Frailty in Older Adults

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Frailty

• Global impairment of physiological reserves involving multiple organ systems
• Increased vulnerability, impaired capability to withstand intrinsic and environmental stressors
• Limited capacity to maintain physiological and psychosocial homeostasis
• “Homeostenosis”
Various Definitions
Ex: Cardiovascular Health Study

• Sarcopenia
• Weakness
• Slowness
• Low energy or endurance
• Low activity level

• 3 required; 1-2 considered “pre-frail”

Frailty Continuum

• Pre-frail stage
• Believed to be reversible in certain circumstances
• Often frailty develops gradually
• May develop following an acute illness
Prevalence

- 3-7% of those 65-75
- 20% by age 80
- 32% by age 90

- Not all older persons are frail

Disability and Frailty

- Disability (physical) – inability to perform basic activities
- Does not necessarily impact multiple organ systems
- 60% of frail older adults have difficulty with ADL
- Only 28% of disabled older adults are frail
Frailty

- Associated with increased risk of geriatric syndromes, dependency, disability, hospitalization, institutional placement and mortality
- Age-associated but not inevitable
- Lowered resistance
- Classically, a “wasting disorder” but with the rise of morbid obesity….

Classic Clinical Picture

- Low physical activity
- Global weakness
- Low muscle strength
- Fatigue
- Slow gait
- Weight loss
Associated findings

• Osteopenia
• Balance disorders
• Nutritional problems
• Overall deconditioning
• “Failure to thrive”

Associated Social Factors

• Little contact with relatives/neighbors
• Lack of participation in community or religious activities
• Lack of participation in helping others
• Isolation
Downward Spiral

- Associated symptoms of frailty facilitate further decline in physical, emotional and social health
- Frail older adults are more than six times more likely to die within three years

Lab Markers Associated with Frailty

- CRP, IL-6
- 25 hydroxyvitamin D
- IGF-1 lower
  - Stimulates growth hormone
- Dehydroepiandosterone sulfate (DHEA-S) lower
  - Precursor to testosterone
  - Maintains muscle mass and suppressing inflammation
- D-dimers, Fibrinogen
Lab Markers Associated with Frailty

- Glucose intolerance
- Hyperinsulinemia and hypertriglyceridemia which may be associated with cognitive decline and leptin resistance which is associated with appetite suppression
- Some frail men have low testosterone levels and improvement with strength when supplemented
- Lower vitamin E levels

Etiologies

- Hormonal dysregulation
- Immunologic dysregulation
- Pro-coagulation
- Pro-inflammatory
- Progression of chronic disease
  - Atherosclerosis, infection, malignancy
- Result of acute illness/injury
Example: CHF

- Severe CHF is associated with decreased activity, decreased nutritional intake and increased inflammation and circulating cytokines leading to “Cardiac Cachexia” and frailty.

Example: Atherosclerosis

- Systemic condition
- Decreased blood flow to muscles and nerves leading to sarcopenia and slower physical activity
- Contributes to cognitive impairment from strokes, small vessel cerebrovascular ischemia.
Common Underlying Diseases

- Atherosclerosis
- Pulmonary disease
- Arthritis
- Diabetes
- Cancer
- Dementia, depression often associated conditions

Nutritional Factors

- Low calorie intake
- Low intakes of protein, calcium, folate and vitamins E and D
Obesity

- Obesity now considered a factor in frailty
- Weight loss and exercise can reduce frailty in the obese

Diagnosis

- Key characteristics
  - Sarcopenia, weakness, slowness, low energy or endurance, low activity level
- Social isolation
- Nutritional status
  - Monitor height/weight
- At risk population, particularly hospitalized older adults
Physical Health

• Can you walk as quickly as you could 10 years ago? Including stairs?
• Balance and strength as good as it was 10 years ago?
• Can the patient keep up with your staff when walking to the exam room?
• Able to stand up from a chair without using arms for help, then get on exam table without difficulty?
• Exercise
  – Aerobic, stretching, balance, resistance

Treatment

• Begin interventions at first sign of decline
• Holistic approach
• Stress to patient that frailty is not inevitable part of aging, decline in health may be reversible/treatable
• Positive attitude is key
• Encourage participation of an advocate
  – Friend or family to accompany to medical appointments
Treatment

• Exercise – done safely
• 30-60 minutes three times a week
• Stretching
• Resistance training
• Tai chi

Treatment - General

• Optimize treatment for known chronic diseases
• Look for undiagnosed disease, often considered “subclinical”, unrecognized symptoms
• COPD, CHF, arthritis, memory disorder, depression, diabetes
• Omit medication whenever reasonable
Treatment for Weight Loss

- Give them food that they like
  - Scrutinize restricted diets (salt, fat, sugar)
- Weigh regularly; consider a short-term goal weight
- Encourage to eat even if no appetite
- Avoid eating alone
- Eating out?
- Appetite stimulants

Social Isolation

- Ask about it
- Encourage social interaction
- Set goals including frequency and time frame
- Establish friendships, eating out, community/religious organizations
Hormonal Supplements

- Growth hormone
- Testosterone

Treatment

- Find objective things to measure
  - Weight, social interaction, minutes/distance of exercise, etc.
- Have patient keep a log/calendar and bring in to clinic
- Follow closely
- Consider setting realistic short-term, long-term goals…
Prevention

- 6.7% of older adults develop DISABLITY in a basic activity of daily living during hospitalization
- PT/OT/PMR consults
- Out of bed when reasonable
- Foley catheters
- Risk: older age, low BMI, elevated ESR, acute stroke, “comorbidities”, cognitive dysfunction, polypharmacy, history of fall

Prevention:
Hospitalized Older Adults

- Optimize oral intake
  - Supplements, outside food, visitors to eat with, snacks
- Past misconception of needing “bed rest”
- Identify cognitive dysfunction
  - Undiagnosed dementia, delirium
- Sleep/wake cycle alteration
- Side effect of sleeping medication
Prevention

• Monitor for the slightest decline in physical, nutritional, social health

• Need to actively review signs/symptoms
  – Often symptoms erroneously attributed to “normal aging”

• Begin interventions early

• Educate patient about healthy aging