Frail patients attending a multi-disciplinary surgical pre-assessment clinic: identifying predictors of complex discharge after surgery

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Aims

Is it possible to identify which frail patients are at risk of clinically relevant discharge outcomes using information available in the pre-assessment clinic?
Outcomes

“Complex Discharge”
- New institutional discharge
- New/increased Care package

$N = 50$
(15%)

“Prolonged LOS”
- $\geq 8$ Days

$N = 95$
(29%)
Methods

- Retrospective review of frailty pre-assessment clinic
- Approved Service evaluation (PRN 6517)
- All attendances: January 2016 – June 2017
- 554 appointments
- 332 Included

- Exclusions
  - No surgery (114)
  - TCI in future (30)
  - Day Case (68)
  - Others (14)
Candidate Predictors & Methods

Op. Severity

CFS

Function

ASA

Polypharmacy

Comorbidity

- ESC cardiac risk (1-3)
- Highest Risk v Other

- Can walk slowly?
- Able to walk up stairs?
- View self as disabled?
- Cognitive concern?
- Self caring at home?

- N
- Anticholinergic Risk Scale (ARS)

- CCI
- Haemoglobin
- Creatinine

Univariate Analysis

Multivariable modelling

Model performance:
- AUC
- Hosmer-Lemeshow test
Results: Population

<table>
<thead>
<tr>
<th>Speciality</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>3</td>
</tr>
<tr>
<td>Colorectal</td>
<td>22</td>
</tr>
<tr>
<td>Endocrine</td>
<td>2</td>
</tr>
<tr>
<td>ENT (Ear Nose &amp; Throat)</td>
<td>15</td>
</tr>
<tr>
<td>General Surgery</td>
<td>15</td>
</tr>
<tr>
<td>Gynaecology</td>
<td>17</td>
</tr>
<tr>
<td>HPB</td>
<td>7</td>
</tr>
<tr>
<td>Maxillofacial</td>
<td>4</td>
</tr>
<tr>
<td>Neurosurgery</td>
<td>1</td>
</tr>
<tr>
<td>Orthopaedics</td>
<td>133</td>
</tr>
<tr>
<td>Plastics</td>
<td>3</td>
</tr>
<tr>
<td>Upper gastrointestinal</td>
<td>5</td>
</tr>
<tr>
<td>Urology</td>
<td>69</td>
</tr>
<tr>
<td>Vascular</td>
<td>36</td>
</tr>
</tbody>
</table>

Mean (SD) Age: 80 (7.2)

CFS ≥ 5: 59%

Median [IQR] CCI: 2 [1-3]

Median n of drugs: 8 [6-12]

Median ARS: 0 [0-1]

Complex Discharge: 50 (15%)

Prolonged LOS: 95 (29%)
Results: Complex Discharge

<table>
<thead>
<tr>
<th></th>
<th>Odds ratio (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.09 (1.04-1.14)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Surgical Risk Level 3</td>
<td>9.66 (3.39-28.08)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Able to walk briskly/up stairs</td>
<td>0.10 (0.01 – 0.53)</td>
<td>0.03</td>
</tr>
<tr>
<td>Consider self disabled?</td>
<td>2.72 (1.36 – 5.64)</td>
<td>0.006</td>
</tr>
<tr>
<td>Cognitive impairment?</td>
<td>2.80 (1.11 – 6.80)</td>
<td>0.024</td>
</tr>
</tbody>
</table>

- Frailty & Comorbidity significant at univariate level **not** in multivariable
- Presence of post-operative complications doesn’t improve discrimination

AUC’s
- 0.746
- 0.747
- 0.746
- 0.755
- 0.750

ROC of models against Complex Discharge
### Results: Prolonged LOS

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<tr>
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<th>Odds ratio (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.05 (1.01 – 1.09)</td>
<td>0.008</td>
</tr>
<tr>
<td>Surgical Risk Level 3</td>
<td>12.00 (5.00-30.74)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Consider self disabled?</td>
<td>2.52 (1.46-4.42)</td>
<td>0.001</td>
</tr>
<tr>
<td>Provide Self Care?</td>
<td>0.43 (0.24-0.80)</td>
<td>0.007</td>
</tr>
</tbody>
</table>

- Frailty significant at univariate level **not** in multivariable
- Presence of post-operative complications doesn’t improve discrimination
- Cognitive risk not significant in either uni or multivariable analysis.
Conclusions

- Use of pre-operative information can aid in identifying those at risk of relevant discharge related outcomes
- On multi-variable modeling frailty becomes non-significant
- Age, level of surgical insult, and self-reported disability are consistent risks
- Implementation of such tools could aid in:
  - Targeted discharge planning input
  - More efficient clinic utilisation
  - Shared decision making