Identifying patients with chronic heart failure for palliative care: a comparison of the Gold Standards Framework with a clinical prognostic model

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Introduction

- 15% of the over 85s in the UK are living with chronic heart failure (CHF) and 4% of deaths, each year, are due to heart failure [1].
- Even though heart failure has a worse survival rate than most cancers, very few patients receive palliative care input at the end of life [2].
- Palliative care planning may be difficult due to the unpredictable disease trajectory [3].
- Recent UK and European guidelines outline the need for palliative care in advanced heart failure.
  - Living and Dying Well”· (2010)
  - European Society of Cardiology (2009)
  - NHQS Clinical Standards (2010)· recommends using the “Gold Standards Framework” to identify patients nearing the end of life.

The Gold Standards Framework

Patients must meet two, or more, of the following criteria:
1) NYHA class III or IV
2) “Surprise Question” “Would you be surprised if this patient died in the next 6-12 months?” = No
3) Repeated hospital admissions with symptoms of heart failure
4) Difficult psychological or physical symptoms despite optimal tolerated therapy.

AIM: To compare the “Gold Standards Framework” (GSF) with the “Seattle Heart Failure Model” (SHF) in their ability to identify CHF patients nearing the end of life.

Methods

- Patients were identified by searching on online, clinical database used and maintained by the specialist heart failure nursing team.
  INCLUSION CRITERIA: 1) NYHA class III or IV 2) Currently being cared for, in the, community by a specialist HF nurse

EXCLUSION CRITERIA: 1) NYHA class I or II 2) Anticipated discharged from HF nursing service in next 6 weeks.

THE GOLD STANDARDS FRAMEWORK
- Criteria assessed by interviewing the specialist HF nurse caring for patient.
- Patients meeting 2 or more of the 4 criteria = met GSF criteria for palliative care.

THE SEATTLE HEART FAILURE MODEL
- 1 year predicted survival calculated using SHF model
- Patients renal function estimated using the eGFR
- Missing values were imputed using the SHF default value

12 MONTH FOLLOW UP
- Reviewed at 12 months for all cause mortality
- Data analysis performed using SPSS

Results I

- 410 patients were identified and 138 met inclusion criteria.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>Mean</th>
<th>Range/h</th>
<th>VARIABLE</th>
<th>%</th>
<th>n/138</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENDER (m)</td>
<td>66%</td>
<td></td>
<td>AETIOLOGY</td>
<td></td>
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<tr>
<td>AGE (yrs)</td>
<td>77</td>
<td>42 - 94</td>
<td>Ischaemic</td>
<td>68%</td>
<td>94</td>
</tr>
<tr>
<td>Time in HF service (months)</td>
<td>18</td>
<td>1 - 72</td>
<td>Hypertension</td>
<td>20%</td>
<td>27</td>
</tr>
<tr>
<td>Duration with HF (months)</td>
<td>24</td>
<td>1 - 112</td>
<td>Cardiomyopathy</td>
<td>2%</td>
<td>3</td>
</tr>
<tr>
<td>Hospital Admissions (n)</td>
<td>1</td>
<td>0 - 12</td>
<td>Valvular/unknown</td>
<td>30%</td>
<td>14</td>
</tr>
<tr>
<td>eGFR (nL/min/1.73 m2)</td>
<td>74%</td>
<td>&lt; 102/29</td>
<td>TREATMENTS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>III/IIIb</td>
<td>5%</td>
<td>7</td>
<td>Beta-blockers</td>
<td>59%</td>
<td>81</td>
</tr>
<tr>
<td>IV</td>
<td></td>
<td></td>
<td>ACE/ARB</td>
<td>75%</td>
<td>103</td>
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<tr>
<td>CO-MORBIDITY</td>
<td></td>
<td></td>
<td>Spironolactone</td>
<td>39%</td>
<td>52</td>
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<tr>
<td>Cancer</td>
<td>7%</td>
<td>26</td>
<td>CRT-D</td>
<td>1.5%</td>
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<td>CKD stage 4</td>
<td>22%</td>
<td>30</td>
<td>ICD</td>
<td>3.6%</td>
<td>5</td>
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</tbody>
</table>

Results II: 12 Month Follow-Up

Alive (=95)
- Age (years) 75.5 ± 10.1
- Time with HF (months) 23.6 ± 24.0
- HF admissions (n) 1.06 ± 1.1
- eGFR (mL/min/1.73 m2) 46.3 ± 12.5
- SHF – Predicted mean life expectancy (years) 4.9 ± 2.2

Dead (=43)
- Age (years) 79.3 ± 9.7
- Time with HF (months) 23.6 ± 24.5
- HF admissions (n) 1.19 ± 1.4
- eGFR (mL/min/1.73 m2) 35.7 ± 15.7
- SHF – Predicted mean life expectancy (years) 3.5 ± 2.0

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Sensitivity</th>
<th>Specificity</th>
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<tr>
<td>GSF Criteria</td>
<td>83%</td>
<td>22%</td>
</tr>
<tr>
<td>SHF Model</td>
<td>12%</td>
<td>98%</td>
</tr>
<tr>
<td>eGFR ≤ 35</td>
<td>56%</td>
<td>82%</td>
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</table>

Discussion

- Neither the GSF or the SHF accurately identified patients, with chronic heart failure, who were nearing the end of life.
- Declining/ poor renal function is the best predictor in this patient group.
- Neither the SHF nor the GSF include renal function in their estimations or guidelines.
- The traditional “end of life” model used in cancer patients may not be appropriate for heart failure. Instead need a more “needs based” approach, as death, itself, may remain unpredictable.

References

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