Heart Failure Long-Term Registry
Executive Committee
Steering Committee
Investigators
meetings

September 1, 2013
Agenda

• Update of recruitment
• Presentation/Publication at the ESC Congress
  • Population
  • Main topic
  • Further analyses
• New Executive Committee
• Update of protocol and CRF
Agenda

• Update of recruitment
Heart Failure Long-Term Registry

Participating countries as of August 19th, 2013

32 Potential participants (ESC):

- 29 started enrolment
- 3 accepted to merge National database (Sweden, Iceland, Russia)

8 Expressed interested but did not confirm or start

8 Did not answer (Ireland, Luxembourg, Malta, San Marino, Syria, Tunisia, Ukraine, UK)

5 Did not accept (Belarus, Belgium, Montenegro, Netherlands, Norway)

+ Participation of:
  Affiliated Countries: Argentina, Uruguay
  Asian Pacific Society of Cardiology
Heart Failure Long-Term Registry
Recruitment by month as of August 19th, 2013

19,241 patients enrolled
Heart Failure Long-Term Registry

Follow Up at 12 months as of August 19th, 2013

- High rate of Follow Up data (at least 95%) is crucial for meaningful statistical analysis
- Follow-Up is easy and fast to populate (only 1 page, less than 5 minutes per patient)
- We are counting on your collaboration for this important aspect of the registry

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Agenda

- Update of recruitment
- Presentation/Publication at the ESC Congress
  - Population
12,440 patients from 211 centres of 21 ESC Countries

**Patient disposition**

- Total population n. 12785
  - Consent Yes n. 12440
    - Hospitalized HF n. 5039 (40.5%)
      - De Novo n. 1402
      - Worsening n. 3555
      - Unknown n. 82
    - Outpatients CHF n. 7401 (59.5%)
  - Consent No n. 345
Geographic areas and patients

<table>
<thead>
<tr>
<th>Areas</th>
<th>Total (n. 12440)</th>
<th>HHF (n. 5039)</th>
<th>CHF (n. 7401)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern, n. (%)</td>
<td>2922 (23.5)</td>
<td>1587 (31.5)</td>
<td>1335 (18.0)</td>
</tr>
<tr>
<td>Northern, n. (%)</td>
<td>821 (6.6)</td>
<td>386 (7.7)</td>
<td>435 (5.9)</td>
</tr>
<tr>
<td>Southern, n. (%)</td>
<td>5807 (46.7)</td>
<td>1486 (29.5)</td>
<td>4321 (58.4)</td>
</tr>
<tr>
<td>Western, n. (%)</td>
<td>810 (6.5)</td>
<td>257 (5.1)</td>
<td>553 (7.5)</td>
</tr>
<tr>
<td>North Africa, n. (%)</td>
<td>1613 (13.0)</td>
<td>1145 (22.7)</td>
<td>468 (6.3)</td>
</tr>
<tr>
<td>Middle East, n. (%)</td>
<td>467 (3.7)</td>
<td>178 (3.5)</td>
<td>289 (3.9)</td>
</tr>
</tbody>
</table>

**Eastern:** Bulgaria, Czech Republic, Hungary, Poland, Romania, Slovakia  
**Northern:** Latvia, Lithuania, Sweden  
**Southern:** Bosnia Erzegovina, Greece, Italy, Portugal, Serbia, Slovenia, Spain, Turkey  
**Western:** Austria, France  
**North Africa:** Egypt  
**Middle East:** Israel  

Preliminary results
## HF LT Registry: Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>HHF (n. 5039)</th>
<th>CHF (n. 7401)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years), median [IQR]</td>
<td>71 [61-79]</td>
<td>66 [57-75]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>≥75 years, %</td>
<td>39.5</td>
<td>26.0</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Females, %</td>
<td>37.3</td>
<td>28.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>SBP (mmHg), median [IQR]</td>
<td>130 [110-150]</td>
<td>120 [110-136]</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>HR ≥70 bpm, %</td>
<td>83.0</td>
<td>55.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>EF &gt;45%, %</td>
<td>32.8</td>
<td>23.1</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mitral regurgitation, %</td>
<td>44.4</td>
<td>26.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Ischaemic aetiology, %</td>
<td>54.0</td>
<td>43.0</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
## HF LT Registry: Comorbidities

<table>
<thead>
<tr>
<th>Condition</th>
<th>HHF (n. 5039)</th>
<th>CHF (n. 7401)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atrial fibrillation, %</td>
<td>44.0</td>
<td>37.6</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Diabetes mellitus, %</td>
<td>38.9</td>
<td>31.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>PAD, %</td>
<td>14.2</td>
<td>12.3</td>
<td>0.0021</td>
</tr>
<tr>
<td>Hypertension, %</td>
<td>64.5</td>
<td>58.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>COPD, %</td>
<td>20.2</td>
<td>13.8</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Prior stroke/TIA, %</td>
<td>13.0</td>
<td>9.4</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Renal dysfunction, %</td>
<td>26.4</td>
<td>18.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Hepatic dysfunction, %</td>
<td>8.4</td>
<td>3.4</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Depression, %</td>
<td>7.9</td>
<td>7.6</td>
<td>0.553</td>
</tr>
</tbody>
</table>
Agenda

- Update of recruitment
- **Presentation/Publication at the ESC Congress**
  - Population
  - Main topics
12,440 pts from 211 centres of 21 ESC Countries

Aim: To evaluate how recommendations of European guidelines regarding pharmacological and non-pharmacological treatments for HF are adopted in clinical practice

www.escardio.org
Are hospitalized or ambulatory patients with heart failure treated in accordance with European Society of Cardiology guidelines? Evidence from 12 440 patients of the ESC Heart Failure Long-Term Registry

Aldo P. Maggioni¹⁺, Stefan D. Anker², Ulf Dahlström³, Gerasimos Filippatos⁴, Piotr Ponikowski⁵, Faiez Zannad⁶, Offer Amir⁷, Ovidiu Chioncel⁸, Marisa Crespo Leiro⁹, Jaroslaw Drozdz¹⁰, Andrejs Erglis¹¹, Emir Fazlibegovic¹², Candida Fonseca¹³, Friedrich Fruhwald¹⁴, Plamen Gatzov¹⁵, Eva Goncalvesova¹⁶, Mahmoud Hassanein¹⁷, Jaromir Hradec¹⁸, Ausra Kavoliuniene¹⁹, Mitja Lainscak²⁰, Damien Logeat²¹, Bela Merkely²², Marco Metra²³, Hans Persson²⁴, Petar Seferovic²⁵, Ahmet Temizhan²⁶, Dimitris Tousoulis²⁷, and Luigi Tavazzi²⁸ on behalf of the Heart Failure Association of the ESC (HFA)†
Intravenous and oral treatments of hospitalized HF patients (n. 5039)

**IV treatments at hospital entry (for 296 patients SBP at entry was not reported)**

### According to 2012 ESC guidelines *(Eur J Heart Fail 2012; 14:803-869)*

<table>
<thead>
<tr>
<th></th>
<th>Total (n. 5039)</th>
<th>&lt;85 mmHg (n. 90)</th>
<th>85-110 mmHg (n. 1169)</th>
<th>&gt;110 mmHg (n. 3484)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV inotropes, %</td>
<td>11.9</td>
<td>73.3</td>
<td>22.3</td>
<td>6.8</td>
</tr>
<tr>
<td>IV nitrates, %</td>
<td>20.4</td>
<td>10.0</td>
<td>13.3</td>
<td>23.0</td>
</tr>
<tr>
<td>IV diuretics, %</td>
<td>81.5</td>
<td>77.8</td>
<td>82.9</td>
<td>81.1</td>
</tr>
</tbody>
</table>

### According to 2008 ESC guidelines *(Eur J Heart Fail 2008; 10:933-989)*

<table>
<thead>
<tr>
<th></th>
<th>Total (n. 5039)</th>
<th>&lt;90 mmHg (n. 117)</th>
<th>90-100 mmHg (n. 539)</th>
<th>&gt;100 mmHg (n. 4087)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IV inotropes, %</td>
<td>11.9</td>
<td>70.1</td>
<td>29.9</td>
<td>7.8</td>
</tr>
<tr>
<td>IV nitrates, %</td>
<td>20.4</td>
<td>12.0</td>
<td>11.2</td>
<td>21.9</td>
</tr>
<tr>
<td>IV diuretics, %</td>
<td>81.5</td>
<td>78.6</td>
<td>83.1</td>
<td>81.4</td>
</tr>
</tbody>
</table>
# Drug treatments in outpatients with HF

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Total population (n. 7041) %</th>
<th>Reduced EF (≤45%) (n. 4792) %</th>
<th>Preserved EF (&gt;45%) (n. 1499) %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-I/ARBs</td>
<td>89.2</td>
<td>92.2</td>
<td>79.7</td>
</tr>
<tr>
<td>Betablockers</td>
<td>88.9</td>
<td>92.7</td>
<td>78.8</td>
</tr>
<tr>
<td>MRAs</td>
<td>59.3</td>
<td>67.0</td>
<td>40.8</td>
</tr>
<tr>
<td>Diuretics</td>
<td>83.1</td>
<td>84.3</td>
<td>78.5</td>
</tr>
<tr>
<td>Digitalis</td>
<td>23.0</td>
<td>23.9</td>
<td>19.0</td>
</tr>
<tr>
<td>Ivabradine</td>
<td>8.5</td>
<td>10.5</td>
<td>4.9</td>
</tr>
<tr>
<td>Antiplatelets</td>
<td>48.7</td>
<td>51.5</td>
<td>40.4</td>
</tr>
<tr>
<td>Oral anticoagulant</td>
<td>42.4</td>
<td>41.9</td>
<td>45.6</td>
</tr>
<tr>
<td>Statins</td>
<td>60.9</td>
<td>61.8</td>
<td>55.6</td>
</tr>
</tbody>
</table>
Reason for non use of recommended treatments in outpatients with reduced EF

**ACE-I/ARB**
- 1.9% Contraindicated
- 21.6% ARB
- 68.8% ACE-I

**Betablockers**
- 92.7% YES
- 7.3% NO

**MRAs**
- 67.0% YES
- 33.0% NO

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**Contraindicated**
- n. 94 (2.0%)
- Severe renal dysfunction n. 61 (64.9%)
- Symptomatic hypotension n. 13 (13.8%)
- Hyperkalemia n. 8 (8.5%)
- Other n. 12 (12.8%)

**Not tolerated**
- n. 123 (2.6%)
- Worsening renal function n. 22 (17.9%)
- Symptomatic hypotension n. 83 (67.5%)
- Hyperkalemia n. 6 (4.9%)
- Angioedema n. 2 (1.6%)
- Other n. 10 (8.1%)

**Real undertreatment**
- n. 155 (3.2%)

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**Contraindicated**
- n. 78 (1.6%)
- Asthma/COPD n. 28 (35.9%)
- Bradyarrhythmia n. 11 (14.1%)
- Symptomatic hypotension n. 11 (14.1%)
- PAD n. 3 (3.8%)
- Other n. 25 (32.1%)

**Not tolerated**
- n. 165 (3.4%)
- Bronchospasm n. 39 (23.6%)
- Symptomatic hypotension n. 46 (27.9%)
- Bradyarrhythmia n. 22 (13.3%)
- Worsening HF n. 36 (21.8%)
- Other n. 22 (13.3%)

**Real undertreatment**
- n. 110 (2.3%)

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**Contraindicated**
- n. 268 (5.6%)
- Hyperkalemia n. 94 (35.1%)
- Renal dysfunction n. 153 (57.1%)
- Other n. 21 (7.8%)

**Not tolerated**
- n. 147 (3.1%)
- Hyperkalemia n. 53 (36.1%)
- Worsening renal function n. 34 (23.1%)
- Gynecomastia n. 34 (23.1%)
- Other n. 26 (17.7%)

**Not indicated**
- n. 908 (18.9%)

**Real undertreatment**
- n. 260 (5.4%)
# Rate of outpatients at target dosages of recommended pharmacological treatments

<table>
<thead>
<tr>
<th>Medication</th>
<th>Total (Pts)</th>
<th>At target n. (%)</th>
<th>Not at target and Reason for not at target, n. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACE-I (4710 pts)</td>
<td>1380 (29.3)</td>
<td>3330 (70.7)</td>
<td>1123 (33.7) Still in uptitration, 866 (26.0) Symptomatic hypotension, 264 (7.9) Worsening renal function, 958 (28.8) Other/Unknown</td>
</tr>
<tr>
<td>ARBs (1500 pts)</td>
<td>362 (24.1)</td>
<td>1138 (75.9)</td>
<td>369 (32.4) Still in uptitration, 295 (25.9) Symptomatic hypotension, 115 (10.1) Worsening renal function, 333 (29.3) Other/Unknown</td>
</tr>
<tr>
<td>Betablockers (6468 pts)</td>
<td>1130 (17.5)</td>
<td>5338 (82.5)</td>
<td>1871 (35.1) Still in uptitration, 904 (16.9) Symptomatic hypotension, 586 (11.0) Bradyarrhythmia, 1557 (29.2) Other/Unknown</td>
</tr>
<tr>
<td>MRAs (4226 pts)</td>
<td>1290 (30.5)</td>
<td>2936 (69.5)</td>
<td>864 (29.4) Still in uptitration, 350 (11.9) Hyperkalemia, 1378 (46.9) Other/Unknown</td>
</tr>
</tbody>
</table>
Rate of implantation of devices and reasons for non-implantation in outpatients with HF

**ICD – Total population (7401 pts)**
- Already implanted (n. 1745)
- Not indicated (n. 4597)
- Indicated (n. 731)
- Unknown (n. 328)

![Chart showing rates of implantation and reasons for non-implantation](https://www.escardio.org)

**CRT – Total population (7401 pts)**
- Already implanted (n. 942)
- Not indicated (n. 5678)
- Indicated (n. 450)
- Unknown (n. 331)

![Chart showing rates of implantation and reasons for non-implantation](https://www.escardio.org)

**Reasons**
- **ICD**
  - 161 pts Uncertainty in the indication
  - 81 pts Patient refusal
  - 51 pts Logistic/cost issue
  - 30 pts Unknown

**CRT**
- 85 pts Uncertainty in the indication
- 36 pts Patient refusal
- 34 pts Logistic/cost issue
- 23 pts Unknown

**323/731 = 44%**
Indicated but not planned

**178/450 = 40%**
Indicated but not planned
The pharmacological treatment of patients with chronic HF can be considered acceptably adherent to the recommendations of current ESC guidelines. However, less than a third of patients is receiving the target dosage of recommended drugs. But when the reasons for non-adherence are appropriately taken into account the real rate of under-treatment or under-dosage is shown to be limited. With respect to device implantation, the gap between guidelines and practice seems to be greater, probably due to different local medical practice but also to differences in healthcare systems.
Agenda

• Update of recruitment
• Presentation/Publication at the ESC Congress
  • Population
  • Main topics
  • Further analyses
# Primary analyses of the HF LT Registry: current status

<table>
<thead>
<tr>
<th><strong>Primary analyses</strong></th>
<th><strong>Proposer</strong></th>
<th><strong>Reference persons</strong></th>
<th><strong>Comments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Differences in HF management across the different regions</td>
<td>Protocol, A Kavoliuniene</td>
<td>A Maggioni</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>2 Preserved EF</td>
<td>Protocol</td>
<td>G Filippatos, M Lainscak, O Chioncel</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>3 COPD (<em>asthma</em>), Diabetes</td>
<td>Protocol</td>
<td>M Lainscak, L Tavazzi</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>4 Clinical presentation of AHF plus proposal 2 and 7 of the ancillary</td>
<td>Protocol</td>
<td>O Chioncel, A Mebazaa</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>5 Long-term outcomes and predictors</td>
<td>Protocol</td>
<td>L Tavazzi, C Fonseca</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>6 Adherence to recommended treatments</td>
<td>Protocol</td>
<td>A Maggioni</td>
<td>Published</td>
</tr>
</tbody>
</table>
## Ancillary analyses of the HF LT Registry: current status

<table>
<thead>
<tr>
<th>Ancillary analyses</th>
<th>Proposer(s)</th>
<th>Follow-up needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Further detailed analyses on adherence to treatments and drug dosages: by age, with different target (i.e. 50% of the maximal target dose)</td>
<td>U Dahlström, M Lainscak, C Fonseca</td>
<td></td>
</tr>
<tr>
<td>2. Prescription of inotropes, iv-nitrates and iv-diuretics in AHF-patients</td>
<td>F Fruhwald, G Sinagra, C Fonseca</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>3. Body Surface Area as a Prognostic Marker in Heart Failure Patients</td>
<td>O Amir</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>4. HR in HFpEF</td>
<td>C Fonseca</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>5. Role of anemia</td>
<td>C Fonseca</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>6. Renal function and prognosis</td>
<td>C Fonseca</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>7. Diagnostic and therapeutic tools used in AHF patients in European countries</td>
<td>L Tavazzi</td>
<td></td>
</tr>
<tr>
<td>8. Further detailed analyses on adherence to guidelines with regard to device implantation</td>
<td>L Tavazzi</td>
<td></td>
</tr>
<tr>
<td>9. Thromboembolic and bleeding risk in HF</td>
<td>L Tavazzi</td>
<td>Follow-up needed</td>
</tr>
<tr>
<td>10. CRT: change in clinical conditions and medical treatments (further startification for the presence of Afib)</td>
<td>B Merkely</td>
<td>Follow-up needed</td>
</tr>
</tbody>
</table>
Agenda

• Update of recruitment
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  • Further analyses
• New Executive Committee
HFA HF LT Registry: New Executive Committee

- Marisa Crespo Leiro (chairperson)
- Alexandre Mebazaa
- Massimo Piepoli
- Andrew Coats
- Stefan Anker
- Gerasimos Filippatos
- Luigi Tavazzi to be replaced by the incoming chairman of the EORP OC
- Aldo Maggioni (ex officio as EORP)

- Conclusion of the activities of the current committee with the presentation/publication of the first phase of the HF LT
- New committee will start activities in September 2013 (ESC Congress)
Agenda

- Update of recruitment
- Presentation/Publication at the ESC Congress
  - Population
  - Main topic
- New Executive Committee
- Update of protocol and CRF
  - New specific questions and variables October 2013
    - Ivabradine use
    - Use of prognostic scores in practice
  - Data collection: One week (5 days) every 3 months
    - Second week of October 2013
    - Third week of January 2014
    - Last week of April 2014
    - Second week of June 2014

POST-MEETING DECISION:
The Executive Committee has decided to allow more flexibility for the enrolment days:
Each country or centre can choose 5 consecutive working days in four weeks. e.g. for Autumn: 5 days between 13 October and 8 November.
Agenda

• Update of recruitment
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  • Main topics
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• Update of protocol and CRF
• AOB