weight loss. The findings typically include sarcopenia (see next paragraph), changes in body mass, and exhaustion, entering into a cycle (Figure 1) that can lead to a decline in strength, increased disability, and decreased activity. Dependency eventually develops.

Sarcopenia Sarcopenia is the gradual loss of skeletal muscle mass that occurs with normal aging. Severe sarcopenia, however, often defined as a muscle mass >2 standard deviations below the average muscle mass of a same-sex young adult, suggests the presence of frailty.

Weight Loss Weight loss is a common precursor to frailty, and should prompt screening for frailty if it exceeds 5% over a year. 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 can also occur in individuals, most 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, TIPS FOR DEALING WITH FRAILTY IN OLDER ADULTS
• Perform frailty assessments routinely on older adults, including those who are obese. Obesity does not prevent frailty.
• Ask about unintentional weight loss, weakness, and exhaustion.
• Recommend a healthy diet avoiding unnecessary restrictions, assuring adequate intakes of protein and vitamin D.
• Recommend resistance exercise and aerobic exercise to slow development of sarcopenia.
• Optimize management of concurrent medical conditions.
inactive elders results in sarcopenia and can lead to a frail state.

**The Frailty Cycle** Once severe sarcopenia and fatigue develop, patients have limited strength and become exhausted easily. They walk more slowly and are prone to 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.

**Screening Tools**

Multiple validated screening tools are available to aid in the clinical diagnosis of frailty (Table 1). Both scoring systems outlined below use both objective and subjective measures in their criteria. The Fried Frailty criteria is the most commonly used frailty measure. These screening tools can be used during formal interprofessional comprehensive geriatric assessment and also during evaluations performed by individual clinicians in practice. The SOF Frailty Tool is a quick screening tool to identify frail elderly.

**Table 1. Scoring Systems to Assess Frailty in Older Adults**

**Cardiovascular Health Study (CHS) Index - Fried Criteria**

| Frail = 3 of the following findings present |
| Pre-frail = 1 or 2 of the following findings present |
| • Weight loss (≥5 percent of body weight in last year) |
| • Exhaustion (positive response to questions regarding effort required for activity) |
| • Weakness (decreased grip strength) |
| • Slow walking speed (>6-7 seconds to walk 15 ft) |

**Study of Osteoporotic Fractures (SOF) Index**

| Frail = 2 out of 3 criteria positive |
| • Weight loss of ≥5 percent in last year |
| • Inability to rise from a chair five times without using arms |
| “No” response to the question “Do you feel full of energy?” |

**Table 2. Frailty Interventions**

- Progressive resistance exercise or physical therapy
- Improve cognitive skills with formal weekly intervention
- Adequate protein up to 1.6g/Kg daily
- Obesity prevention
- Fall prevention
- Optimize Vitamin D intake
- Optimize prevention and treatment of medical illnesses
- Treat depression
- Prehab prior to serious medical or surgical interventions

**References and Resources**


Walston JD Frailty. Geriatrics For Specialists. 2017. Springer Intl Pub, Switzerland