Frailty In Vascular Surgery Population and VQI

Shipra Arya MD SM
Assistant Professor of Surgery- Vascular Surgery
Emory University School of Medicine
Atlanta VA Medical Center, Decatur GA
No pertinent financial disclosures
65+ are the fastest growing group

Proportion of Surgeries by Age

<table>
<thead>
<tr>
<th>Specialty</th>
<th>&lt;15 y</th>
<th>15–44 y</th>
<th>45–64 y</th>
<th>65+ y</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiothoracic *</td>
<td>0%</td>
<td>0.3%</td>
<td>29.4%</td>
<td>70.3%</td>
<td>100%</td>
</tr>
<tr>
<td>General surgery v</td>
<td>2.6%</td>
<td>12.3%</td>
<td>25.5%</td>
<td>59.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>2.8%</td>
<td>12.9%</td>
<td>39.1%</td>
<td>45.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>0.6%</td>
<td>0.7%</td>
<td>10.8%</td>
<td>88.0%</td>
<td>100%</td>
</tr>
<tr>
<td>Orthopedic surgery</td>
<td>0.6%</td>
<td>16.1%</td>
<td>31.8%</td>
<td>51.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Otolaryngology</td>
<td>39.6%</td>
<td>22.1%</td>
<td>29.9%</td>
<td>8.4%</td>
<td>100%</td>
</tr>
<tr>
<td>Urology</td>
<td>4.0%</td>
<td>6.3%</td>
<td>24.9%</td>
<td>64.8%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: NHDS and NSAS 1996.

*In the 1996 NHDS sample, the incidence rate for specific cardiothoracic procedures in pediatric patients was too small to allow an accurate incidence rate to be reported.

vCategory includes vascular, breast, hernia, abdominal, gastrointestinal, and pediatric procedures.
Frailty

- Diminished strength, endurance, and reduced physiologic function
- Increases an individual’s vulnerability for developing increased dependency and/or death in the presence of a stressor

J.E. Morley et al. / JAMDA 14 (2013) 392e397
Fried Frailty Phenotype

Clinical Phenotype: Cycle of Frailty

- Weight Loss as indicator of chronic undernutrition
- Sarcopenia
- Total energy expenditure
- Resting metabolic rate
- Low Physical Activity
- Slow Walking Speed
- Strength and Power
- Exercise tolerance “Exhaustion”
Appendix 1: List of variables used by the Canadian Study of Health and Aging to construct the 70-item CSHA Frailty Index

- Changes in everyday activities
- Head and neck problems
- Poor muscle tone in neck
- Bradykinesia, facial
- Problems getting dressed
- Problems with bathing
- Problems carrying out personal grooming
- Urinary incontinence
- Toileting problems
- Bulk difficulties
- Rectal problems
- Gastrointestinal problems
- Problems cooking
- Sucking problems
- Problems going out alone
- Impaired mobility
- Musculoskeletal problems
- Bradykinesia of the limbs
- Poor muscle tone in limbs
- Poor limb coordination
- Poor coordination, trunk
- Poor standing posture
- Irregular gait pattern
- Falls
- Mood problems
- Feeling sad, blue, depressed
- History of depressed mood
- Tiredness all the time
- Depression (clinical impression)
- Sleep changes
- Restlessness
- Memory changes
- Short-term memory impairment
- Long-term memory impairment
- Changes in general mental functioning
- Onset of cognitive symptoms
- Clouding or delirium
- Paranoid features
- History relevant to cognitive impairment or loss
- Family history relevant to cognitive impairment or loss
- Impaired vibration
- Tremor at rest
- Postural tremor
- Intention tremor
- History of Parkinson’s disease
- Family history of degenerative disease
- Seizures, partial complex
- Seizures, generalized
- Syncope or blackouts
- Headache
- Cerebrovascular problems
- History of stroke
- History of diabetes mellitus
- Arterial hypertension
- Peripheral pulses
- Cardiac problems
- Myocardial infarction
- Arrhythmia
- Congestive heart failure
- Lung problems
- Respiratory problems
- History of thyroid disease
- Thyroid problems
- Skin problems
- Malignant disease
- Breast problems
- Abdominal problems
- Presence of snout reflex
- Presence of the palmolental reflex
- Other medical history
Gender and frailty predict poor outcomes in infrainguinal vascular surgery

Reshma Brahmbhatt, MD, a Luke P. Brewster, MD, PhD, a,b
Susan Shafii, MD, a Ravi R. Rajani, MD, a Ravi Veerawamy, MD, a
Atef Salam, MD, a,b Thomas F. Dodson, MD, a and Shipra Arya, MD, SM a,b*

a Division of Vascular Surgery and Endovascular Therapy, Emory University School of Medicine, Atlanta, Georgia
b Surgical Service Line, Atlanta VA Medical Center, Decatur, Georgia

Assessing Preoperative Frailty Utilizing Validated Geriatric Mortality Calculators and Their Association With Postoperative Hip Fracture Mortality Risk

Shipra Arya,
Susan Shafii,
Theodore M.

Jennifer G. Dwyer, MD 1, Jason F. Reynoso, MD 1, Georgia A. Seevers, RN
Kendra K. Schmid, PhD 3, Padmashri Muralidhar, MS 1
Beau Konigsberg, MD 4, Thomas G. Lynch, MD 2
and Jason M. Johannings, MD 2

Brewster, MD, PhD a,b
Atlanta and Decatur, Ga
SIGNIFICANCE

- Draw attention to pre-operative risk
- Stimulate decision-making
- Optimize care
- Reductions in mortality
<table>
<thead>
<tr>
<th>Question</th>
<th>Option 1</th>
<th>Option 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record ID</td>
<td>01</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age Group</td>
<td>85-89</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td></td>
</tr>
<tr>
<td>Any intentional weight loss of 10 pounds or more in the past 3 months?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Any history of renal failure, renal insufficiency, or seeing a nephrologist?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Any history of chronic congestive heart failure?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Is the patient's appetite currently poor?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Does the patient currently have shortness of breath at rest?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Any history of memory loss, functional deficits or cognitive skills in the past 3 months?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Does the patient reside in a setting other than independent living?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Cancer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the procedure being done to diagnose cancer?</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Any disseminated, unresectable mets?</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
**Activities of Daily Living**

Independent: No help or oversight - or - help or oversight provided only 1-2 times in the past 7 days.
Supervised: Oversight, supervision or cuing provided 3 or more times during the past 7 days.
Limited assistance: Patient highly involved in activity but received physical help in guided maneuvering of limbs or other none weight bearing assistance 3 or more times in the last 7 days.
Extensive assistance: Patient performed part of activity in the past 7 days but received help for the following: Weight bearing support - or - full staff performance during the past 7 days.
Total dependence: Full staff performance during the past 7 days.

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Independent</th>
<th>Supervised</th>
<th>Limited Assistance</th>
<th>Extensive Assistance</th>
<th>Total Dependence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requiring any assistance with mobility?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reset</td>
</tr>
<tr>
<td>Requiring any assistance to eat?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reset</td>
</tr>
<tr>
<td>Requiring any assistance with the toilet?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reset</td>
</tr>
<tr>
<td>Requiring any assistance with personal hygiene?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>reset</td>
</tr>
</tbody>
</table>

**Scoring**

- **ADL Score**: 2
- **Adjusted ADL Score**: 2
- **Age Score**: 16
- **RAI Total**: 27

**Form Status**

- **Complete?**: Incomplete
- **Save Record**
  - Save and Continue
  - -- Cancel --
RAI Frailty Consortium

- Implementing RAI frailty screening in VAs across the country- Omaha, Atlanta, Pittsburgh, Nashville, Phoenix
- UPMC and UNMC implementation
CAUSE-AND-EFFECT DIAGRAM

PROVIDERS
- Providers forget to complete the screening
  - Short provider staffing
  - RAI-Frailty screening REDCap link not on all desktop computers in the clinic

ENIRONMENT
- Providers forget to document RAI Score into CPRS
- Busy Clinic
  - Lots of patients to be seen in clinic
  - Too many steps to complete the screening

MATERIALS

METHODS

Lack of RAI-Frailty Screening Completions within Vascular Surgery Clinic
RAI-Frailty Screening

SPC P-chart

Project Week

Proportion of Completed Screens

- UCL
- Target
- CL

PDSA Cycle 1
- Audit & Feedback

PDSA Cycle 2
- Integration of RAI-Frailty
- REDCap Link
Table. Vascular Quality Initiative (VQI) variables mapped to frailty categories

<table>
<thead>
<tr>
<th>Frailty category (n = 10)</th>
<th>VQI variable (n = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>Congestive heart failure</td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>History of coronary artery disease (angina, MI)</td>
</tr>
<tr>
<td></td>
<td>Prior CABG/PCI</td>
</tr>
<tr>
<td></td>
<td>Positive cardiac stress test</td>
</tr>
<tr>
<td>Peripheral vascular disease</td>
<td>Any ankle-brachial index &lt;0.7</td>
</tr>
<tr>
<td></td>
<td>Prior arterial vascular operation(^a)</td>
</tr>
<tr>
<td>Renal impairment</td>
<td>Creatinine &gt;1.78 mg/dL</td>
</tr>
<tr>
<td></td>
<td>Dialysis</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>Diabetes mellitus</td>
</tr>
<tr>
<td>Lung or respiratory problem</td>
<td>Chronic obstructive pulmonary disease</td>
</tr>
<tr>
<td>Functional dependence</td>
<td>Preadmission living (home/nursing home)</td>
</tr>
<tr>
<td></td>
<td>Preadmission ambulation(^b)</td>
</tr>
<tr>
<td>Other medical problem</td>
<td>Anemia(^c) (hemoglobin &lt;13 g/dL, male; &lt;12 g/dL, female)</td>
</tr>
<tr>
<td>Underweight</td>
<td>Body mass index &lt;19 kg/m(^2)</td>
</tr>
</tbody>
</table>

\(^a\)Bypass, carotid endarterectomy, aneurysm repair, peripheral vascular intervention, major amputation.

\(^b\)Ambulatory, ambulatory with assist, wheelchair, bedridden.

\(^c\)
Next steps

- Impact of frailty on outcomes
- Pilot to include functional frailty assessment and other geriatric specific variables
Shipra Arya MD, SM
Assistant Professor of Surgery
Division of Vascular Surgery
Emory University School of Medicine
Atlanta VA Medical Center
Shipra.arya@emory.edu