High risk of morbidity and mortality in patients with heart failure and under treatment with evidence-based therapies in the UK

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Declaration of Interest

- Consulting/Royalties/Owner/ Stockholder of a healthcare company (Novartis)
Conflict of Interest

- This study was supported by Novartis
- PSJ, JJVM, GR and MCP all report having received consulting or institutional fees from Novartis
- FC, RH and RS are employees of Novartis
Background

• One in five people will develop heart failure (HF) over their lifetime
• 15 million people currently suffer from HF in Europe
• Frequent admissions to hospital and high rates of death
• A number of therapies have been shown to reduce morbidity and mortality in randomised trials and are recommended by international guidelines
• Such therapies are potentially still underused in practice
• We aimed to describe the management and outcomes of a cohort of community dwelling individuals with HF
Methods

- 14,546 patients with a code for HF
- UK Clinical Practice Research Datalink (CPRD)
- Target daily doses of evidence based therapies (defined by ESC guidelines\(^1\))
  - ACE inhibitors
  - Angiotensin receptor blockers
  - Beta blockers
  - Mineralocorticoid receptor antagonists
- Those receiving a prescription within 25% of target dose were considered as reaching target dose

## Results

<table>
<thead>
<tr>
<th>Metric</th>
<th>Mean ± SD or N(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, (years)</td>
<td>79±1</td>
</tr>
<tr>
<td>Women</td>
<td>7046 (48%)</td>
</tr>
<tr>
<td>SBP, (mmHg)</td>
<td>131±20</td>
</tr>
<tr>
<td>Heart rate, (bpm)</td>
<td>75±15</td>
</tr>
<tr>
<td>Estimated GFR, (mL/min/1.73 m²)</td>
<td>54±32</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>29±7</td>
</tr>
<tr>
<td>NT-proBNP (pg/ml), median (IQR)</td>
<td>1052 (321,2921)</td>
</tr>
<tr>
<td>Haemoglobin (g/dL)</td>
<td>13±2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>3804 (26%)</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>7322 (50%)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>9367 (64%)</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>2375 (16%)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>5818 (40%)</td>
</tr>
<tr>
<td>LVSD confirmed</td>
<td>6398 (44%)</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>2214 (15%)</td>
</tr>
</tbody>
</table>

- Death = 15 per 100 patient years (ptyrs)
- Cardiovascular (CV) Hosp = 31 per 100 ptyrs
- HF Hosp= 14 per 100 ptyrs
- Median length of stay for HF was 8 days (interquartile range 4-16 days)

- Non-CV Hosp= 49 per 100 ptyrs
- The commonest specified non-CV hospitalisations were:
  - Respiratory = 12 per 100 ptyrs
  - Gastrointestinal = 7 per 100 ptyrs
Results

- **ACEI or ARB**
  - All patients: 81%
  - Patients with LVSD: 86%

- **Betablocker**
  - All patients: 50%
  - Patients with LVSD: 56%

- **MRA**
  - All patients: 23%
  - Patients with LVSD: 25%

- **Digoxin**
  - All patients: 25%
  - Patients with LVSD: 25%

- **ACE I**
  - All patients: 39%
  - Patients with LVSD: 41%

- **ARB**
  - All patients: 21%
  - Patients with LVSD: 19%

- **Betablocker**
  - All patients: 20%
  - Patients with LVSD: 20%

- **MRA**
  - All patients: 78%
  - Patients with LVSD: 94%
Conclusions and Implications

• Patients with HF are at high risk of hospitalisation and death

• Despite this risk, the use of evidence-based, guideline recommended, therapies is low

• Drugs are prescribed at suboptimal doses

• We must understand why prescribing rates are low if we are to ultimately improve morbidity and mortality in patients with HF