What's new in 2016 Guidelines of the European Society of Cardiology?

HEART FAILURE

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Palermo (I) 1 04 2017
Disclosures/Competing interests

Consulting Fees, Honoraria:
BAYER PHARMA
BOEHRINGER INGELHEIM
BRISTOL MEYERS SQUIBB
DAIICHI SANKYO
NOVARTIS
PFIZER
WHAT’S NEW?

1/ A new group of patients
2/ A new algorithm for the diagnosis of heart failure in the non-acute setting
3/ Prevention of Heart Failure
4/ Pharmacological treatment of symptomatic HF with reduced FE.
5/ Cardiac resynchronization therapy (CRT)
6/ Implantable Cardioverter-Defibrillator (ICD) in HF patients
7/ Management of co-morbidities
8/ Multidisciplinary team management
9/ Treatments not recommended in patients with heart failure
“HF with midrange EF (HFmrEF)”
HF and a left ventricular ejection fraction (LVEF) from 40 to 49%.

This group takes place between “HF with reduced EF (HFrEF)” LVEF <40%,
and “HF with preserved EF (HFpEF)” LVEF >49%.

<table>
<thead>
<tr>
<th>TYPE OF HF</th>
<th>HFrEF</th>
<th>HFmrEF</th>
<th>HFpEF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Symptoms ± Signs³</td>
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<tr>
<td>2</td>
<td>LVEF &lt;40%</td>
<td>LVEF 40–49%</td>
<td>LVEF ≥50%</td>
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<tr>
<td>3</td>
<td>–</td>
<td>1. Elevated levels of natriuretic peptides³; 2. At least one additional criterion: a. relevant structural heart disease (LVH and/or LAE), b. diastolic dysfunction (for details see Section 4.3.2).</td>
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The aim of this 3 groups classification of HF patient is “to stimulate research into the underlying characteristics, pathophysiology and treatment of each population.”
2/ A new Algorithm for the diagnosis of heart failure in the non-acute setting

**First Step: Assessment of HF probability**

1. **Clinical history:**
   - History of CAD (MI, revascularization)
   - History of arterial hypertension
   - Exposition to cardiotoxic drug / radiation
   - Use of diuretics
   - Orthopnoea / paroxysmal nocturnal dyspnoea

2. **Physical examination:**
   - Rales
   - Bilateral ankle oedema
   - Heart murmur
   - Jugular venous dilatation
   - Laterally displaced/broadened apical beat

3. **ECG:**
   - Any abnormality
Clinical history, Physical examination, EKG.

≥ 1 Present

NATRIURETIC PEPTIDES
- NT-proBNP ≥ 125 pg/mL
- BNP ≥ 35 pg/mL

Absent

HF unlikely: consider other diagnosis

ECHOCARDIOGRAPHY

No

Yes

Normal\(^{b,c}\)

If HF confirmed (based on all available data):
determine aetiology and start appropriate treatment
Clinical history, Physical examination, EKG.

≥ 1 Present

Natriuretic Peptides
- NT-proBNP ≥ 125 pg/mL
- BNP ≥ 35 pg/mL

Yes

Echocardiography

Normal

If HF confirmed (based on all available data): determine aetiology and start appropriate treatment

Absent

HF unlikely: consider other diagnosis
The development of overt heart failure or death may be delayed through interventions aimed at modifying risk factors for HF or treating asymptomatic LV systolic dysfunction before the onset of symptoms.

- **Treatment of hypertension** is recommended to prevent or delay the onset of HF and prolong life.
- **ACE-I** in patients with asymptomatic LV systolic dysfunction/stable CAD.
- **Beta-blockers** in patients with asymptomatic LV systolic dysfunction and a history of myocardial infarction.
- **Statins** in patients with or at high-risk of CAD.
- **Counselling** and treatment for smoking cessation, obesity and alcohol intake reduction are recommended in order to prevent or delay the onset of HF.
Pharmacological treatment of symptomatic HF with reduced FE.

Patient with symptomatic HFrEF

- Therapy with ACE-I\(^4\) and beta-blocker (Up-titrated to maximum tolerated evidence-based doses)
- Still symptomatic and LVEF ≤35%
  - No
  - Yes
    - Add MR antagonist\(^{4,6}\) (Up-titrated to maximum tolerated evidence-based dose)
      - Yes
      - No
      - Still symptomatic and LVEF ≤35%

- If LVEF ≤35% despite OMT or a history of symptomatic VT/VF, implant ICD

- Diuretics to relieve symptoms and signs of congestion

- If LVEF ≤35%
  - Able to tolerate ACEI (or ARB)\(^4\)
  - Sinus rhythm, QRS duration ≥130 msec
  - Sinus rhythm, HR ≥70 bpm

- ARNI to replace ACE-I
  - Evaluate need for CRT\(^4\)
  - Ivabradine

- These above treatments may be combined if indicated

- Resistant symptoms
  - Yes
    - Consider digoxin or H-ISDN or LVAD, or heart transplantation
  - No
    - No further action required
    - Consider reducing diuretic dose
An ACE-I in addition to a beta-blocker, are recommended to reduce the risk of HF hospitalization and death and diuretics to reduce the symptoms of congestion.

Patients symptomatic despite this treatment: Mineralocorticoid/aldosterone receptor antagonists (MRAs) block receptors.
If still symptomatic despite this optimal treatment:

- **Angiotensin receptor neprilysin inhibitor** as a replacement for the ACE
If still symptomatic despite this optimal treatment:
- Angiotensin receptor neprilysin inhibitor as a replacement for the ACE
- CRT
If still symptomatic despite this optimal treatment:
- **Angiotensin receptor neprilysin inhibitor** as a replacement for the ACE
- **CRT**
- **Ivabradine**
If still symptomatic despite this optimal treatment:
• Angiotensin receptor neprilysin inhibitor as a replacement for the ACE
• CRT
• Ivabradine

Digoxin may be considered in symptomatic patients in sinus rhythm despite treatment with an ACE-I (or ARB), a beta-blocker and an MRA, to reduce the risk of hospitalization (both all-cause and HF-hospitalizations).
A Comparison of Angiotensin Receptor-Neprilysin Inhibition (ARNI) With ACE Inhibition in the Long-Term Treatment of Chronic Heart Failure With a Reduced Ejection Fraction

J J McMurray M Packer et al
N Engl Journal Med 2014 (371);11: 993 1004

PARADIGM-HF: Cardiovascular Death or Heart Failure Hospitalization (Primary Endpoint)
Digoxin And Mortality in Patients: Does Serum Digoxin Concentration Matter? (from ARISTOTLE Study)

Adj. HR (95% CI): 1.19 (1.07–1.32)
P=0.001 for each 0.5 ng/mL increase in baseline digoxin concentrations

Cut off: 1.2 ng/ml

1. In the absence of randomized trial data showing its safety and efficacy, digoxin should **generally not be prescribed** for patients with AF, particularly if symptoms can be alleviated with other treatments.
2. In patients with AF **already taking digoxin**, monitoring its serum concentration may be important, targeting **blood levels <1.2 ng/mL**.
5/ Cardiac resynchronization therapy (CRT)

<table>
<thead>
<tr>
<th>Implantation of CRT not recommended if QRS duration &lt;130ms.</th>
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<tbody>
<tr>
<td>III A</td>
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<tr>
<th>CRT is recommended for symptomatic patients in sinus rhythm with LVEF ≤35% despite OMT and <strong>LBBB</strong></th>
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<tbody>
<tr>
<td>✓ If QRS duration ≥150 msec</td>
</tr>
<tr>
<td>✓ If QRS duration ≥130 to 149 msec</td>
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<tr>
<td>I A</td>
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<td>I B</td>
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<table>
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<tr>
<th>If <strong>non LBBB</strong> QRS morphology, CRT still recommended</th>
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<tbody>
<tr>
<td>✓ if QRS duration ≥150 msec</td>
</tr>
<tr>
<td>✓ if QRS duration is 130-149 msec</td>
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<td>IIa B</td>
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<td>IIb B</td>
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</table>
Primary prevention

An ICD is recommended to reduce the risk of sudden death and all-cause mortality in patients with symptomatic HF (NYHA Class II–III), and an LVEF ≤35% despite ≥3 months of OMT, provided they are expected to survive substantially longer than one year with good functional status, and they have:

- IHD (unless they have had an MI in the prior 40 days – see below).
- DCM. (Dilated Cardiomyopathy)
Defibrillator Implantation in Patients with Nonischemic Systolic Heart Failure

A Death from Any Cause

- 120 died vs 131 (control)
- Hazard ratio, 0.87 (95% CI, 0.68–1.12)
- P = 0.28

C Sudden Cardiac Death

- Hazard ratio, 0.50 (95% CI, 0.31–0.82)
- P = 0.005

Subgroup Hazard Ratio (95% CI) P Value

<table>
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<tr>
<th>Age</th>
<th>Hazard Ratio (95% CI)</th>
<th>P Value</th>
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<tr>
<td>&lt;59 yr</td>
<td>0.51 (0.29–0.92)</td>
<td>0.02</td>
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<tr>
<td>≥59 to &lt;68 yr</td>
<td>0.75 (0.48–1.16)</td>
<td>0.19</td>
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<tr>
<td>≥68 yr</td>
<td>1.19 (0.81–1.72)</td>
<td>0.38</td>
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P value interaction: 0.009

Not available in time!

**7/ Management of co-morbidities**

Co-morbidities interfere with the diagnosis process, may aggravate HF symptoms, contribute to the burden of hospitalisation and mortality…

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Level&lt;sup&gt;b&lt;/sup&gt;</th>
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<tbody>
<tr>
<td><strong>Iron deficiency</strong></td>
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<tr>
<td>Intravenous FCM should be considered in symptomatic patients with HFrEF and iron deficiency (serum ferritin &lt;100 μg/L, or ferritin between 100–299 μg/L and transferrin saturation &lt;20%) in order to alleviate HF symptoms, and improve exercise capacity and quality of life.</td>
<td>IIa</td>
<td>A</td>
</tr>
<tr>
<td><strong>Diabetes</strong></td>
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<tr>
<td>Metformin should be considered as a first-line treatment of glycaemic control in patients with diabetes and HF, unless contra-indicated.</td>
<td>IIa</td>
<td>C</td>
</tr>
</tbody>
</table>

**Ferric Carboxymaltose**

**Metformine**
Multidisciplinary management programmes designed to improve outcomes through structured follow-up on

- patient education
- optimization of medical treatment
- psychosocial support

in order to reduce HF hospitalization and mortality in patients discharged from the hospital.

*Characteristics and components of such programmes can be found in this new guidelines.*
**9/ Treatments not recommended in patients with heart failure**

Adaptive servo-ventilation not recommended in patients with HFrEF and a predominant central sleep apnoea because of an *increased all-cause and cardiovascular mortality.*

- **Glitazones**  
- **NSAIDs or COX-2 inhibitors**  
- **Diltiazem or Verapamil**

*increase the risk of HF worsening and HF hospitalization.*

- **Minoxidine**  
- **Alpha Blockers**

The addition of an ARB (or a renin inhibitor) to the combination of an ACE-I and an MRA not recommended because of the *increased risk of renal dysfunction and hyperkalaemia.*
Thank-you!  
Merci!  
Grazie!