Screening for frailty in the Emergency Department: the utility of the SHARE-FI in predicting outcomes in a cohort of older patients

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CONFLICT OF INTEREST DISCLOSURE

I have no potential conflict of interest to report
Background

• Greater numbers of older people are accessing acute hospital services

• Patients aged ≥ 65 years:
  – Up to 20% of unscheduled hospital attendances
  – 40 – 50% of medical admissions
  – More likely to have a severe illness
  – Increased length of stay
  – Higher 6 month mortality rate
  – Comprehensive Geriatric Assessment (CGA) as an inpatient improves outcomes
Background

Characteristics and outcomes of older persons attending the emergency department: a retrospective cohort study

- Retrospective cohort study
- 550 patients attending ED January 2012
- 64% admitted
- Average length of stay 13.1 days
- 13.6% re-attendance at one month
- 6.8% one year mortality

Characteristics and outcomes of older patients attending an acute medical assessment unit

- A prospective cohort study
- 1066 patients aged ≥65 attended AMAU in 2013
- 60% admitted
- 62.4% of those screened at triage identified as being “at risk” of an adverse outcome (Triage Risk Screening Tool)
Background

• Frailty:
  – A syndrome characterised by reduced functional reserve resulting in a cumulative decline across systems
  – Increases risk of an adverse outcome when exposed to a stressor
Background

• The Survey of Health, Ageing and Retirement in Europe Frailty Instrument (SHARE-FI)

• Developed for use in the community

• Shown to be of use in predicting adverse outcomes in ED

SHARE-FI

FRAIL
Fatigue

Loss of appetite

PRE-FRAIL
Grip strength

NON-FRAIL
Low activity
Aims

• To measure frailty, review its prevalence in older patients presenting to ED and compare characteristics and outcomes of frail patients with their non-frail counterparts
Methods

• Prospective cohort study
• 600-bed university teaching hospital
• Pre-specified convenience sampling

• Patients aged ≥70 years
• Presenting to ED on a 24/7 basis
• January - August 2014

• Follow-up at 6 months, 12 months
Methods

• Patient characteristics:
  – Age
  – Gender
  – Frailty (SHARE-FI)
  – Cognition (MMSE, AD8)
  – Delirium (AMT 4, CAM-ICU)
  – Acute illness severity (MTS, EWS)
  – Polypharmacy (≥5 medications)

• Details of attendance:
  – Time of attendance
  – Arrival by ambulance
  – Time in ED
  – Discharge outcomes/ In-hospital mortality

• 6 month and 12 month outcomes:
  – Re-attendance
  – Mortality
  – Nursing home
Results

• 198 patients included

• Mean age = 78.8 years

• 48.5% male

• 51.5% female
# Results

<table>
<thead>
<tr>
<th>Frailty category (SHARE-FI)</th>
<th>%</th>
<th>Mean age (p=0.518)</th>
<th>Gender (p=0.498)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frail</td>
<td>46.7% (64/198)</td>
<td>79.1 years</td>
<td>M = 44.1%</td>
</tr>
<tr>
<td>Pre-frail</td>
<td>20.7% (41/198)</td>
<td>78.8 years</td>
<td>M = 51.2%</td>
</tr>
<tr>
<td>Non-frail</td>
<td>32.3% (93/198)</td>
<td>78</td>
<td>M = 53.1%</td>
</tr>
</tbody>
</table>
Results

<table>
<thead>
<tr>
<th></th>
<th>Non-frail</th>
<th>Pre-Frail</th>
<th>Frail</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presenting ‘out of hours’ (%)</td>
<td>37.5 (24/64)</td>
<td>34.2 (14/41)</td>
<td>44.1 (41/93)</td>
<td>0.497</td>
</tr>
<tr>
<td>Arrival by Ambulance (%)</td>
<td>31.3 (20/64)</td>
<td>31.7 (13/41)</td>
<td>43.0 (40/93)</td>
<td>0.241</td>
</tr>
<tr>
<td>Six Hours or less in ED (%)</td>
<td>31.3 (20/64)</td>
<td>26.8 (11/41)</td>
<td>21.5 (20/93)</td>
<td>0.384</td>
</tr>
<tr>
<td>Manchester Triage Category 1-3 (%)</td>
<td>78.1 (14/64)</td>
<td>68.3 (28/41)</td>
<td>73.1 (68/93)</td>
<td>0.527</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th></th>
<th>Non-frail</th>
<th>Pre-Frail</th>
<th>Frail</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Polypharmacy (%)</strong></td>
<td>57.8 (37/64)</td>
<td>70.7 (29/41)</td>
<td>86.0 (80/93)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Delirium (%)</strong></td>
<td>3.1 (2/64)</td>
<td>2.4 (1/41)</td>
<td>15.1 (14/93)</td>
<td>0.009</td>
</tr>
<tr>
<td><strong>AMT 4 Score (SD)</strong></td>
<td>3.8 (0.6)</td>
<td>3.7 (0.8)</td>
<td>3.1 (1.1)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
## Results

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<thead>
<tr>
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<th>Pre-frail</th>
<th>Frail</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-hospital mortality (%)</strong></td>
<td>12.5 (8/64)</td>
<td>12.2 (5/41)</td>
<td>7.5 (7/93)</td>
<td>0.527</td>
</tr>
<tr>
<td><strong>Readmitted within 1 year (%)</strong></td>
<td>57.8 (37/64)</td>
<td>75.6 (31/41)</td>
<td>61.3 (57/93)</td>
<td>0.161</td>
</tr>
<tr>
<td><strong>Mean readmissions within 1 year (SD)</strong></td>
<td>1.2 (1.7)</td>
<td>1.4 (1.4)</td>
<td>1.0 (1.2)</td>
<td>0.411</td>
</tr>
<tr>
<td><strong>Mortality at 1 year (%)</strong></td>
<td>21.9 (14/64)</td>
<td>14.6 (6/41)</td>
<td>22.6 (21/93)</td>
<td>0.556</td>
</tr>
</tbody>
</table>
### Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
<th>p Value</th>
<th>95% Confidence interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 80 years</td>
<td>2.34</td>
<td>0.004</td>
<td>1.30 – 4.21</td>
</tr>
<tr>
<td>Male gender</td>
<td>0.49</td>
<td>0.056</td>
<td>0.24 – 1.02</td>
</tr>
<tr>
<td>‘Out of Hours’</td>
<td>1.32</td>
<td>0.459</td>
<td>0.63 – 2.78</td>
</tr>
<tr>
<td>Ambulance</td>
<td>0.65</td>
<td>0.303</td>
<td>0.29 – 1.47</td>
</tr>
<tr>
<td>MTS 1-3</td>
<td>0.94</td>
<td>0.878</td>
<td>0.42 – 2.09</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>2.17</td>
<td>0.111</td>
<td>0.84 – 5.61</td>
</tr>
<tr>
<td>Delirium</td>
<td>1.46</td>
<td>0.579</td>
<td>0.39 – 5.49</td>
</tr>
<tr>
<td>Hx dementia</td>
<td>1.44</td>
<td>0.511</td>
<td>0.49 – 4.26</td>
</tr>
<tr>
<td>Frail by SHARE-FI</td>
<td>0.89</td>
<td>0.614</td>
<td>0.58 – 1.38</td>
</tr>
</tbody>
</table>

Odds ratio – alive at 12 months
## Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Odds Ratio</th>
<th>p Value</th>
<th>95% confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 80 years</td>
<td>0.49</td>
<td><strong>0.009</strong></td>
<td><strong>0.28 – 0.83</strong></td>
</tr>
<tr>
<td>Male gender</td>
<td>2.05</td>
<td>0.030</td>
<td>1.07 – 3.94</td>
</tr>
<tr>
<td>‘Out of Hours’</td>
<td>0.84</td>
<td>0.610</td>
<td>0.43 – 1.64</td>
</tr>
<tr>
<td>Ambulance</td>
<td>1.33</td>
<td>0.439</td>
<td>0.65 – 2.74</td>
</tr>
<tr>
<td>MTS 1-3</td>
<td>0.96</td>
<td>0.917</td>
<td>0.47 – 1.99</td>
</tr>
<tr>
<td>Polypharmacy</td>
<td>0.37</td>
<td>0.022</td>
<td>0.16 – 0.87</td>
</tr>
<tr>
<td>Delirium</td>
<td>1.05</td>
<td>0.936</td>
<td>0.31 – 3.63</td>
</tr>
<tr>
<td>Hx dementia</td>
<td>0.24</td>
<td><strong>0.005</strong></td>
<td>0.72 – 1.57</td>
</tr>
<tr>
<td>Frail by SHARE-FI</td>
<td>1.07</td>
<td>0.745</td>
<td>0.72 – 1.57</td>
</tr>
</tbody>
</table>

Odds ratio – composite outcome: alive and at home at 12 months
Screening for frailty in ED

• SHARE-FI:
  – Proven to be of use in community setting
  – Easily administered in clinical setting

• SHARE-FI in ED
  – High prevalence of frailty seen population assessed in this study
  – Few significant differences between characteristics of frail and non-frail groups
  – No significant differences in outcomes identified
Screening for frailty in ED

- Increasing age (≥ 80) was associated with decreased likelihood of being at alive or alive and at home at 12 months

- Complex patient cohort:
  - >2/3 of patients in the study group had a severe acute illness at presentation (MTS 1 - 3)
  - >20% mortality in frail and non-frail groups
Limitations

• Small study population

• Single-centre trial

• Only patients aged ≥70 included
Conclusions

• Frailty is an important concept in the management of older people

• Acute hospital attendance may be a critical event regardless of frailty status

• Need for new ways to identify and quantify risk for older patients in ED

• Important to educate and train those working in ED in the management of older patients
References:

1. Acute Medicines Programme Report, 2010. Royal College of Physicians of Ireland, Irish Association of Directors of Nursing and Midwifery, Therapy Professions Committee, Quality and Clinical Care Directorate, Health Service Executive


Background

- Emergency departments (ED) traditionally developed to manage trauma and acute critical illness
- Frail patients presenting to ED are at high risk of poor outcomes
- Older patients benefit from comprehensive geriatric assessment (CGA) during admission
- Identifying frail older patients at ED presentation may allow them to benefit from early specialist intervention