Heart Failure with Preserved EF (HFPEF) Epidemiology and management

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Diagnosis of HFPEF

The diagnosis of HF-REF requires three conditions to be satisfied:

1. Symptoms typical of HF
2. Signs typical of HF
3. Reduced LVEF

The diagnosis of HF-PEF requires four conditions to be satisfied:

1. Symptoms typical of HF
2. Signs typical of HF
3. Normal or only mildly reduced LVEF and LV not dilated
4. Relevant structural heart disease (LV hypertrophy/LA enlargement) and/or diastolic dysfunction (see Section 4.1.2)

McMurray et al: ESC Guidelines EHJ 2012
CHARM Programme

3 component trials (N=7601) comparing candesartan to placebo in patients with symptomatic heart failure

**CHARM Alternative**
- n=2028
- LVEF ≤40%
- ACE inhibitor intolerant

**CHARM Added**
- n=2548
- LVEF ≤40%
- ACE inhibitor treated

**CHARM Preserved**
- n=3025
- LVEF >40%
- ACE inhibitor treated/not treated

Primary outcome for each trial: CV death or CHF hospitalization

Pfeffer et al Lancet 2003
## Baseline characteristics

<table>
<thead>
<tr>
<th></th>
<th>Alternative n=2028</th>
<th>Added n=2548</th>
<th>Preserved n=3023</th>
<th>Overall n=7599</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age (years)</td>
<td>67</td>
<td>64</td>
<td>67</td>
<td>66</td>
</tr>
<tr>
<td>Women (%)</td>
<td>32</td>
<td>21</td>
<td>40</td>
<td>32</td>
</tr>
<tr>
<td>NYHA class (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>48</td>
<td>24</td>
<td>60</td>
<td>45</td>
</tr>
<tr>
<td>III</td>
<td>49</td>
<td>73</td>
<td>38</td>
<td>52</td>
</tr>
<tr>
<td>IV</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mean LVEF</td>
<td>30</td>
<td>28</td>
<td>54</td>
<td>39</td>
</tr>
<tr>
<td>Medical history (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Myocardial infarction</td>
<td>61</td>
<td>56</td>
<td>44</td>
<td>53</td>
</tr>
<tr>
<td>Diabetes</td>
<td>27</td>
<td>30</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Hypertension</td>
<td>50</td>
<td>48</td>
<td>64</td>
<td>55</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>25</td>
<td>26</td>
<td>29</td>
<td>27</td>
</tr>
</tbody>
</table>

*Pfeffer et al Lancet 2003*
CHF Signs, Symptoms and Radiographic Findings

- **Oedema**: 25%
- **Orthopnoea**: 30%
- **PND**: 20%
- **Rest dyspnoea**: 15%
- **Crackles**: 20%
- **JVP >6 cm**: 10%
- **Cardiomegaly**: 25%

**Preserved**

**Added**

**Alternative**
CHARM: Minnesota Living With Heart Failure and LVEF

Lewis et al EJHF 2006
Distribution of ejection fraction

11,015 patients in 115 hospitals in 24 countries

Cleland et al Euroheart Survey EHJ 2003
Systolic HF & HFPHF in the Community
(Olmsted County, Minn)

- Surveillance HF patients in Olmsted County 2003-2005 (hospital and outpatient clinic)
- 556 patients – echo & 6 month mortality

<table>
<thead>
<tr>
<th>EF</th>
<th>%Population</th>
<th>Diastolic Dysfunction</th>
</tr>
</thead>
<tbody>
<tr>
<td>EF ≥ .50</td>
<td>55%</td>
<td>79%</td>
</tr>
<tr>
<td>EF &lt; .50</td>
<td>45%</td>
<td>83%</td>
</tr>
</tbody>
</table>

HFpEF – over half of HF in the community
DD present in ~80%, whether EF ≥ or < .50

Bursi, JAMA 2006;296:2209
Incidence

- All patients with onset of heart failure 1991 in Olmsted County, Minnesota - Population 102,000
- 216 patients identified (annual incidence 0.2%)
- 137 (63%) had a recent echocardiographic assessment of LVEF
- 54 (39%) had PSF and no valve disease.
Hospitalization of patients with heart failure

A population-based study

M. R. Cowie\textsuperscript{1}, K. F. Fox\textsuperscript{1}, D. A. Wood\textsuperscript{1}, C. Metcalfe\textsuperscript{2}, S. G. Thompson\textsuperscript{2}, A. J. S. Coats\textsuperscript{1}, P. A. Poole-Wilson\textsuperscript{1} and G. C. Sutton\textsuperscript{1}

\textsuperscript{1}Cardiac Medicine, Imperial College School of Medicine at the National Heart & Lung Institute, London, U.K.; \textsuperscript{2}MRC Biostatistics Unit, Institute of Public Health, Cambridge, U.K.
Incidences, Bromley Heart Study

- Population 292000 in Bromley, South London, UK
- All local primary care physicians were asked to refer new cases of CHF to a special clinic;
- All local patients admitted to hospital with CHF were also identified.
- Of the 332 new cases of CHF detected between February 1996 and April 1997, 310 (93%) had an echocardiogram: (annual incidence 0.1%)
- 16% of patients were found to have PEF

Cowie et al EHJ 2002
Incidence discrepancies

• Only 63% in Olmstead study had echocardiograms while 93% in Bromley study
• Diagnostic criteria differed.
• Around 20% of Bromley patients included after an acute MI
• About 60% of Bromley patients recruited during hospitalization which may bias towards systolic dysfunction
STATE-OF-THE-ART PAPER

Heart Failure With Preserved Left Ventricular Systolic Function
Epidemiology, Clinical Characteristics, and Prognosis

Karen Hogg, BSc, MBChB, MRCP,* Karl Swedberg, MD, PhD,†
John McMurray, MD, FRCP, FESC, FACC*

Glasgow, Scotland; and Göteborg, Sweden
Prevalence

PREVALENCE OF HEART FAILURE

USA  Finland  England  Sweden  Den.  Spain  Portugal  USA  Nether.
(CHS) (Helsinki) (Poole) (Vasteras) (Copen.) (Asturias) (EPICA) (Olmsted) (Rotter.)

Proportion with preserved LV systolic function

Age range | 66-103 | 75-86 | 70-84 | 75 | > 50 | > 40 | > 25 | > 44 | 55-95
Mean age  | 78     | -     | 76    | 75 | -    | 60   | 68   | 63   | 65

Hogg et al JACC 2004
Prevalence in Olmstead County, Mn

- Population 106,000
- Prevalence of any diagnosis of CHF 2.6%
- Of these 41% had a LVEF > 50%
- Validated diagnosis of CHF 2.2% and of these LVEF > 50% in 44%

Redfield et al JAMA 2003
HFPEF - Inconsistencies in Prevalence

- Diagnostic criteria varies
- Comorbidities e.g. diabetes and obesity included, excluded or separately specified
- Age mix important
- Inclusion of community vs. Hospital based registries
Prognosis
Survival: HF↓EF & HFPEF

Olmsted County

Survival (%)

Expected

Observed

No. at risk (observed cohort)
307 264 223 210 165 151 107

No. at risk (observed cohort)
247 213 182 161 145 114 85

P<0.001

Owan et al, NEJM 2006;355:251
The survival of patients with heart failure with preserved or reduced left ventricular ejection fraction: an individual patient data meta-analysis

Meta-analysis Global Group in Chronic Heart Failure (MAGGIC)
CONSORT diagram MAGGIC

56 studies reporting outcome for patients with HF-PEF and HF-REF
95,612 patients

31 available studies 54,416 patients
3 pharmacotherapy RCTs (20,878 patients)
4 management strategy RCTs (919 patients)
24 observational studies (32,619 patients)

1179 patients with irresolvable dates/died during in index admission

2246 patients excluded due to valvular heart disease or hypertrophic cardiomyopathy

MAGGIC Data set n=50,991
EF data available for 41,972
HF-PEF 10,347 (24.7%): 2,422 deaths
HF-REF 31,625 (75.3%): 8,332 deaths
MAGGIC: HFREF and HFPEF

![Graph showing mortality rates over years for HFREF and HFPEF, with adjusted HR 0.68 (0.64, 0.71).]
Long-Term Follow-Up of Participants With Heart Failure in the Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT)

Linda B. Piller, MD, MPH; Sarah Baraniuk, PhD; Lara M. Simpson, PhD; William C. Cushman, MD; Barry M. Massie, MD; Paula T. Einhorn, MD, MS; Suzanne Oparil, MD; Charles E. Ford, PhD; James F. Graumlich, MD; Richard A. Dart, MD; David C. Parish, MD, MPH; Tamrat M. Retta, MD, PhD; Aloysius B. Cuyjet, MD, MPH; Syed Z. Jafri, MD; Curt D. Furberg, MD, PhD; Mohammad G. Saklayen, MBBS; Udho Thadani, MD; Jeffrey L. Probstfield, MD; Barry R. Davis, MD, PhD; for the ALLHAT Collaborative Research Group

Circulation. 2011;124:1811-1818
ALLHAT

All-cause mortality following new onset diagnosis of HF

- Participants were at least 55 years of age, with a systolic blood pressure of 140 mm Hg or higher and/or a diastolic blood pressure of 90 mm Hg or higher, and/or were taking antihypertensive medication (3 drugs) and had at least 1 additional CHD risk factor (including preexisting cardiovascular and/or cerebrovascular disease).
- Individuals with a history of symptomatic HF or left ventricular EF 35% were excluded.
- Treatment part ended March 2002.
- Posttrial follow-up mortality through 2006 was obtained on participants who developed new-onset HF during the randomized (in-trial) phase of ALLHAT.
- Mean follow-up for the entire period was 8.9 years.
- Of 1761 participants with incident HF in-trial, 1348 died.
ALLHAT
All-cause mortality following new onset diagnosis of HF

<table>
<thead>
<tr>
<th></th>
<th>Total Mortality</th>
<th>CVD Death</th>
<th>HF Death</th>
<th>Other CVD</th>
<th>Non-CVD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>HR (95% CI), P</td>
<td>HR (95% CI), P</td>
<td>HR (95% CI), P</td>
<td>HR (95% CI), P</td>
<td>HR (95% CI), P</td>
</tr>
<tr>
<td><strong>Overall</strong></td>
<td>2.89 (2.69–3.11), &lt;0.001</td>
<td>3.84 (3.49–4.23), &lt;0.001</td>
<td>8.06 (6.38–10.18), &lt;0.001</td>
<td>3.40 (3.05–3.78), &lt;0.001</td>
<td>2.18 (1.95–2.43), &lt;0.001</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2.42 (2.08–2.81), &lt;0.001</td>
<td>2.73 (2.20–3.38), &lt;0.001</td>
<td>3.81 (2.18–6.67), &lt;0.001</td>
<td>2.60 (2.06–3.28), &lt;0.001</td>
<td>2.15 (1.73–2.67), &lt;0.001</td>
</tr>
<tr>
<td><strong>PEF</strong></td>
<td>3.06 (2.67–3.51), &lt;0.001</td>
<td>4.27 (3.58–5.09), &lt;0.001</td>
<td>6.80 (4.36–10.62), &lt;0.001</td>
<td>3.99 (3.29–4.83), &lt;0.001</td>
<td>2.05 (1.63–2.57), &lt;0.001</td>
</tr>
</tbody>
</table>

*Piller et al: Circulation 2011*
Prognosis after diagnosis of HF

Piller et al: Circulation 2011
5 year survival after diagnosis of HF by LV systolic function

Modified after Piller et al: Circulation 2011
HF with Preserved EF
Summary - Epidemiology

• Diagnostic criteria varies and influence estimates
• In the community, HF with preserved EF is as common as HF with systolic dysfuntion
• Prevalence is around 1%
• Incidence uncertain but around 0.1%/year
• Short term (1-3 years) prognosis better than HFREF
• Long term (>5 years) prognosis may be as poor as in HFREF
HFPEF

Management
HFPEF ESC Guidelines 2012

• No treatment has yet been shown, convincingly, to reduce morbidity and mortality in patients with HF-PEF.

• Diuretics are used to control sodium and water retention and relieve breathlessness and oedema as in HF-REF.

McMurray et al: ESC Guidelines EHJ 2012
HFPEF Therapy: general measures

- Optimize hypertension therapy
- Lowest diuretic dose to relieve fluid excess
- Avoid HR extremes (chronotropic failure or rapid atrial fib)
- Beware co-morbidities e.g. sleep apnea, anemia, thyroid dysfunction
- Weight loss
- Exercise training
Beta-Blockers in HFPEF

v. Veldhuisen, McMurray  EJHF 2013
Trials in HF-PEF: HF hospitalization

**PEP-CHF**

**CHARM Preserved**

### Number of patients at risk

<table>
<thead>
<tr>
<th></th>
<th>Placebo</th>
<th>Candesartan</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1509</td>
<td>1514</td>
</tr>
<tr>
<td>0.5</td>
<td>1331</td>
<td>1362</td>
</tr>
<tr>
<td>1.0</td>
<td>1208</td>
<td>1241</td>
</tr>
<tr>
<td>1.5</td>
<td>730</td>
<td>749</td>
</tr>
<tr>
<td>2.0</td>
<td>173</td>
<td>169</td>
</tr>
</tbody>
</table>

Hazard ratio 0.85 (95% CI 0.72-1.01)  
P = 0.014

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**Cleland et al EHJ 2006**

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**Yusuf et al Lancet 2003**
Predicting survival in heart failure: a risk score based on 39 372 patients from 30 studies

Stuart J. Pocock¹*, Cono A. Ariti¹, John J.V. McMurray², Aldo Maggioni³, Lars Køber⁴, Iain B. Squire⁵, Karl Swedberg⁶, Joanna Dobson¹, Katrina K. Poppe⁷, Gillian A. Whalley⁷, and Rob N. Doughty⁷, on behalf of the Meta-Analysis Global Group in Chronic Heart Failure (MAGGIC)
## MAGGIC risk score

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rate ratio</th>
<th>95% CI</th>
<th>Z</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (per 10 years)</td>
<td>1.589</td>
<td>(1.536, 1.643)</td>
<td>27.14</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Male</td>
<td>1.113</td>
<td>(1.053, 1.177)</td>
<td>3.77</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BMI (per 1 kg/m² increase up to 30 kg/m²)</td>
<td>0.960</td>
<td>(0.951, 0.969)</td>
<td>-8.50</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Current smoker</td>
<td>1.174</td>
<td>(1.095, 1.258)</td>
<td>4.54</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SBP (per 10 mmHg)</td>
<td>0.982</td>
<td>(0.968, 0.998)</td>
<td>-2.30</td>
<td>0.024</td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.401</td>
<td>(1.311, 1.498)</td>
<td>9.90</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>NYHA class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYHA class I</td>
<td>0.756</td>
<td>(0.682, 0.838)</td>
<td>-5.32</td>
<td>&lt;0.001</td>
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<tr>
<td>NYHA class II</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NYHA class III</td>
<td>1.458</td>
<td>(1.361, 1.561)</td>
<td>10.83</td>
<td>&lt;0.001</td>
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<tr>
<td>NYHA class IV</td>
<td>1.756</td>
<td>(1.599, 1.928)</td>
<td>11.82</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>COPD</td>
<td>1.284</td>
<td>(1.181, 1.396)</td>
<td>5.91</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>HF duration &gt; 18 months</td>
<td>1.166</td>
<td>(1.088, 1.250)</td>
<td>4.37</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Creatinine (per 10 µmol/L up to 350 µmol/L)</td>
<td>1.035</td>
<td>(1.029, 1.041)</td>
<td>11.39</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Beta-blocker</td>
<td>0.798</td>
<td>(0.746, 0.855)</td>
<td>-6.47</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>ARB/ACE-I</td>
<td>0.938</td>
<td>(0.842, 1.044)</td>
<td>-1.21</td>
<td>0.233</td>
</tr>
</tbody>
</table>
Association Between Use of Renin-Angiotensin System Antagonists and Mortality in Patients With Heart Failure and Preserved Ejection Fraction

Lars H. Lund, MD, PhD
Lina Benson, MSc
Ulf Dahlström, MD, PhD
Magnus Edner, MD, PhD

Context  Heart failure with preserved ejection fraction (HFPEF) may be as common and as lethal as heart failure with reduced ejection fraction (HFREF). Three randomized trials of angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (ie, renin-angiotensin system [RAS] antagonists) did not reach primary end points but may have had selection bias or been underpowered.
<table>
<thead>
<tr>
<th>Type of RAS Antagonist</th>
<th>Overall Cohort (n = 16,216)</th>
<th>Matched Cohort (n = 6,658)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RAS Antagonist Use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No (n = 3,673)</td>
<td>Yes (n = 12,543)</td>
</tr>
<tr>
<td>Follow-up, median (range), d</td>
<td>511 (0-3,991)</td>
<td>782 (0-3,907)</td>
</tr>
<tr>
<td>No. of deceased patients</td>
<td>1,900 (52)</td>
<td>3,864 (31)</td>
</tr>
<tr>
<td>ACE inhibitor</td>
<td>0</td>
<td>9,103 (73)</td>
</tr>
<tr>
<td>ARB</td>
<td>0</td>
<td>3,172 (25)</td>
</tr>
<tr>
<td>ACE inhibitor plus ARB</td>
<td>0</td>
<td>268 (2)</td>
</tr>
<tr>
<td>None</td>
<td>3,673 (100)</td>
<td>0</td>
</tr>
</tbody>
</table>
Survival by treatment with a RAS-antagonist

- RAS antagonist use in overall cohort
- RAS antagonist use in matched cohort
- No RAS antagonist use in matched cohort
- No RAS antagonist use in overall cohort

\[ P = .008 \text{ for matched cohort}\]
\[ \text{Unadjusted } P < .001 \text{ for overall cohort}\]
Table 3. All-Cause Mortality by Renin-Angiotensin System (RAS) Antagonist Use

<table>
<thead>
<tr>
<th>Cox regression model main analyses for heart failure preserved ejection fraction</th>
<th>No./Total (%) by RAS Antagonist Use</th>
<th>Hazard Ratio (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Univariable</td>
<td>Yes</td>
<td>12,543/16,216 (77)</td>
<td>0.48 (0.45-0.51)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3673/16,216 (23)</td>
<td></td>
</tr>
<tr>
<td>Matched by propensity for treatment&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Yes</td>
<td>3329/6658 (50)</td>
<td>0.91 (0.85-0.98)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3329/6658 (50)</td>
<td></td>
</tr>
<tr>
<td>Overall cohort</td>
<td>Yes</td>
<td>12,543/16,216 (77)</td>
<td>0.90 (0.85-0.96)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3673/16,216 (23)</td>
<td></td>
</tr>
<tr>
<td>Adjusted for propensity score</td>
<td>Yes</td>
<td>12,543/16,216 (77)</td>
<td>0.90 (0.85-0.96)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3673/16,216 (23)</td>
<td></td>
</tr>
<tr>
<td>Adjusted for age only</td>
<td>Yes</td>
<td>12,543/16,216 (77)</td>
<td>0.64 (0.60-0.68)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3673/16,216 (23)</td>
<td></td>
</tr>
<tr>
<td>Adjusted for creatinine clearance only</td>
<td>Yes</td>
<td>11,554/14,867 (78)</td>
<td>0.71 (0.66-0.75)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>3313/14,867 (22)</td>
<td></td>
</tr>
<tr>
<td>Cox regression model consistency analyses</td>
<td>Matched by propensity for dose for heart failure preserved ejection fraction&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Yes</td>
<td>2647/7941 (33)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2647/7941 (33)</td>
<td></td>
</tr>
<tr>
<td>High dose vs no treatment</td>
<td>Yes</td>
<td>2647/7941 (33)</td>
<td>0.85 (0.78-0.93)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2647/7941 (33)</td>
<td></td>
</tr>
<tr>
<td>Low dose vs no treatment</td>
<td>Yes</td>
<td>2647/7941 (33)</td>
<td>0.94 (0.87-1.02)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2647/7941 (33)</td>
<td></td>
</tr>
<tr>
<td>Matched by propensity for treatment for heart failure reduced ejection fraction</td>
<td>Yes</td>
<td>2005/4010 (50)</td>
<td>0.80 (0.74-0.86)</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>2005/4010 (50)</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>Matched 1:1 treated to untreated, within differences in age of 5 years or less, and propensity score of 0.1 or less yielded 3329 patients in each group.

<sup>b</sup>Matched 1:1:1 for high dose vs low dose vs no treatment, within differences in age of 5 years or less, and propensity score of 0.1 or less yielded 2647 patients in each group. Details of matching and results appear in the online-only material at http://www.jama.com.
Future
Aldosterone antagonist for HF-PEF?

Treatment Of Preserved Cardiac function heart failure with an Aldosterone anTagonist
TOPCAT

• **Hypothesis:** Spironolactone will reduce morbidity and mortality in mild HF and preserved LV function
• **Population:** 4500 patients >50 yrs with NYHA II HF (and admission or elevated BNP), EF ≥45%
• **Intervention:** Spironolactone (15-45 mg) vs placebo
• **Primary endpoint:** CV death, RCA, HF hospitalisation
• **Status:** Recruitment ended Jan 31, 2012
The angiotensin receptor neprilysin inhibitor LCZ696 in heart failure with preserved ejection fraction: a phase 2 double-blind randomised controlled trial

Scott D Solomon, Michael Zile, Burkert Pieske, Adriaan Voors, Amil Shah, Elisabeth Kraigher-Krainer, Victor Shi, Toni Bransford, Madoka Takeuchi, Jianjian Gong, Martin Lefkowitz, Milton Packer, John J V McMurray, for the Prospective comparison of ARNI with ARB on Management Of heart failUre with preserved ejectioN fraction (PARAMOUNT) Investigators*
Summary

• HFPEF is a serious syndrome which is as incapacitating as HFREF
• More common in women
• Short term prognosis better than in HFREF
• Long-term (>5 years) prognosis may be as bad as in HFREF
• Manage co-morbidities
• The value of pharmacological therapy is uncertain.
• Treatment with an ACEI/ARB in recommended dosages and a beta-blocker seems reasonable