Pre-operative Assessment of the Frail Elderly Person at Addenbrookes Hospital

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Frailty Models

A multidimensional state of increased vulnerability

• Phenotype model – Freid et al
  unintentional weight loss, self reported exhaustion, low energy expenditure, slow gait speed, weak grip strength

• Cumulative deficit model – Rockwood et al
  92 baseline variables of symptoms
Figure 2: Schematic representation of the pathophysiology of frailty
10% of those over 65 take 10 or more medications.

Two-thirds of hospital bed days are for patients over 65.

With a quarter for patients over 80.

1 in 4 hospital inpatients have dementia.

1 in 3 admitted acutely to hospital are in the last year of life.

By 2030, projected life expectancy at 65 is 91.

By 2030, projected life expectancy at 65 is 88.
CUH in Numbers

Today’s hospital status: There are currently excess pressures on capacity

Today’s bed occupancy: 100% (Target: 92%)

Today’s delayed transfers of care: 192 (Unvalidated) (Target: 20)

Today’s patient outliers: 74

Aged > 89y 120 patients  Aged 85-89y 120 patients  total beds 890
Frailty is consistently found to be associated with adverse outcomes after surgery. In the 23 articles reviewed, the strongest evidence lies in the association with increased 30 day, 90 day and 1 year mortality, postoperative complications and length of stay. This highlights the importance of detecting frailty in perioperative assessment.

Factors and outcomes important to the individual elderly patient undergoing surgery must also be considered when performing pre-operative assessment, such as the consideration of premorbid status and return to the premorbid level of function.
Deconditioning

• Muscle weakness and atrophy (esp quad and gastroc)
• Increased heart rate, decreased stroke volume
• Orthostatic hypotension
• Respiratory impairment
• Decreased appetite
• Constipation
• Changes in affect and cognition - DELIRIUM
• Glucose intolerance – insulin binding sites by 3 days
Functional Impact of 10 Days of Bed Rest in Healthy Older Adults

11 older adults (mean age 67, range 62-75)
10 days continuous bed rest
Eucaloric diet (RDA protein)

Loss of lower extremity strength (4% p=0.01)
Loss of lower extremity power (4% p=0.04)
Maximum aerobic capacity lower (12% p=0.001)
The Loss of Skeletal Muscle Strength, Mass, and Quality in Older Adults: The Health, Aging and Body Composition Study

- 1880 older adults (71-79y) observed over 3 years
- muscle strength (torque) and body composition were measured at T0 and 3 years

- Muscle mass (1% p a) and strength (2-4% p a) were lost over time
- Strength decline much more rapid than concomitant loss of muscle mass

- Maintaining or gaining muscle mass was not associated with a gain in muscle strength
We will look at what you were able to do before you came into hospital to make sure we understand how best to support and encourage you to keep moving.

You should have a full assessment to help us to know how you normally get about.

We will make sure we look at any risks that may stop you from being able to get out of bed so we can support you.

Do you need glasses or hearing aid to help you communicate. Do you know where they are?

We can support you with anything you need to help keep you moving, in or out of bed.

Do you have the right equipment to help you move about? If not we should be able to provide what you need.

If you can walk to the toilet, it keeps you moving and prepares you for home.

Sitting out of bed helps. We can help you get out of bed.

We will encourage you to ‘Do It Yourself’ where you can.

Eat or drink on your own if you are able.

Wash and dress yourself if you are able, and wear your own clothes.

Keep changing your position even if you are in a bed or chair.

Older Adults Services, University Hospital of North Midlands
Created Date: October 2016 / Review Date: October 2018
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Help your older patients USE IT not LOSE IT

How you care for older, frailer patients can reduce deconditioning and hospital complications such as falls, delirium and infections. You can increase their chances of going back to their own homes sooner.

Older people may be vulnerable → When an older person comes to hospital...
...we often put them in a hospital bed. This can impact their mobility, resulting in:

Functional incontinence (not being able to reach the toilet in time) → Increased confusion
Deconditioning and muscle wasting, with increased risk of falls and pressure ulcers

Reduced appetite and increased risk of aspiration → Multiple medications may make this worse
Not planning for discharge early leads to unnecessary delays

#hello
my name is...

Does my patient know who I am and where they are?
Do I know how my patient manages at home; have I involved their next of kin?
Does my patient need to be in bed? Can they sit out in a chair or mobilise?

Can we remove the catheter? Are they constipated? Could I help them to the toilet rather than commode?
Do they need glasses, or hearing aids; something to tell them where they are & what's happening?
Can they reach their walking aid? Is a falls alarm required? Is the chair the right height?

Can they eat and drink? Am I using a red tray? Can I help them sit out for meals?
Can the team review the medication? Has my patient received their meds on time?
Does my patient have a clinically fit date? Is there anything I can do to help them get home sooner?
Can we reduce the impact of frailty preoperatively?

• Maybe
• Multicomponent program including some resistance training
• More research needed...
# Delirium in elderly people

**Sharon K Inouye, Rudi GJ Westendorp, Jane S Saczynski**

*Lancet* 2014; 383: 911–22

<table>
<thead>
<tr>
<th></th>
<th>Prevalence (%)*</th>
<th>Incidence (%)*</th>
<th>Outcomes (adjusted RR†)</th>
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<tbody>
<tr>
<td><strong>Surgical</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiac</td>
<td></td>
<td>11–46</td>
<td>Cognitive dysfunction 1·7; functional decline 1·9</td>
</tr>
<tr>
<td>Non-cardiac</td>
<td></td>
<td>13–50</td>
<td>Functional decline 2·1; cognitive dysfunction 1·6</td>
</tr>
<tr>
<td>Orthopaedic</td>
<td>17</td>
<td>12–51</td>
<td>Dementia or cognitive dysfunction 6·4–41·2; admission to institution 5·6</td>
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</tbody>
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*RR† represents relative risk adjusted for other covariates.*
Why is post operative delirium important?

- Causes increased morbidity: falls, pressure sores, functional decline, deconditioning
- Increased risk of discharge to an institution
- Psychological and psychiatric consequences
- Increase short term and long term mortality
- Increases LoS

- In the US it is reportable as a patient safety incident and treated as a medical emergency (Harvard, Johns Hopkins)
Postoperative Delirium in Older Adults: Best Practice Statement from the American Geriatrics Society

The American Geriatrics Society Expert Panel on Postoperative Delirium in Older Adults

Screening for risk and post operatively at least daily
Processed EEG Monitoring intraoperatively
Medication (anticholinergic properties, opioids esp pethidine, morphine, BZs)
Treatment
Education
The Preoperative Review Informing Management of the Elderly clinic (The PRIME clinic)

• Since September 2014
• 2 afternoons a week
• All patients 65+ screened for frailty in the Preoperative assessment clinic
• Clinical Frailty score of 4+, AMTS <4, nurse concern
• Geriatrician & Anaesthetist, PT & OT
• 6 patients per afternoon
• Visit letter gives guidance for care including medication mx, delirium risk. Patient also receives a tailored exercise program.
Clinical Frailty Scale*

1. Very Fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.

2. Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.

3. Managing Well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.

4. Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”, and/or being tired during the day.

5. Mildly Frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.

6. Moderately Frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (sitting, standby) with dressing.

7. Severely Frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~6 months).

8. Very Severely Frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.

9. Terminally Ill - Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common symptoms in mild dementia include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In moderate dementia, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In severe dementia, they cannot do personal care without help.

What do we actually do?

- Assess frailty using the comprehensive geriatric assessment tool
- Assess cognition
- Assess perioperative risk (NSQuIP ACS risk score, SORT)
- Optimise existing comorbidity, medicines, nutrition
- Complete physio and OT assessment
- Formulate individual strengthening/exercise plans
- Plan for discharge
- Defer for further Ix
- Compose a perioperative care plan highlighting delirium risk and medication management
- Discuss alternatives to surgery with patient and relatives
PRIME review 2014-15

• 395 patients seen, 45 CFS 3, 100 CFS 4, 114 CFS 5, 124 CFS 6-7
• 65 (17%) patients – no surgery
• 242 (76%) maintained non frail LoS (65 dc)
• 46 (13.7%) experienced delirium
• 36 (10%) readmissions
• 51 experienced complications related to surgery
• 58 experienced renal/CVS/RS complications
• 8 died post op during post op period
• Cost per patient of PRIME £775
Distribution of patients between specialties
PRIME results 2016

331 patients Jan-Oct

6 died before surgery
27 (8%) did not go on to surgery
Questions?