

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

# HEART FAILURE

Marc Ferrini (Lyon Fr)



*Palermo (I) 1 04 2017*

## **Disclosures/Competing interests**

### **Consulting Fees, Honoraria:**

BAYER PHARMA

BOEHRINGER INGELHEIM

BRISTOL MEYERS SQUIBB

DAIICHI SANKYO

NOVARTIS

PFIZER

European Heart Journal (2016) 37, 2129–2200

ESC website

(<http://www.escardio.org/guidelines>)

## **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**



# 1/ A new group of patients

## “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%.

Type of HF		HFrEF	HFmrEF	HFpEF
<b>CRITERIA</b>	<b>1</b>	Symptoms ± Signs <sup>a</sup>	Symptoms ± Signs <sup>a</sup>	Symptoms ± Signs <sup>a</sup>
	<b>2</b>	LVEF <40%	LVEF 40–49%	LVEF ≥50%
	<b>3</b>	–	1. Elevated levels of natriuretic peptides <sup>b</sup> ; 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).	1. Elevated levels of natriuretic peptides <sup>b</sup> ; 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).

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**

**Absent**

**NATRIURETIC PEPTIDES**

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

No

HF unlikely:  
consider other  
diagnosis

**Yes**

**ECHOCARDIOGRAPHY**

Normal<sup>b,c</sup>

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

**Clinical history, Physical examination, EKG.**

**≥ 1 Present**

**Absent**

Assessment of natriuretic peptides not routinely done in clinical practice

**NATRIURETIC PEPTIDES**

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

No

**HF unlikely:  
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**ECHOCARDIOGRAPHY**

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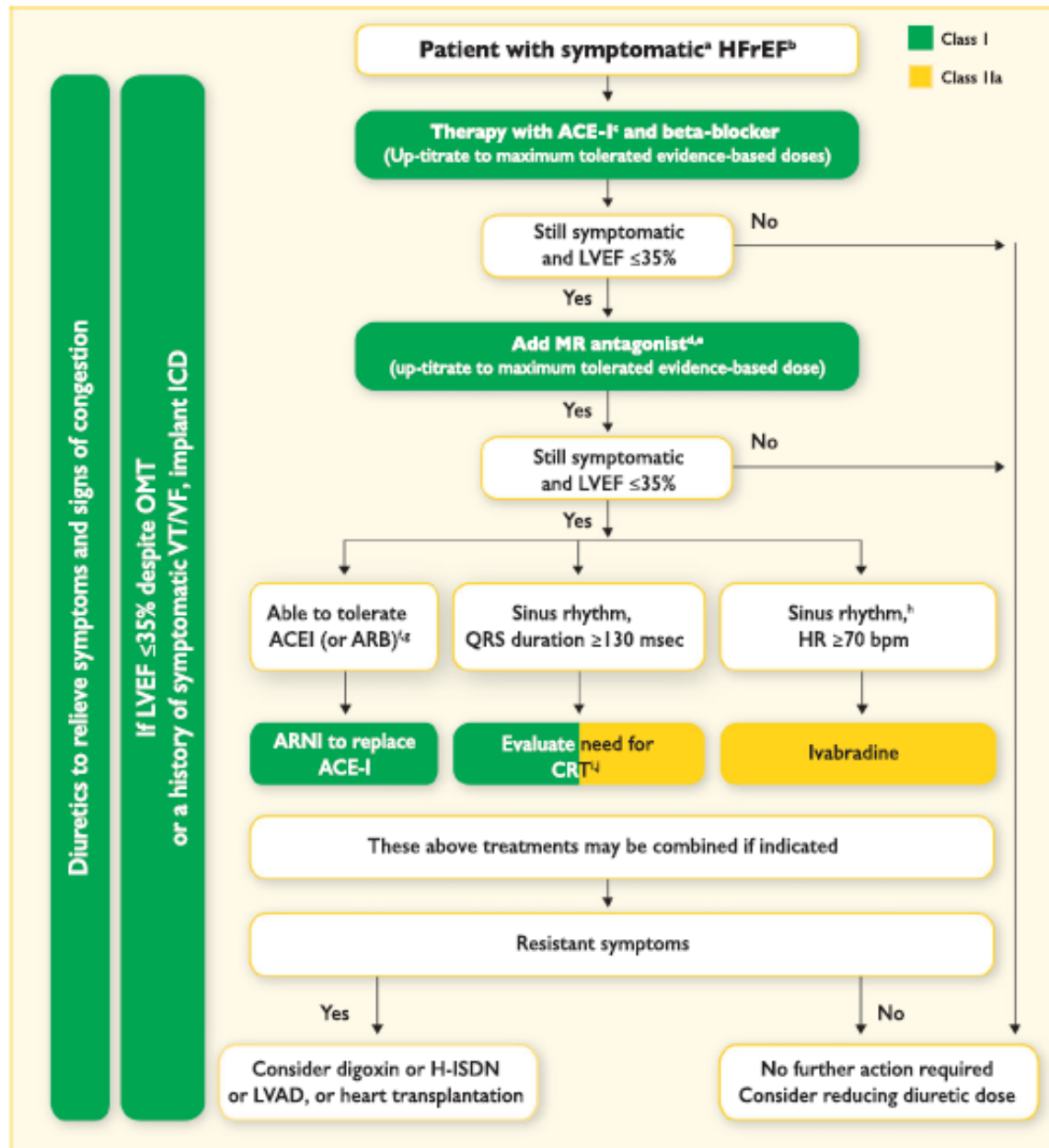
## 3/ Prevention of Heart Failure

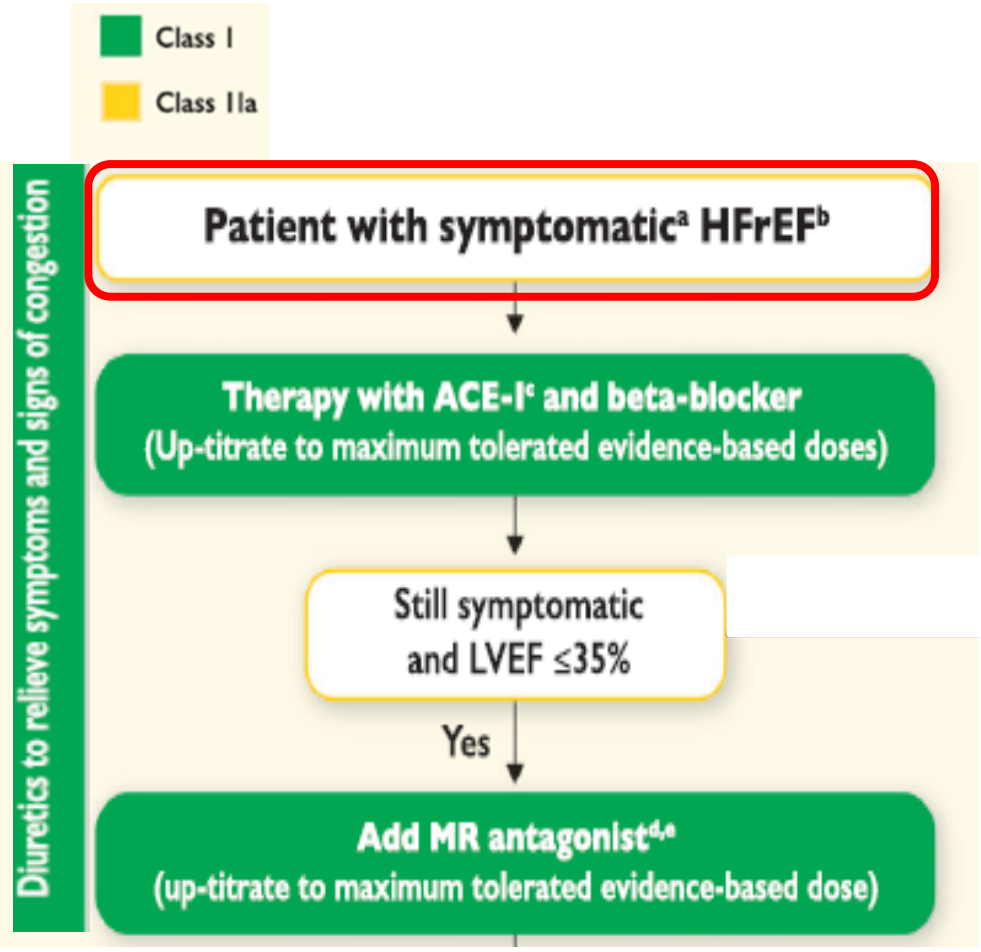
*The development of overt heart failure or death may be delayed through interventions aimed at modifying risk factors for HF or treating asymptomatic LV systolic dysfunction before the onset of symptoms.*

- ✓ **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.



# 4/Pharmacological treatment of symptomatic HF with reduced FE.





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**.

Class I

Class IIa

Still symptomatic  
and LVEF  $\leq 35\%$

Yes

Able to tolerate  
ACEI (or ARB)<sup>1,4</sup>

ARNI to replace  
ACE-I

If LVEF  $\leq 35\%$  despite OMT  
or a history of symptomatic VT/VF, implant ICD

If still symptomatic despite  
this optimal treatment :

- Angiotensin receptor  
neprilysin inhibitor as a  
replacement for the ACE

Class I

Class IIa

Still symptomatic  
and LVEF  $\leq 35\%$

Yes

Able to tolerate  
ACEI (or ARB)<sup>1,4</sup>

Sinus rhythm,  
QRS duration  $\geq 130$  msec

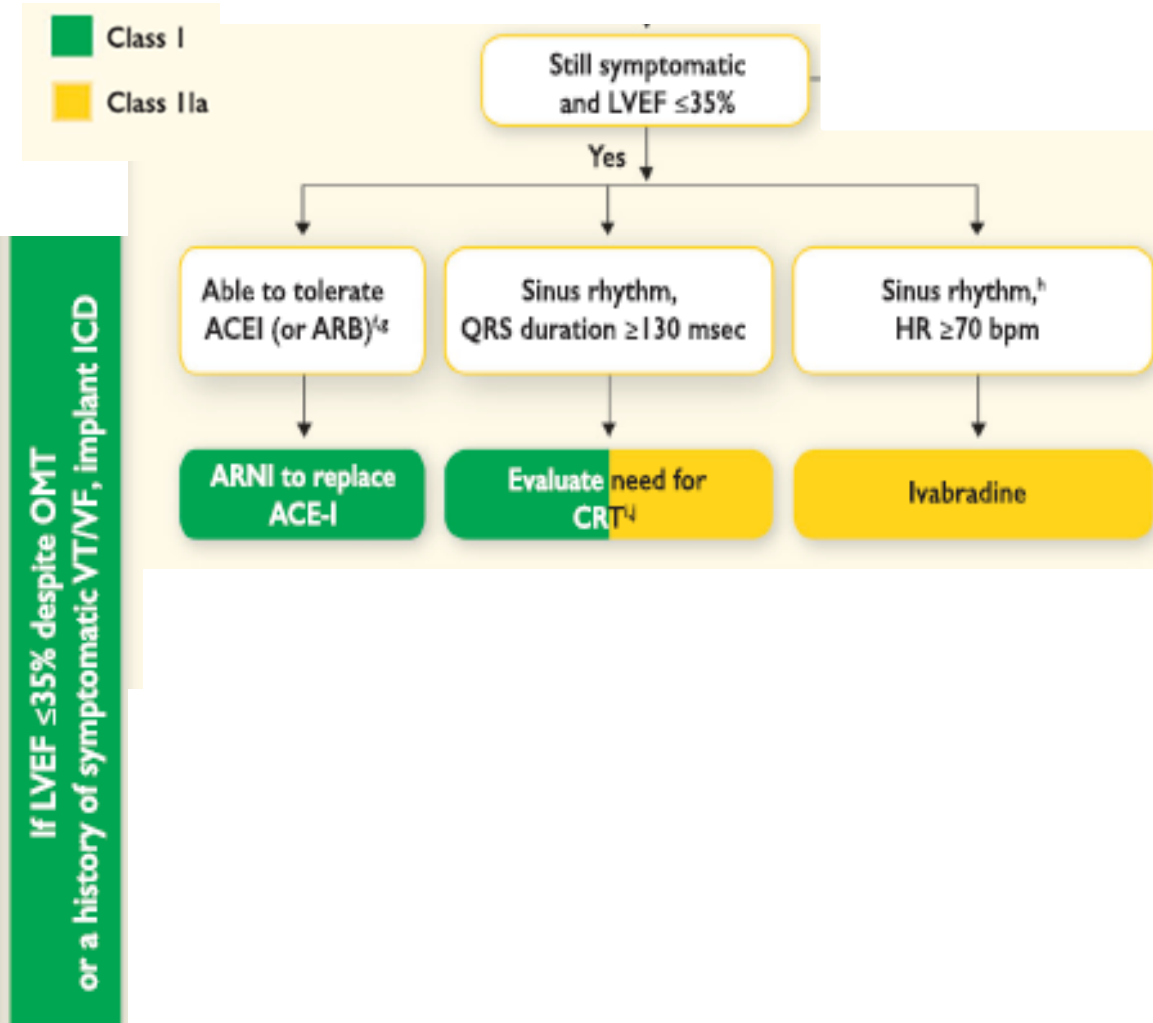
ARNI to replace  
ACE-I

Evaluate need for  
CRT<sup>4</sup>

If LVEF  $\leq 35\%$  despite OMT  
or a history of symptomatic VT/VF, implant ICD

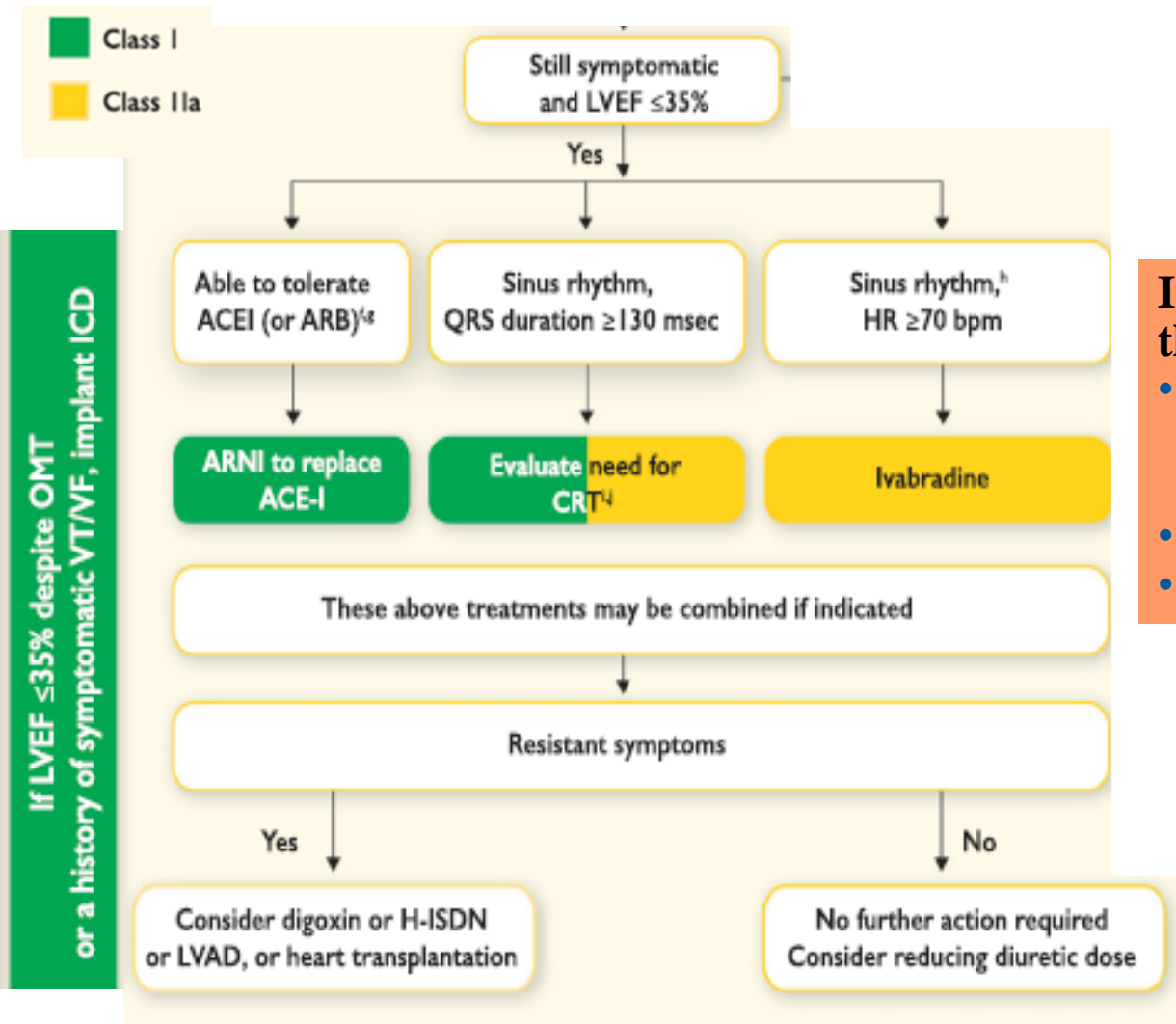
If still symptomatic despite  
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- CRT



**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).

IIb

B

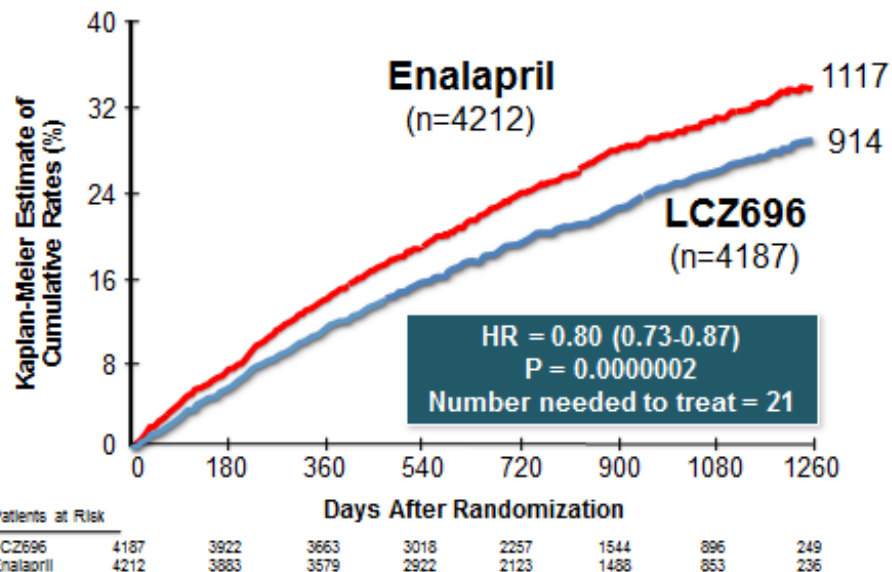


# A Comparison of Angiotensin Receptor-Neprilysin Inhibition (ARNI) With ACE Inhibition in the Long-Term Treatment of Chronic Heart Failure With a Reduced Ejection Fraction

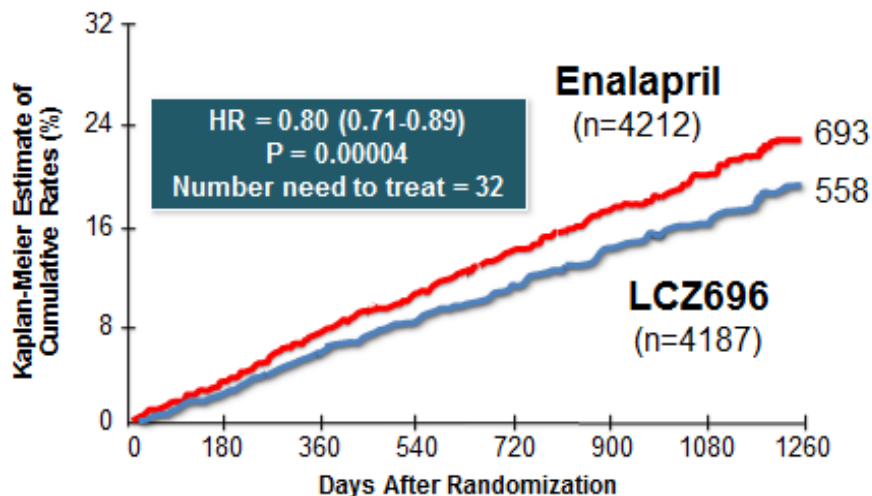
J J V McMurray M Packer et al

N Engl J Med 2014 (371);11: 993 1004

## PARADIGM-HF: Cardiovascular Death or Heart Failure Hospitalization (Primary Endpoint)



## PARADIGM-HF: Cardiovascular Death



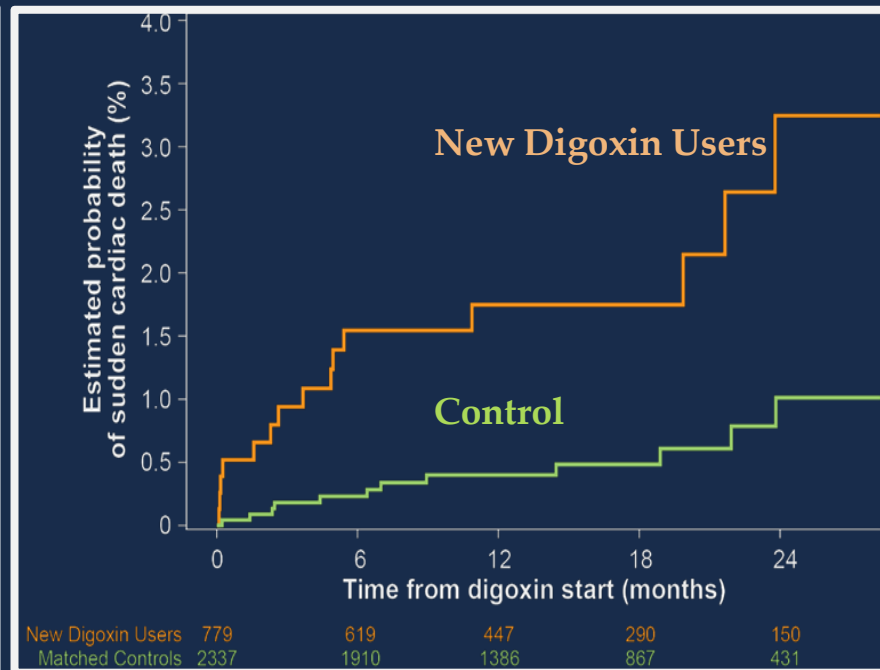
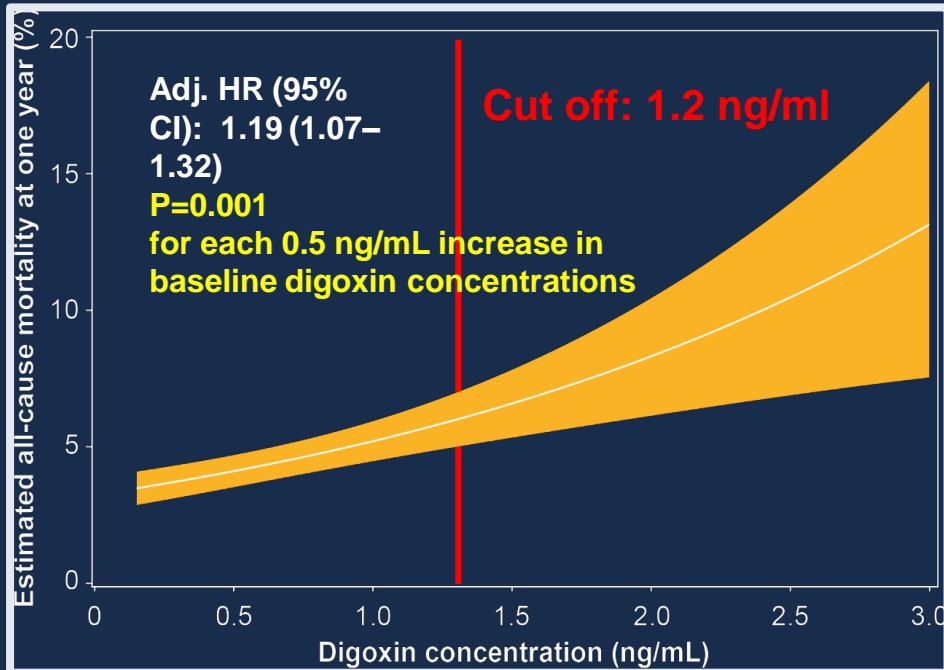
Patients at Risk		Days After Randomization							
		0	180	360	540	720	900	1080	1260
LCZ696	4187	4187	4056	3891	3282	2478	1716	1005	280
Enalapril	4212	4212	4051	3860	3231	2410	1726	994	279

# Digoxin And Mortality in Patients . Does Serum Digoxin Concentration Matter? (from ARISTOTLE Study)



ACC.17

66<sup>th</sup> Annual Scientific Session & Expo



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)

Implantation of CRT **not recommended**  
if QRS duration <130ms.

III	A
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CRT is recommended for symptomatic patients in sinus rhythm with LVEF  $\leq 35\%$  despite OMT and **LBBB**

- ✓ If QRS duration  $\geq 150$  msec
- ✓ If QRS duration  $\geq 130$  to 149 msec

I	A
I	B

If **non LBBB** QRS morphology, CRT still recommended

- ✓ if QRS duration  $\geq 150$  msec
- ✓ if QRS duration is 130-149 msec

IIa	B
IIb	B

## 6/ Implantable Cardioverter-Defibrillator (ICD) in HF patients

### 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  $\leq 35\%$  despite  $\geq 3$  months of OMT, provided they are expected to survive substantially longer than one year with good functional status, and they have:

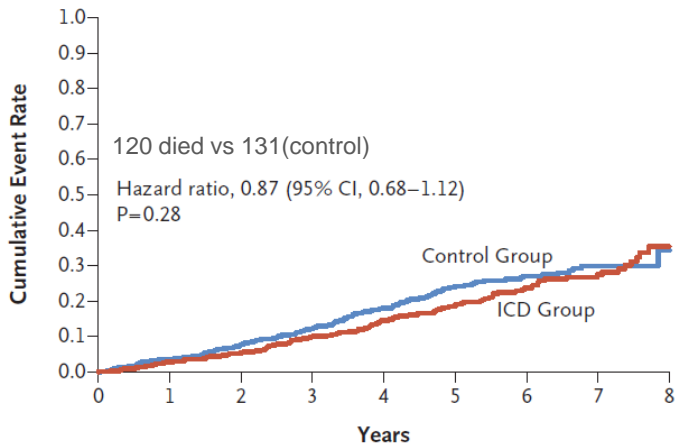
- IHD (unless they have had an MI in the prior 40 days – see below).
- DCM. (Dilated Cardiomyopathy)

I	A
I	B

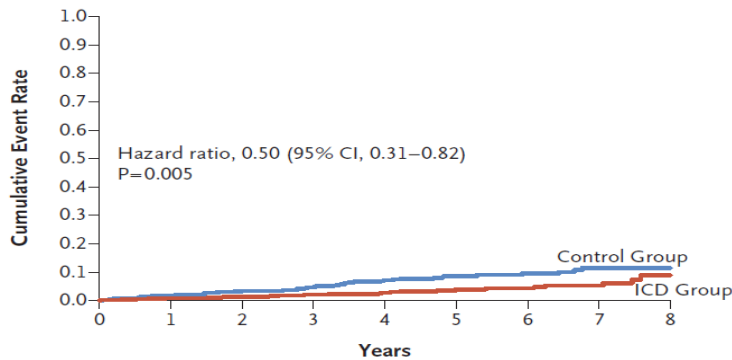
# Defibrillator Implantation in Patients with Nonischemic Systolic Heart Failure

Lars Køber, M.D., D.M.Sc., Jens J. Thune, M.D., Ph.D.,

## A Death from Any Cause



## C Sudden Cardiac Death



### No. at Risk

Group	0	1	2	3	4	5	6	7	8
Control Group	560	540	517	438	344	248	169	88	12
ICD Group	556	540	526	451	358	272	186	107	17

Subgroup	Hazard Ratio (95% CI)	P Value
<i>P value interaction: 0.009</i>		
Age		
<59 yr	0.51 (0.29-0.92)	0.02
≥59 to <68 yr	0.75 (0.48-1.16)	0.19
≥68 yr	1.19 (0.81-1.72)	0.38

**Not available in time!**

**DANISH**

*N Engl J Med 2016; 375:1221-1230*

## 7/ Management of co-morbidities

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

### Ferric Carboxymaltose

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

### Metformine

## 8/ Multidisciplinary team management

**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.***

III

B

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

III

A

III

B

III

C

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

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

III

A

III

B

**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.***

III

C

Thank-you!

Merci!

Grazie!