Utility of Frailty Assessment in the Preoperative Decision Making for the Vascular Patient

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Disclosure

- None

Background- Frailty is a Measure of Deficit Accumulation

- Frailty and Frailty index were developed by Rockwood and Minitski
- These authors observed that functional age and chronological age were different
- They defined frailty as a measure of “deficit accumulation”.

Frailty index score is the calculated proportion of potential deficits that are present in a given individual at any age.

Background- Frailty

- Frailty is an age-associated nonspecific measure of vulnerability to different stressors—such as surgery—
- Often stems from reduced physiologic reserves and among elderly patients
- Frailty is NOT a disease state but an accurate measure of accumulated physiologic deficit

"Frailty in Relation to the Accumulation of Deficits", Rockwood and Mitnitski, 2007

Frailty index score

Frailty in Older Adults: Evidence for a Phenotype


Fried et al. used 5 components to develop a biologic syndrome model:

- At 6-year:
  - 55% of frail patients were alive
  - 95% of non-frail patients were alive
Prospective Use of Frailty Score

Prospective Analysis of Surgical Outcomes

594 elderly patients

Frailty was independently associated with
- POD
- LOS
- D/C to skilled facility

Association of Frailty Index with Peri-operative Mortality and In-hospital Morbidity after Lower Extremity Bypass Procedure using ACS-NSQIP Database.

Methods: Retrospective Observational Study

- Outcomes of interest:
  - 30-d perioperative mortality (POD)
  - Myocardial infarction (MI)
  - Graft Failure
  - Combined cardiac arrest, MI/ unplanned intubation (CPE)
  - Deep wound infection

Unadjusted and adjusted* association of mFI with the outcomes of interest were evaluated.

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- * MLR models included age (dichotomized <70 and ≥ 70), ASA classification, BMI and Creatinine levels (three levels <1.5, ≥1.5-1.99, ≥2.0).

Prospective analysis of surgical outcomes

48% 25% 27%

LOW Medium High

Adverse Outcomes

- 13,033 cases were included in this analysis

Low

Medium

High

POD (1.3%) Graft Failure (3.1%) Deep Wound Infection (2.2%) MI (1.3%) CPE (3.0%)

No of Patients

mFI Distribution among Patients Undergoing Elective LEB

mFI= Modified Frailty Index
Results: Independent Association of mFI and Postoperative Mortality and Complications

*Adjusted studies included age, ASA classification, Cr levels, gender, BMI

• 202,811 older than 65 who are undergoing major operations were included
  • 3.1% of these patients were frail
  • At one year 13.6% of frail patients vs. 4.8% of non-frail were dead
  • HR of death in one year was 2.23 for frail patients (95% CI: 2.09-2.4)

Conclusions
• Multiple studies have shown the utility of frailty index in predicting adverse outcomes after surgery
• Frailty index should be used as a tool for
  • Risk calculations and risk stratification of vascular surgery patients
    → Appropriate resource allocation for postoperative care
    → Risk-adjusted comparison of outcomes