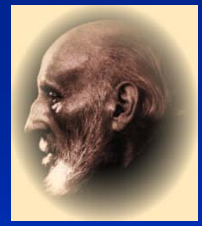
Uicarv



XXX Congreso Nacional de la Sociedad Española de Medicina Interna

VIII Congreso de la Sociedad de Medicina Interna de la Comunidad Valenciana

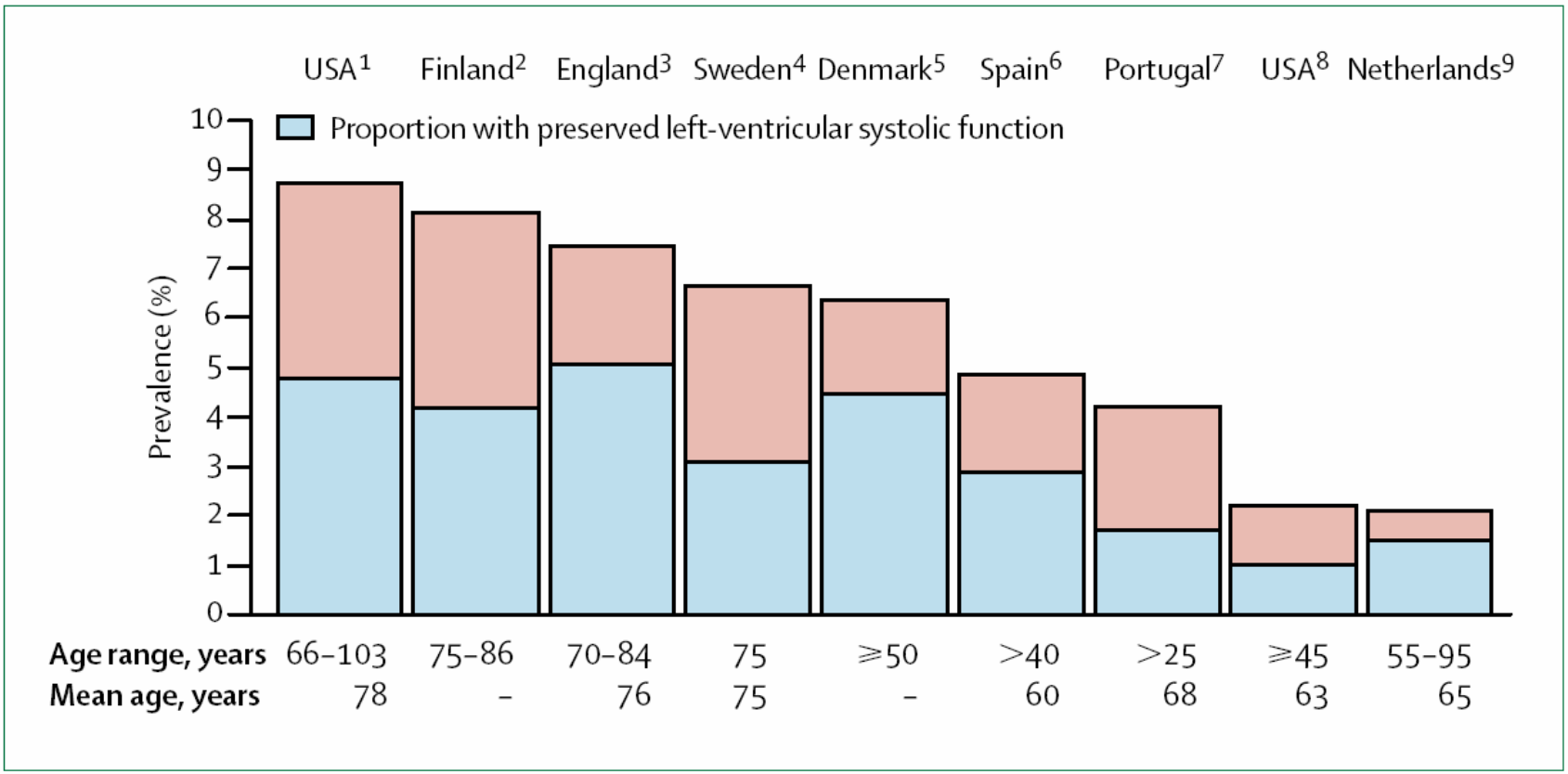
¿Hemos de tratar con betabloqueantes a los pacientes con insuficiencia cardiaca y función sistólica preservada?

¿Porqué no?

Luis Manzano, Unidad de insuficiencia Cardiaca y Riesgo Vascular (UICARV). H.U. Ramón y Cajal

Betabloqueantes en la IC-FEP

El problema sanitario



McMurray. Lancet 2005; 365: 1877

Betabloqueantes en la IC-FEP

El paciente

FE

50%

M. Interna
Geriatría y AP

DIASTOLICA

Mujer

HTA

No fumador

> 70 años

Comorbilidad

Cardiología

SISTOLICA

Varón

C. isquémica

Fumador

< 70 años

Trends in Prevalence and Outcome of Heart Failure with Preserved Ejection Fraction

Table 1. Characteristics of Patients with Heart Failure and Preserved or Reduced Ejection Fraction.*

Characteristic	Reduced Ejection Fraction (N=2429)	Preserved Ejection Fraction (N=2167)	P Value	Adjusted P Value†
Age (yr)	71.7±12.1	74.4±14.4	<0.001	NA
Male sex (% of patients)	65.4	44.3	<0.001	<0.001
Body-mass index‡	28.6±7.0	29.7±7.8	0.002	0.17
Obesity (% of patients)‡§	35.5	41.4	0.007	0.002
Serum creatinine on admission (mg/dl)	1.6±1.0	1.6±1.1	0.31	0.30
Hypertension (% of patients)	48.0	62.7		
Coronary artery disease (% of patients)	63.7	52.9		
Atrial fibrillation (% of patients)	28.5	41.3		
Substantial valve disease (% of patients)	6.5	2.6	<0.001	0.05
Ejection fraction (%)	29±10	61±7	<0.001	NA

NEJM 2006; 355:251

P4235

Long-term mortality and cause of death in patients with a firm diagnosis of Heart Failure and Preserved Ejection Fraction (HF-PEF): implications for clinical trials in HF-PEF

ESC, BARCELONA 09

M. Yebra-Yebra, J.L. Santiago-Ruiz, J.I. Garcia-Sanchez, C. Fernandez-Fernandez, J. Fresneda-Moreno, C. Sanchez-Gallego, I. Said-Criado, N. Sanchez-Gomez, M. Moralejo-Martin, L. Manzano. *Hospital Universitario Ramón y Cajal. Universidad de Alcala, Madrid, Spain*

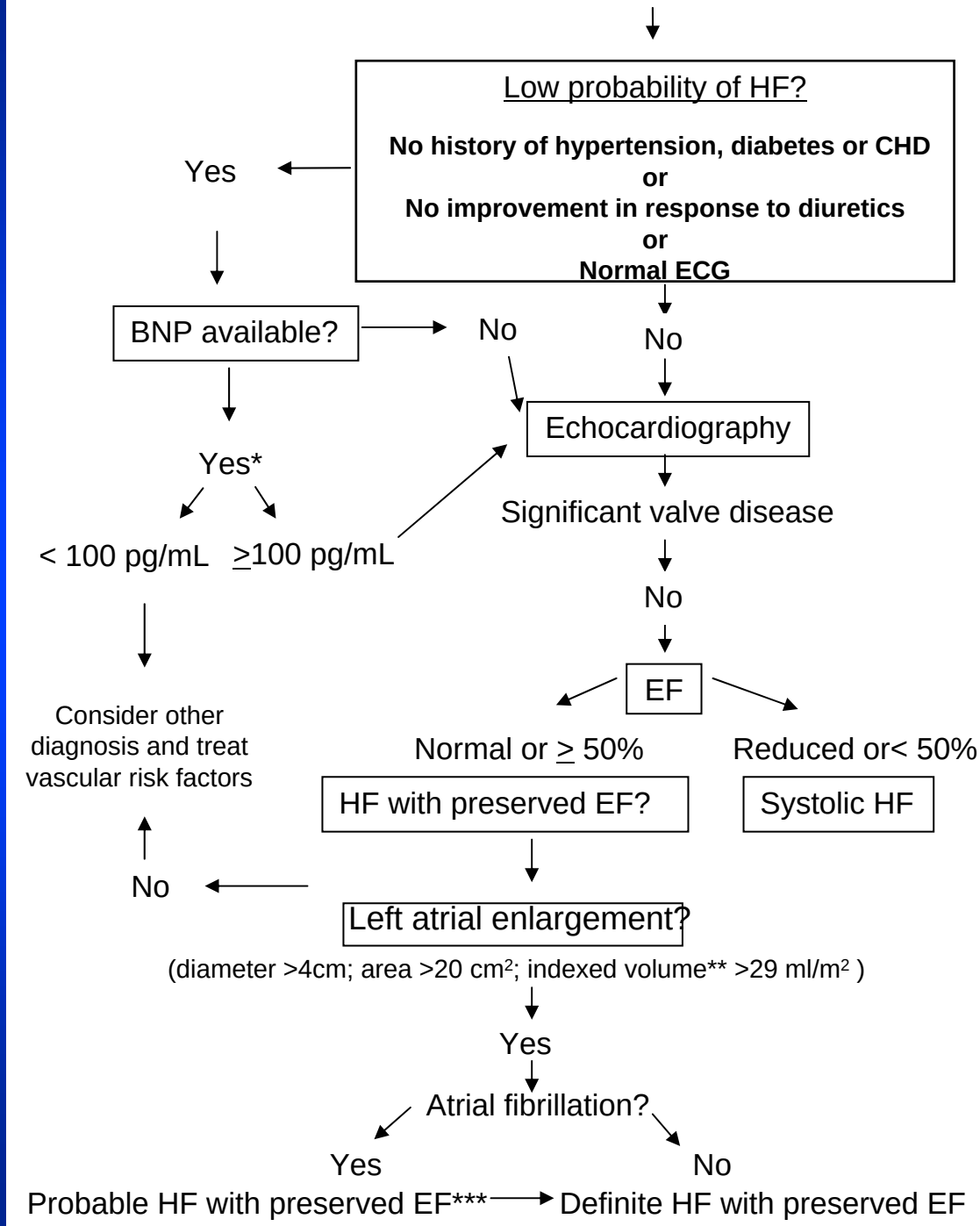
	Preserved LVEF	Reduced LVEF	
Nº	239 (74%)	82 (26%)	
Age	80,5	80,7	p= N.S.
Female	72,8%	36,3%	p=0,000
HTA	**92,9%**	86,6%	p= N.S.
DM	40,6%	50%	p= N.S.
CAD	13,4%	39%	p=0,000
AF	**60,7%**	58,5%	p= N.S.

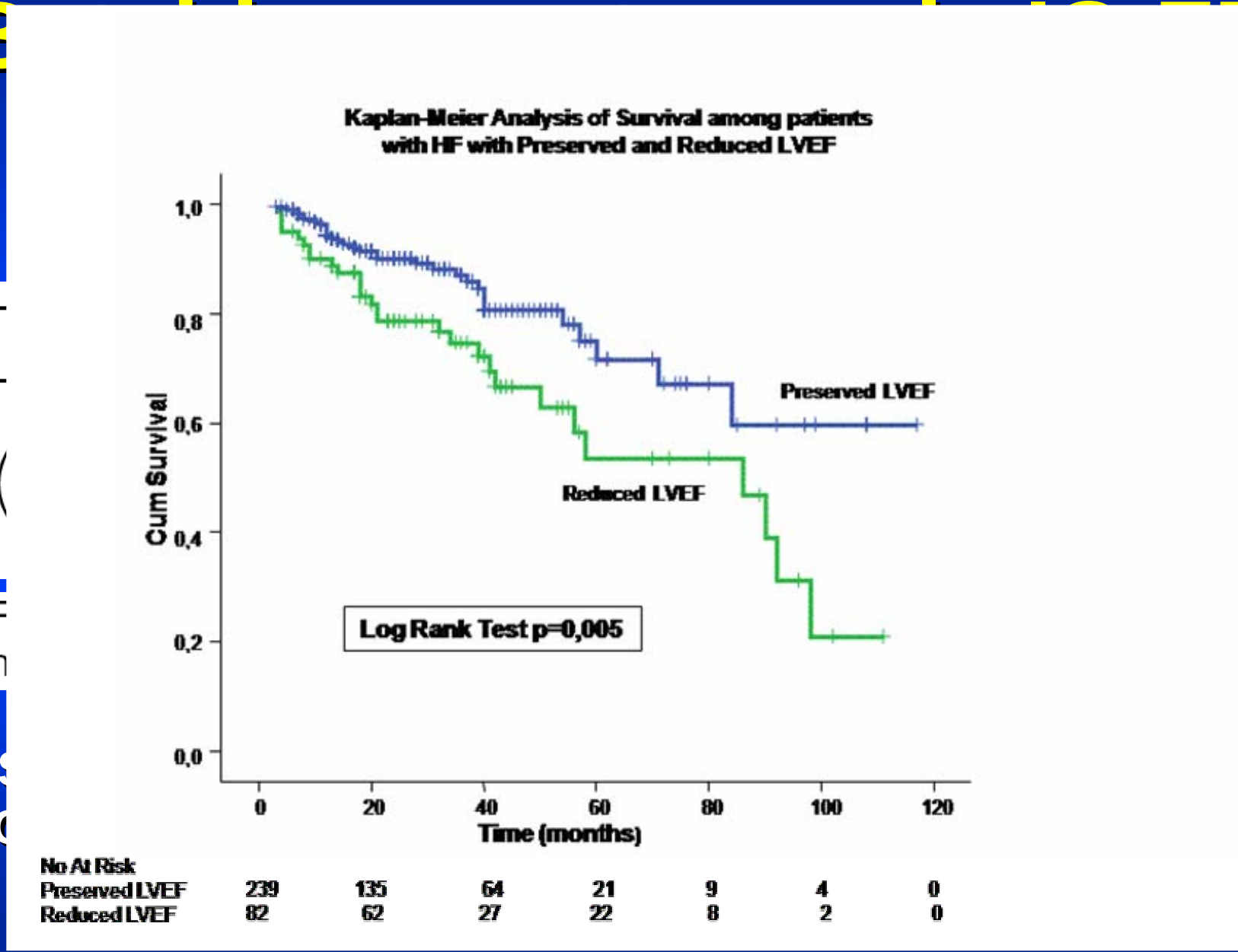
Diagnóstico de I. cardíaca

Anciano

Gran dificultad en la interpretación de los datos clínicos

Comorbilidad muy frecuente


Low probability of HF?
No history of hypertension, diabetes or CHD
or
No improvement in response to diuretics
or
Normal ECG
Yes
No
BNP available?
No
Yes*
< 100 pg/mL
≥100 pg/mL
Echocardiography
Significant valve disease
No
EF
Normal or ≥ 50%
Reduced or< 50%
HF with preserved EF?
Systolic HF
Consider other diagnosis and treat vascular risk factors
No
Left atrial enlargement?
(diameter >4cm; area >20 cm²; indexed volume** >29 ml/m²)
Yes
Atrial fibrillation?
Yes
No
Probable HF with preserved EF***
Definite HF with preserved EF


Kaplan-Meier Analysis of Survival among patients with HF with Preserved and Reduced LVEF
Cum Survival
1,0
0,8
0,6
0,4
0,2
0,0
Preserved LVEF
Reduced LVEF
Log Rank Test p=0,005
0
20
40
60
80
100
120
Time (months)
No At Risk
Preserved LVEF 239 135 64 21 9 4 0
Reduced LVEF 82 62 27 22 8 2 0

Betabloqueantes en la IC con FE preservada

La evidencia

Luis Manzano, Unidad de insuficiencia Cardiaca y Riesgo Vascular (UICARV). H.U. Ramón y Cajal

ELSEVIER

European Journal of Heart Failure 10 (2008) 933–989

The European Journal of Heart Failure

www.elsevier.com/locate/ejheart

ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2008☆,☆☆

The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2008 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association of the ESC (HFA) and endorsed by the European Society of Intensive Care Medicine (ESICM)

Authors/Task Force Members: Kenneth Dickstein (Chairperson) (Norway)*, Alain Cohen-Solal (France), Gerasimos Filippatos (Greece), John J.V. McMurray (UK), Piotr Ponikowski (Poland), Philip Alexander Poole-Wilson (UK), Anna Strömberg (Sweden), Dirk J. van Veldhuisen (The Netherlands), Dan Atar (Norway), Arno W. Hoes (The Netherlands), Andre Keren (Israel), Alexandre Mebazaa (France), Markku Nieminen (Finland), Silvia Giuliana Priori (Italy), Karl Swedberg (Sweden)

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☆ The CME text 'ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2008' is accredited by the European Board for Accreditation in Cardiology (EBAC) for '5' hours of External CME credits. Each participant should claim only those hours of credit that have actually been spent in the educational activity. EBAC works in cooperation with the European Accreditation Council for Continuing Medical Education (EACCME), which is an institution of the European Union of Medical Specialists (UEMS). In compliance with EBAC/EACCME guidelines, all authors participating in this programme have disclosed potential conflicts of interest that might cause a bias in the article. The Organizing Committee is responsible for ensuring that all potential conflicts of interest relevant to the programme are declared to the participants prior to the CME activities. CME questions for this article are available at: European Heart Journal http://cme.oxfordjournals.org/cgi/hierarchy/oupcme..node;ehj and European Society of Cardiology http://www.escardio.org/knowledge/guidelines.

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E-mail address: kenneth.dickstein@med.uib.no (K. Dickstein).

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doi:10.1016/j.ejheart.2008.08.005

57 páginas

Management of patients with heart failure and preserved left ventricular ejection fraction (HFPEF)

- No treatment has yet been shown, convincingly, to reduce morbidity and mortality in patients with HFPEF. Diuretics are used to control sodium and water retention and relieve breathlessness and oedema. Adequate treatment of hypertension and myocardial ischaemia is also considered to be important, as is control of the ventricular rate in patients with AF. Two very small studies (<30 patients each) have shown that the heart rate-limiting calcium channel blocker verapamil may improve exercise capacity and symptoms in these patients [128,129].
- The 3023 patient Candesartan in Heart Failure: Assessment of Reduction in Mortality and Morbidity (CHARM)-Preserved trial did not show a significant reduction in the risk of the primary composite end-point (adjudicated death from cardiovascular causes or admission with HF) but did show a significant reduction in the risk of investigator-reported admissions for HF [130]. The 850 patient Perindopril for Elderly People with Chronic Heart failure (PEP-CHF) study failed to show a reduction in this composite primary end-point over the total duration of the trial, but showed a significant reduction in cardiovascular death and HF hospitalization at 1 year [131].

ACC/AHA 2005 Guideline

4.3.2. Patients With HF and Normal LVEF

RECOMMENDATIONS

Class I

1. Physicians should control systolic and diastolic hypertension in patients with HF and normal LVEF, in accordance with published guidelines. *(Level of Evidence: A)*
2. Physicians [illegible] rate in patients with HF [illegible] atrial fibrillation. *(Level of Evidence: C)*
3. Physicians should use diuretics to control pulmonary congestion and peripheral edema in patients with HF and normal LVEF. *(Level of Evidence: C)*

2 páginas de 82

ACCF/AHA Practice Guideline: Focused Update

2009 Focused Update: ACCF/AHA Guidelines for the Diagnosis and Management of Heart Failure in Adults

Class I

1. Physicians should control systolic and diastolic hypertension in patients with HF and normal LVEF, in accordance with published guidelines. (*Level of Evidenc*

2. Phys atients with lation. (*Level of Evidence: C*)

3. Physicians should use diuretics to control pulmonary congestion and peripheral edema in patients with HF and normal LVEF. (*Level of Evidence: C*)

Idénticas recomendaciones
2 páginas de 90

Guías IC

AHA/ACC

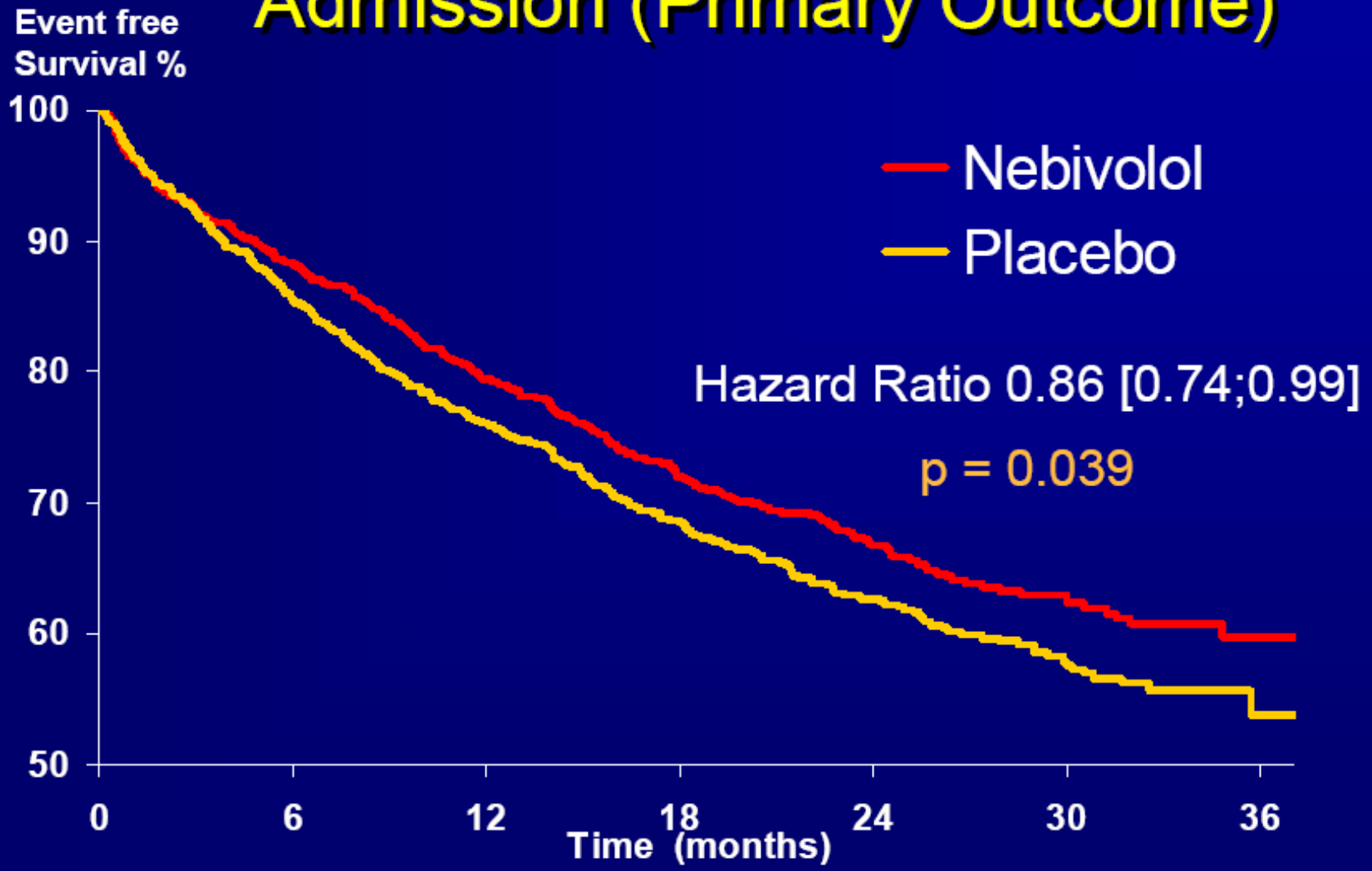
2009

Table 8. Recommendations for Treatment of Patients With Heart Failure and Normal Left Ventricular Ejection Fraction

Recommendation	Class	Level of Evidence
Physicians should control systolic and diastolic hypertension, in accordance with published guidelines.	I	A
Physicians should control ventricular rate in patients with atrial fibrillation.	I	C
Physicians should use diuretics to control pulmonary congestion and peripheral edema.	I	C
Physicians might recommend coronary revascularization in patients with coronary artery disease in whom symptomatic or demonstrable myocardial ischemia is judged to be having an adverse effect on cardiac function.	IIa	C
Restoration and maintenance of sinus rhythm in patients with atrial fibrillation might be useful to improve symptoms	IIb	C
The use of beta-adrenergic blocking agents, angiotensin converting enzyme inhibitors, angiotensin receptor blockers, or calcium antagonists in patients with controlled hypertension might be effective to minimize symptoms of heart failure	IIb	C
The use of digitalis to minimize symptoms of heart failure might be considered.	IIb	C

SENIORS

All Cause Mortality or CV Hospital Admission (Primary Outcome)



No. of events: Nebivolol 332 (31.1%); Placebo 375 (35.3%)

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Vol. 53, No. 23, 2009
ISSN 0735-1097/09/$36.00
doi:10.1016/j.jacc.2009.02.046

Beta-Blockade With Nebivolol in Elderly Heart Failure Patients With Impaired and Preserved Left Ventricular Ejection Fraction

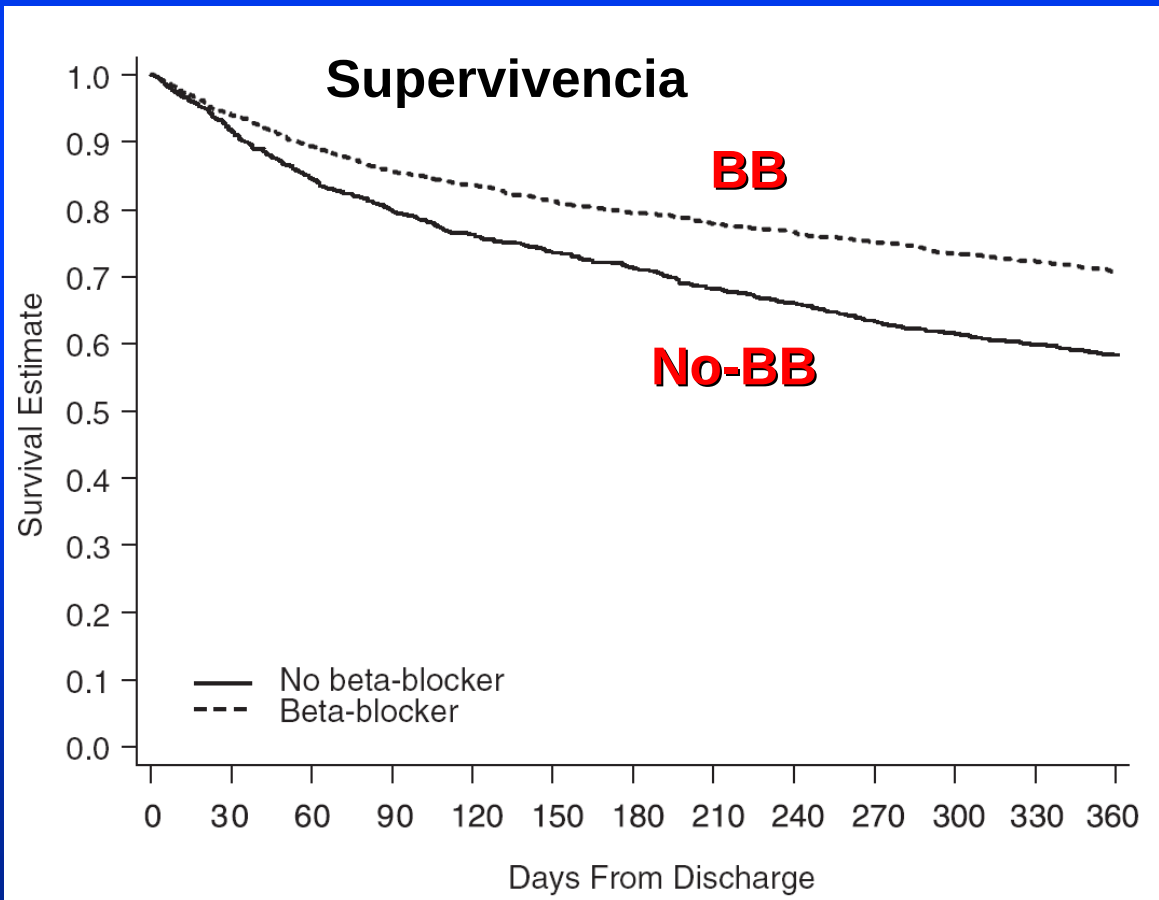
Data From SENIORS (Study of Effects of Nebivolol Intervention

	LVEF ≥40%		
Outcome	Nebivolol (n = 320)	Placebo (n = 323)	HR (95% CI)
Primary outcome (all-cause mortality or CV hospitalization)	92 (28.8)	108 (33.4)	0.82 (0.62–1.08)
All-cause mortality	44 (13.8)	48 (14.9)	0.92 (0.61–1.36)
All-cause mortality or HF hospitalization	67 (20.9)	75 (23.2)	0.88 (0.63–1.23)
CV mortality	28 (8.8)	35 (10.8)	0.80 (0.49–1.32)

Clinical Effectiveness of Beta-Blockers in Heart Failure

Findings From the OPTIMIZE-HF (Organized Program to Initiate Lifesaving Treatment in Hospitalized Patients With Heart Failure) Registry

(J Am Coll Cardiol 2009;53:184–92)



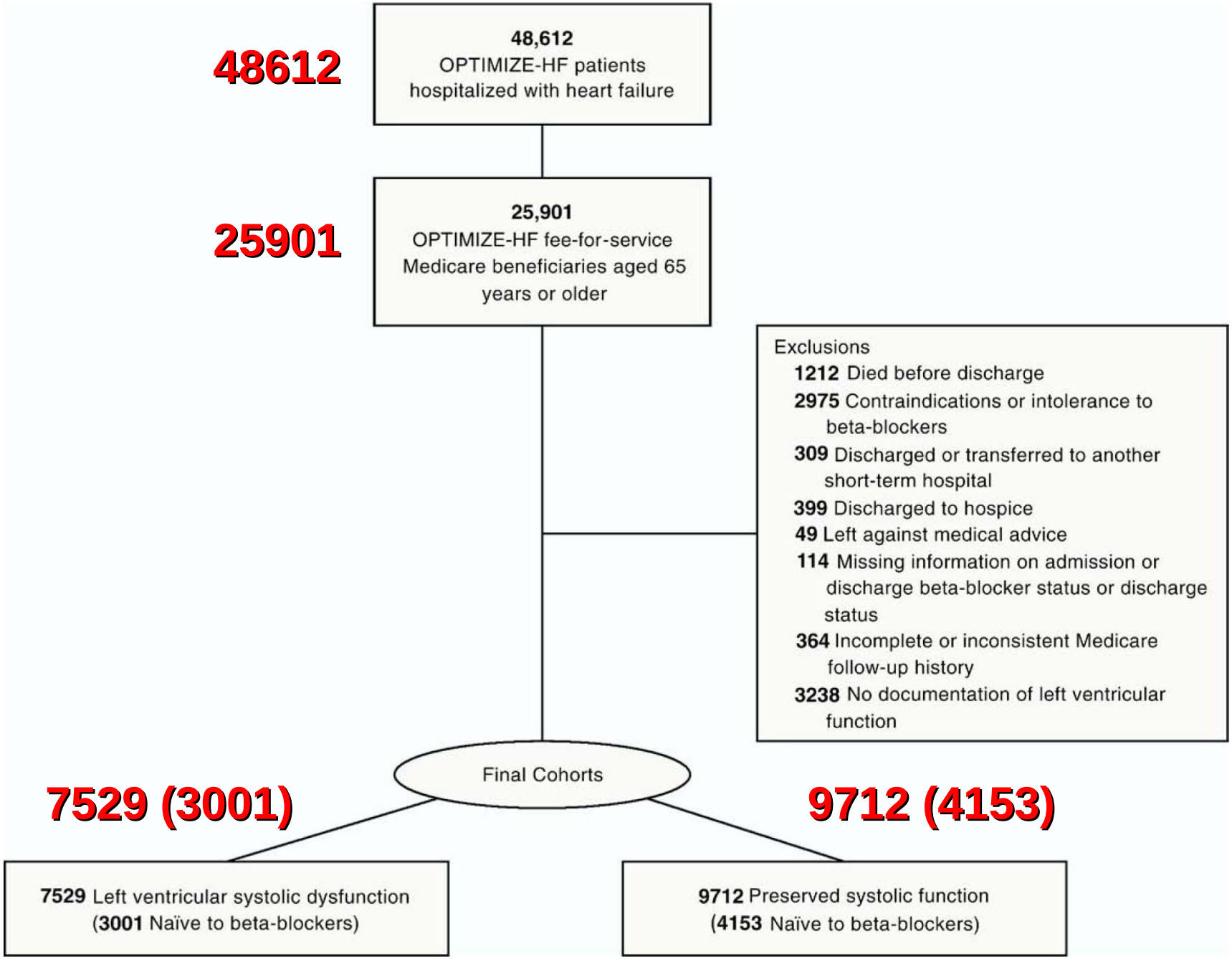
HR en pacientes en tto BB de inicio, según FE

Registro Optimize

Population and Outcome	Hazard Ratio (95% Confidence Interval) Unadjusted	Inverse-Weighted
Systolic (n = 3,001)		
Mortality	0.65 (0.57–0.73)	0.77 (0.68–0.87)
Readmission	0.82 (0.75–0.90)	0.89 (0.80–0.99)
Combined	0.79 (0.72–0.86)	0.87 (0.79–0.96)
Preserved (n = 4,153)		
Mortality		4–1.07)
Readmi		0–1.06)
Combined	0.95 (0.88–1.02)	0.98 (0.91–1.06)

¡No fue peor que placebo!

(J Am Coll Cardiol 2009;53:184–92)


48612
48,612
OPTIMIZE-HF patients
hospitalized with heart failure
25901
25,901
OPTIMIZE-HF fee-for-service
Medicare beneficiaries aged 65
years or older
Exclusions
1212 Died before discharge
2975 Contraindications or intolerance to beta-blockers
309 Discharged or transferred to another short-term hospital
399 Discharged to hospice
49 Left against medical advice
114 Missing information on admission or discharge beta-blocker status or discharge status
364 Incomplete or inconsistent Medicare follow-up history
3238 No documentation of left ventricular function
Final Cohorts
7529 (3001)
9712 (4153)
7529 Left ventricular systolic dysfunction
(3001 Naïve to beta-blockers)
9712 Preserved systolic function
(4153 Naïve to beta-blockers)

Limitaciones del registro Optimize

1. Dudosa representatividad de la población
2. Datos obtenidos de la Hª médica
3. No información después del alta
4. Sólo evalúa mortalidad e ingreso
5. No datos sobre las causas mortalidad / ingreso
6. Posibles factores de confusión no controlados

Effect of Statins, Angiotensin-Converting Enzyme Inhibitors, and Beta Blockers on Survival in Patients ≥65 Years of Age With Heart Failure and Preserved Left Ventricular Systolic Function

Rahman Shah MD[a,b,*], Yung Wang PhD[a,c], and JoAnne M. Foody MD[a,c]

Am J Cardiol 2008; 101:217

Medicare beneficiaries, 13533 pacientes

	RR	
	1 año	3 años
Estatinas	0,69 (0,61-0,78)	0,73 (0,68-0,79)
IECA	0,88 (0,82-0,95)	0.93 (0,89-0,98)
B-bloqueantes	0.93 (0,87-1,10)	0.92 (0,87-0,97)

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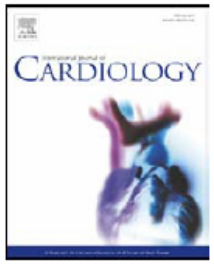


Mortality and morbidity of newly diagnosed heart failure with preserved systolic function treated with β-blockers: A propensity-adjusted case–control populational study

Francisco M. Gomez-Soto *, Sotero P. Romero, Jose A. Bernal, Miguel A. Escobar, Jose L. Puerto, Jose L. Andrey, Jose Almenara, Francisco Gomez

Department of Medicine, Hospital Universitario Puerto Real, University of Cadiz, School of Medicine, Spain

378 BB vs 707 no BB

	Adjusted HR (95% CI)	
	ITT approach[a]	TDE approach[b]
All-cause mortality[c]	0.72 (0.58–0.84)	0.64 (0.53–0.74)
Cardiovascular mortality[c]	0.59 (0.50–0.69)	0.57 (0.49–0.70)
Hospitalization for heart failure[c]	0.76 (0.63–0.88)	0.69 (0.55–0.81)

Prescrip

t failure

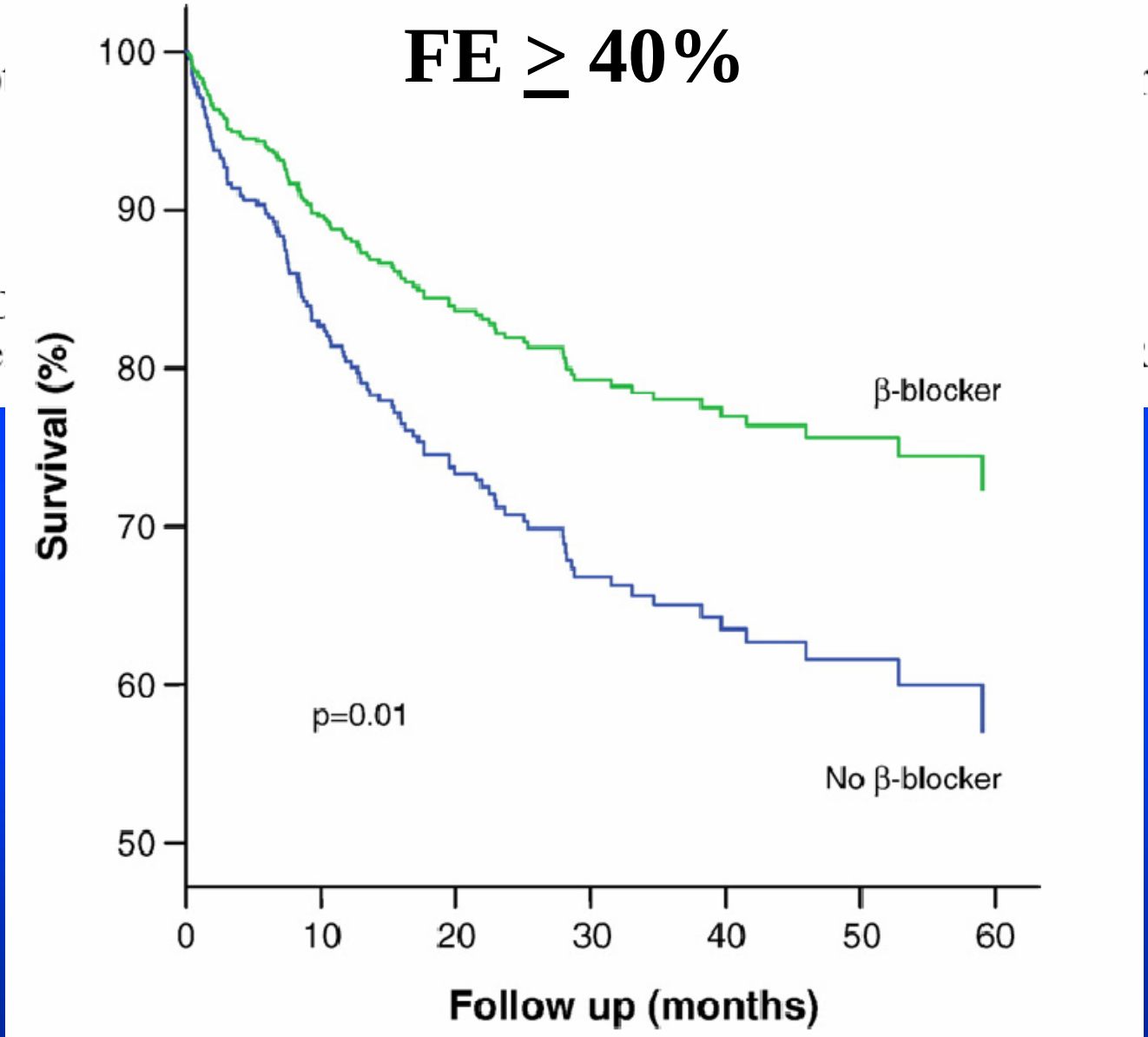
Daniela D

Ger Cleure

Lucas [c],

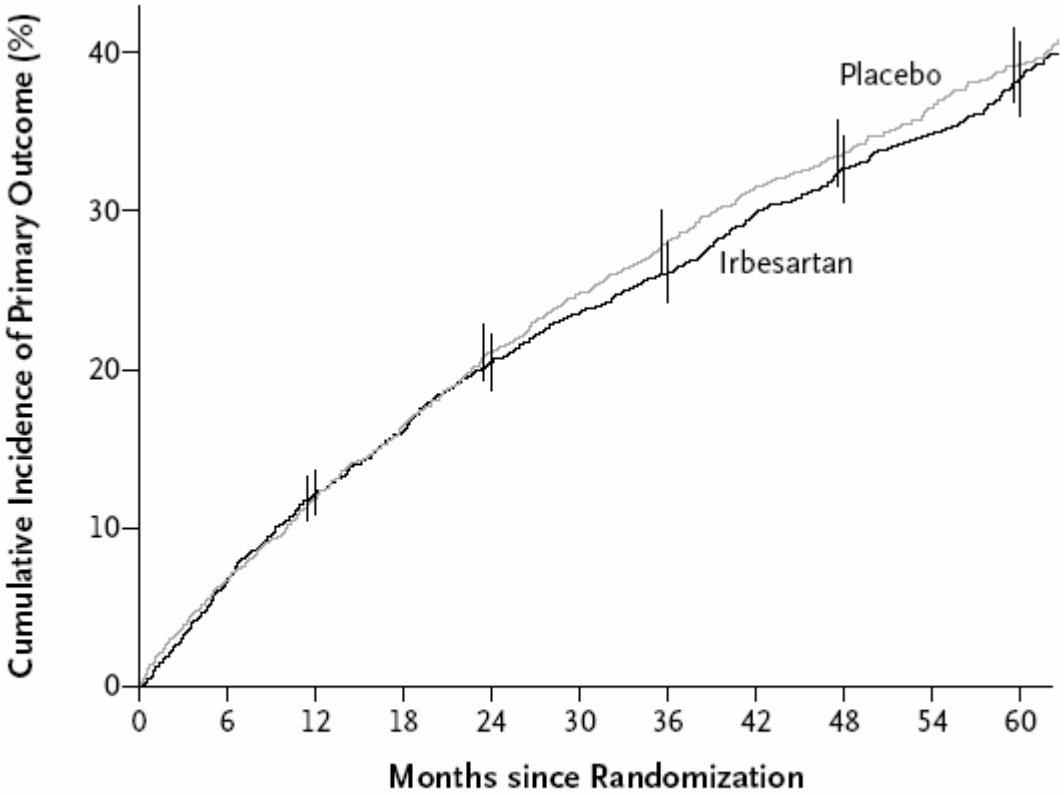
uskamp [a,d]

FE ≥ 40%



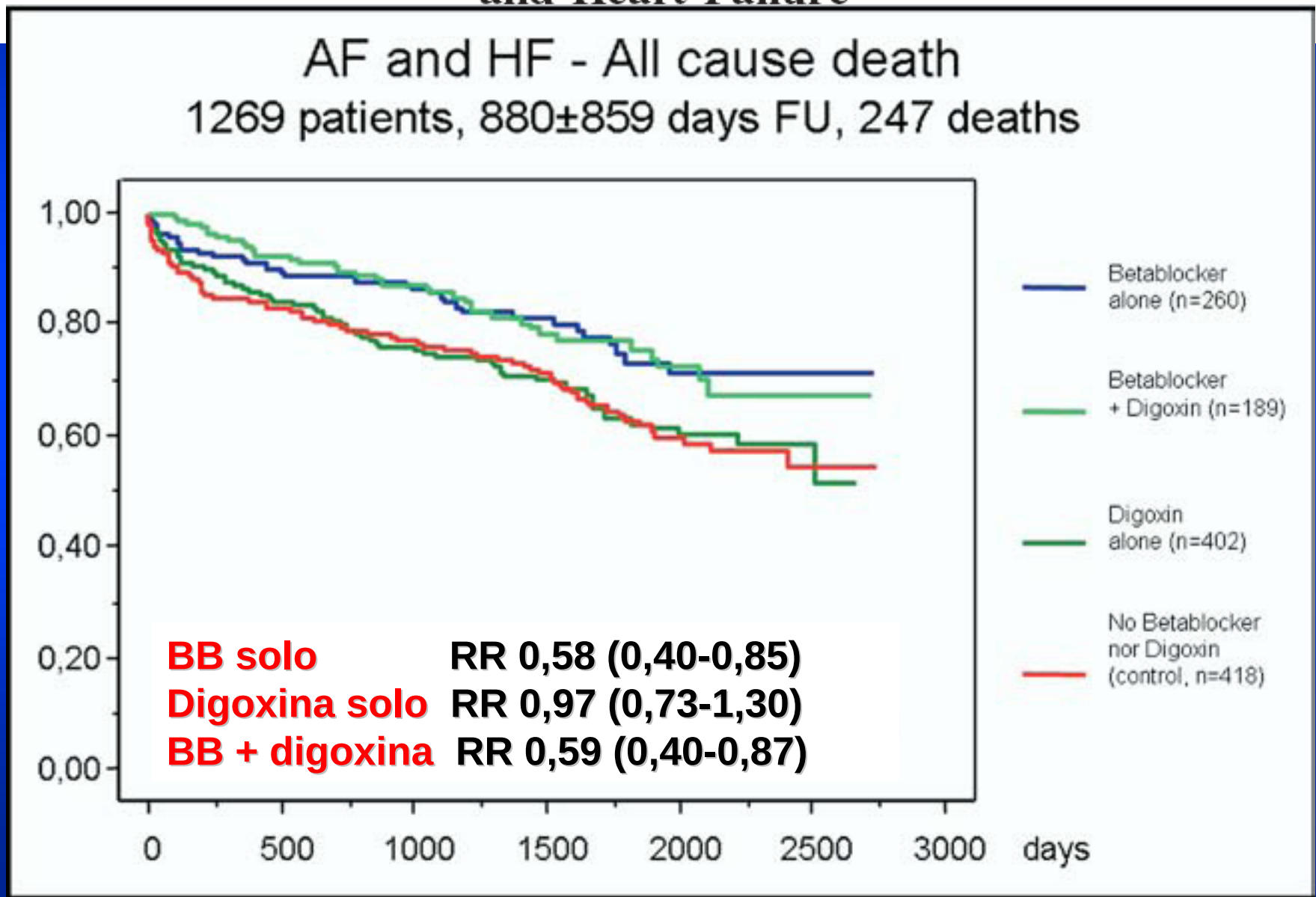
Eur J Heart Fail 2007;9:280

Irbesartan in Patients with Heart Failure and Preserved Ejection Fraction



No. at Risk											
Irbesartan	2067	1929	1812	1730	1640	1569	1513	1291	1088	816	497
Placebo	2061	1921	1808	1715	1618	1539	1466	1246	1051	776	446

Comparison of Beta Blocker and Digoxin Alone and in Combination for Management of Patients With Atrial Fibrillation and Heart Failure

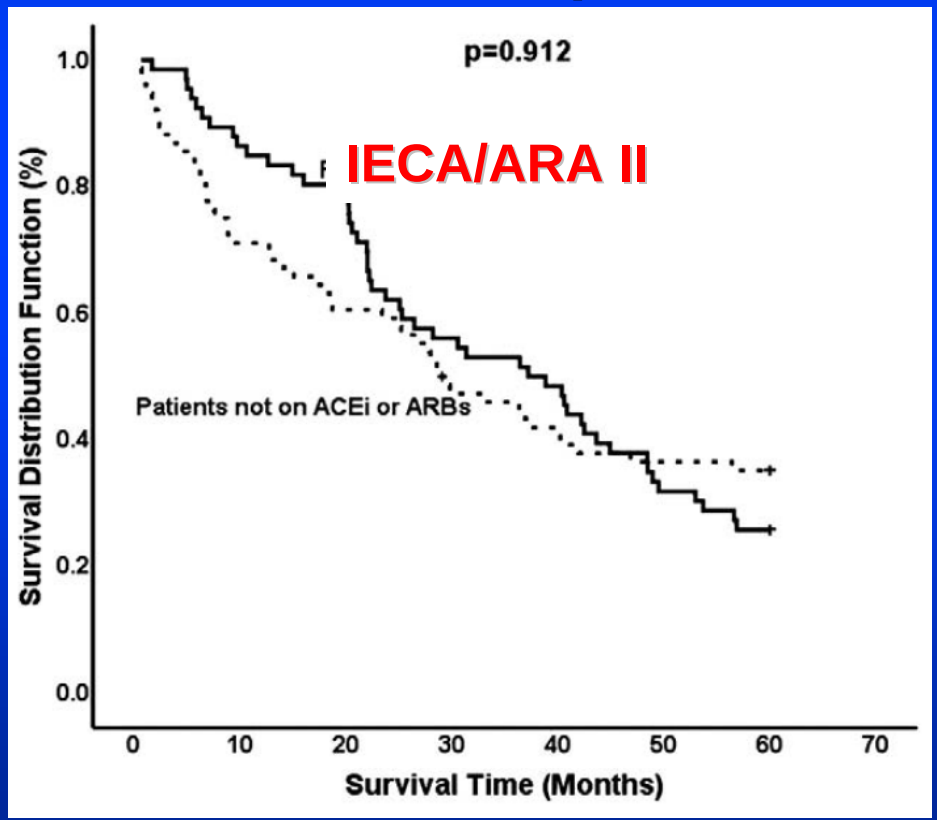


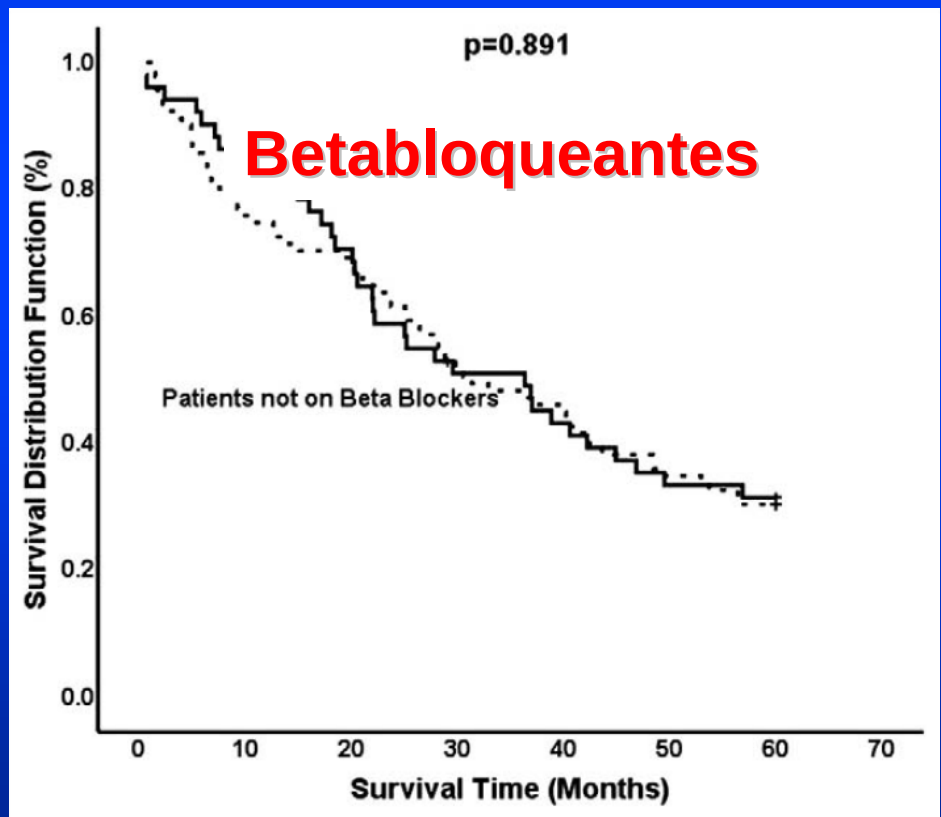
Value of Medical Therapy in Patients >80 Years of Age With Heart Failure and Preserved Ejection Fraction

Faramarz Tehrani, MD, Anita Phan, MD, Christopher V. Chien, MD, Ryan P. Morrissey, MD, Asim M. Rafique, MD, and Ernst R. Schwarz, MD, PhD*

Am J Cardiol 2009;103:829

142 pacientes, mortalidad 5 años

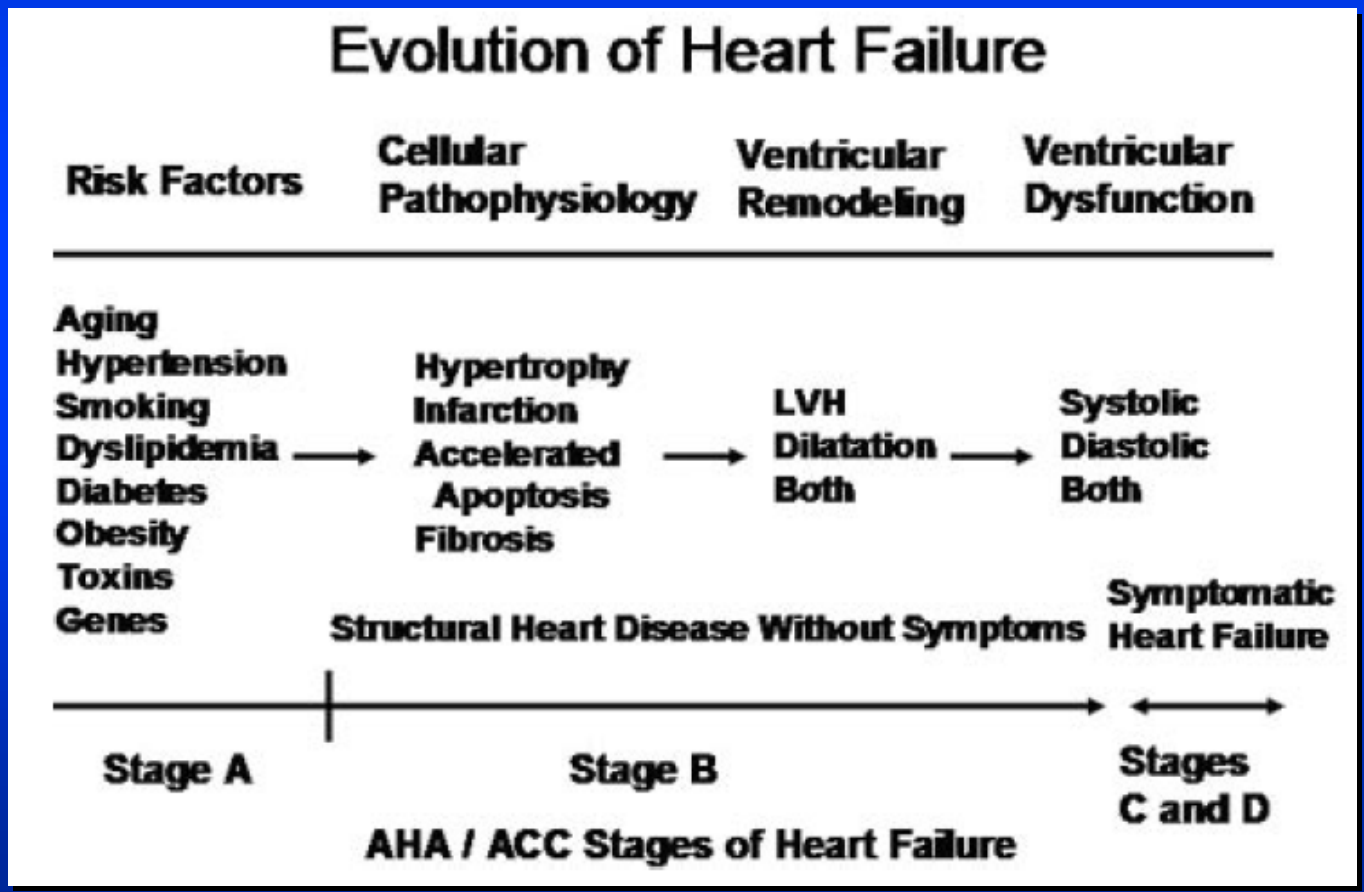




AHA Scientific Statement

Prevention of Heart Failure

***Circulation*. 2008;117:2544.**



Fármacos que reducen la incidencia de IC

Table 2. Medical T

	Clinical Trial	No. of Patients*	Patient Inclusion Criteria	HF Incidence	Relative Risk Reduction, %
Randomized, placebo-controlled trials					
ACEI	HOPE[137] (ramipril, 2.5 or 10 mg)	9297	Vascular disease (CAD, PVD, or stroke) or diabetes plus cardiac risk factor; creatinine <2.4 mg/dL	Ramipril vs placebo, 9% vs 11%	23
ACEI	EUROPA[138] (perindopril, 8 mg)	12 218	Documented stable CAD	Perindopril vs placebo, 1.0% vs 1.7%	39
ACEI	SAVE[34] (captopril,	2231	After acute MI; LVEF ≤40%;	Captopril vs placebo, 11% vs 16%	37
Antipl inhibit			me: n ECG rdiac	Clopidogrel vs placebo, 3.7% vs 4.4%	18
ARB			tus,		32
ARB			betes,		23
Statin			na, g/dL, /dL		19
Random controlle					
β-Blocker or ACEI, with tight BP control	UKPDS[153] (captopril or atenolol, goal BP <150/85 mm Hg)	1148	Type 2 diabetes mellitus, hypertension	Captopril or atenolol (BP <150/85 mm Hg) vs other drugs (BP <180/105 mm Hg), 3.6% vs 8.1%	56
Retrospective studies					
β-Blocker	SOLVD[270] (subanalysis of prevention trial)	2107	Asymptomatic LV dysfunction, ejection fraction <35%	Enalapril plus β-blocker vs enalapril plus no β-blocker, N/A	36
β-Blocker	SAVE[271] (subanalysis)	2231	Ejection fraction <40%, no overt HF, post-MI patients	β-Blocker vs no β-blocker, 16.5% vs 22.6%	32

UKPDS[153] (captopril or atenolol, goal BP <150/85 mm Hg)

→ **RRR 56**

Betabloqueantes en la IC con FE preservada

La conveniencia

Comparative Effectiveness of β-Blockers in Elderly Patients With Heart Failure

Judith M. Kramer, MD, MS; Lesley H. Curtis, PhD; Carla S. Dupree, MD, PhD; David Pelter, BS; Adrian Hernandez, MD; Mark Massing, MD, PhD; Kevin J. Anstrom, PhD

Arch Intern Med. 2008;168(22):2422

Table 2. Baseline Characteristics of Treatment Groups[a]

Characteristic	No β-Blocker Group, n=7034 (58.8%)	EBBB Group, n=2757 (23.1%)	Non-EBBB Group, n=2168 (18.1%)	*P* Value for Total,[b] N=11 959

Prescripción de BB en IC-EPOC Estudio GESAIC

(Recio y cols, Med Clin, en prensa)

	Global (391)	No EPOC (293)	EPOC (98)
BB ingreso	96 (24,5%)	78 (26,6%)	18 (18,4%)
BB alta	138(35,3%)	111 (37,9%)	27 (27,5%)

¿Es cierta la leyenda negra de los betabloqueantes e la HTA

Luis Manzano, Unidad de insuficiencia Cardiaca y Riesgo Vascular (UICARV). H.U. Ramón y Cajal

BMJ

RESEARCH

Use of blood pressure lowering drugs in the prevention of cardiovascular disease: meta-analysis of 147 randomised trials in the context of expectations from prospective epidemiological studies

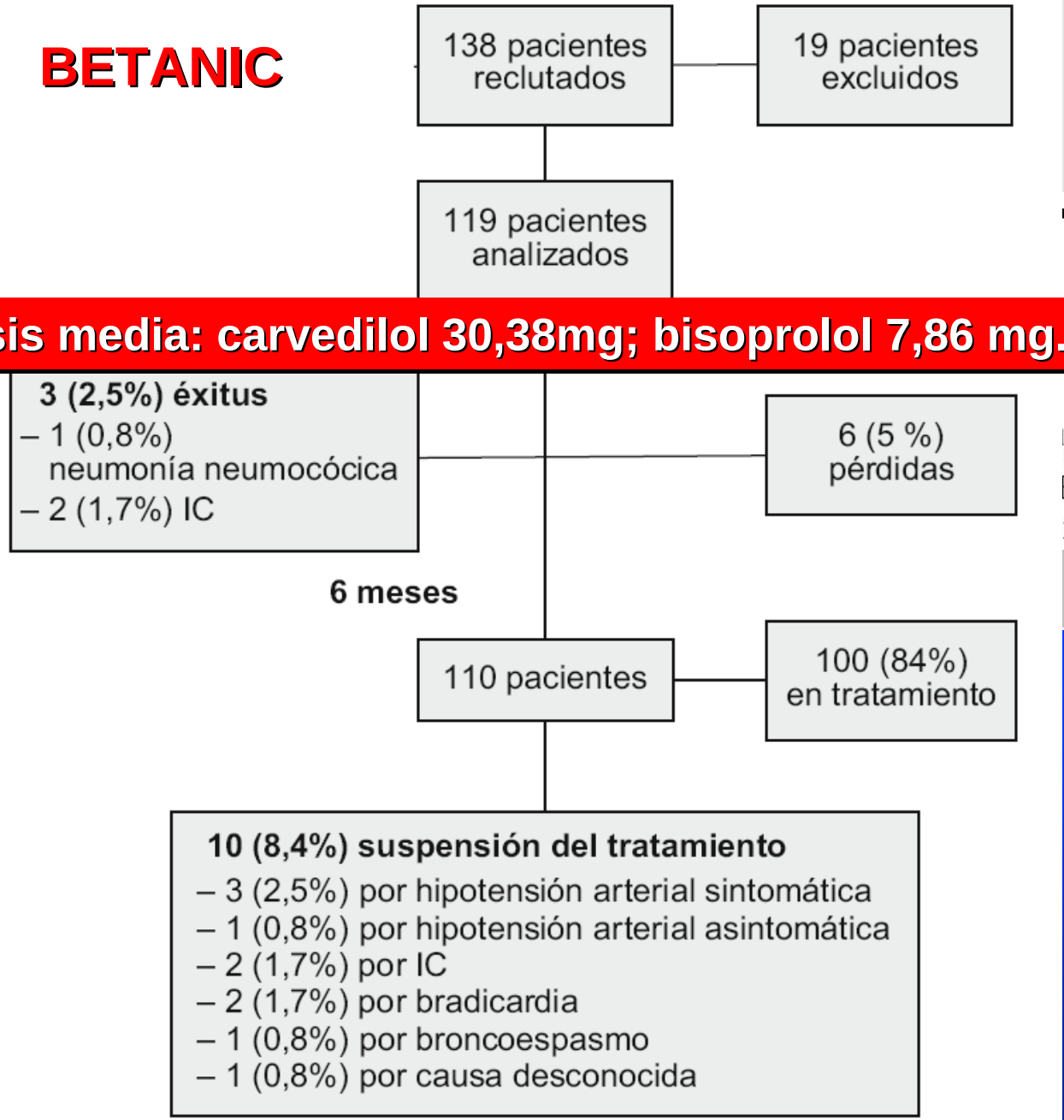
BMJ 2009;338:b1665

Conclusions With the exception of the extra protective effect of β blockers given shortly after a myocardial infarction and the minor additional effect of calcium channel blockers in preventing stroke, all the classes of blood pressure lowering drugs have a similar effect in reducing CHD events and stroke for a given reduction in blood pressure so excluding material pleiotropic effects.

ELSEVIER DOYMA

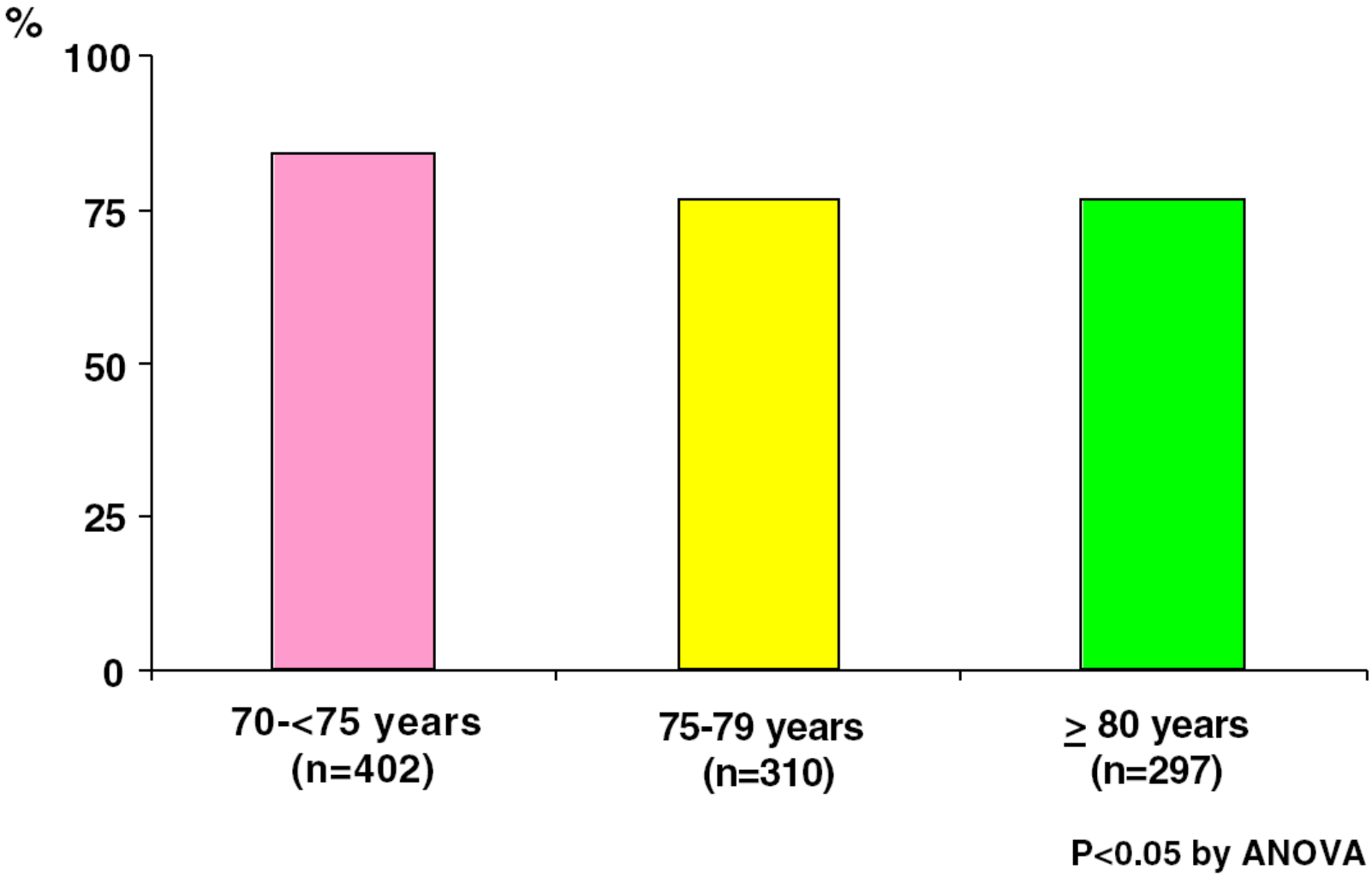
MEDICINA CLÍNICA

BETANIC



Dosis media: carvedilol 30,38mg; bisoprolol 7,86 mg.

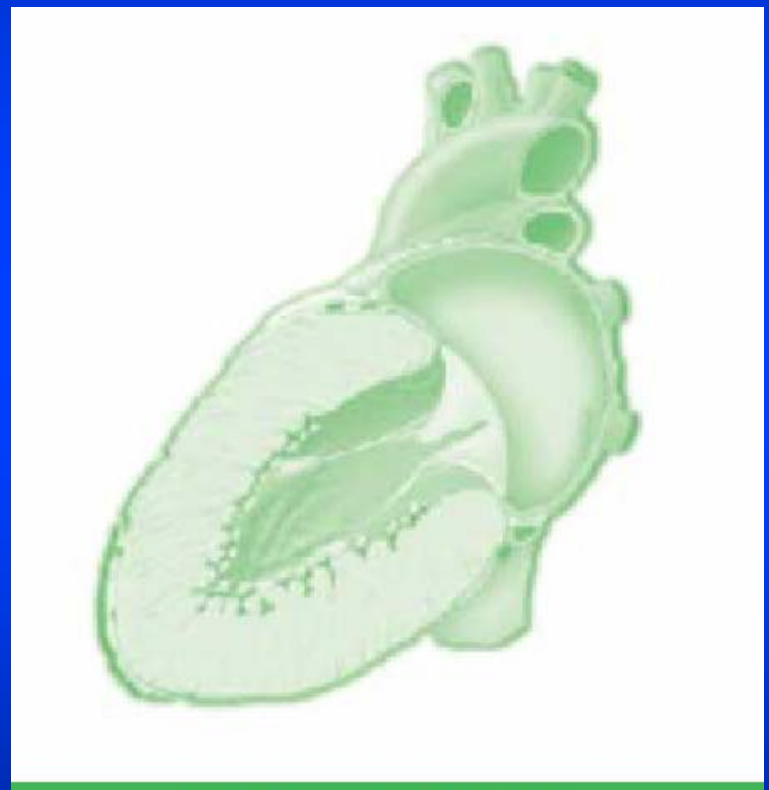
Tolerability of beta-blockers in elderly patients with chronic heart failure: The COLA II study



Protocolo terapéutico

UICARV-HRyC

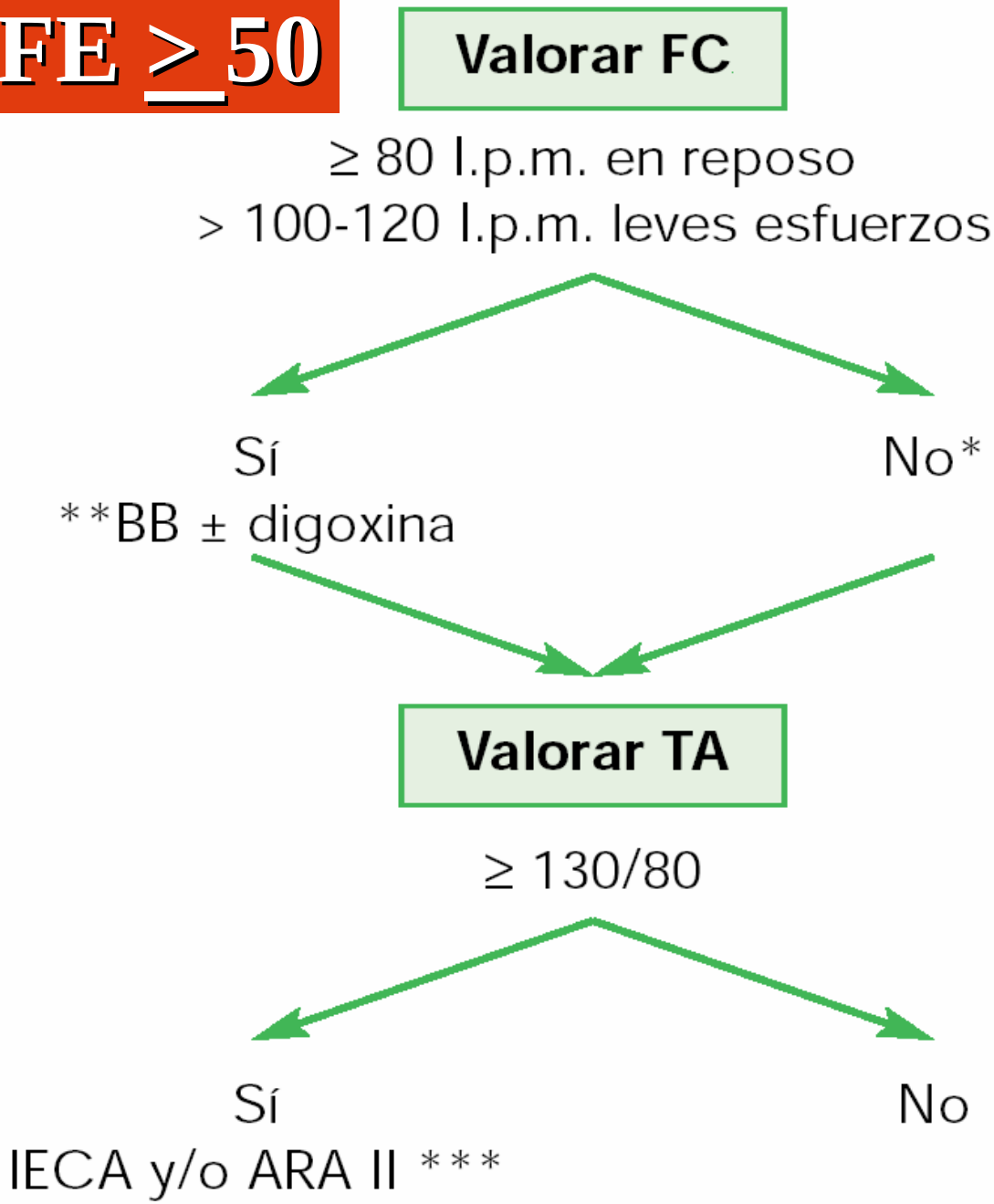
Insuficiencia Cardíaca Sistólica



Insuficiencia Cardíaca
Diastólica o con Fracción de
Eyección Preservada

Luis Manzano, Unidad de insuficiencia Cardiaca y Riesgo Vascular (UICARV). H.U. Ramón y Cajal

IC-FE ≥ 50


Valorar FC
≥ 80 l.p.m. en reposo
> 100-120 l.p.m. leves esfuerzos
Sí
**BB ± digoxina
No*
Valorar TA
≥ 130/80
Sí
IECA y/o ARA II ***
No

Conclusiones

1. **No existen evidencias firmes** que avalan el uso sistemático de BB en paciente con IC-FEP, aunque sí pudiera ser útil.

2. Sin embargo, es un fármaco **altamente útil para el tto de las comorbilidades** que influyen sin duda en la evolución.

3. Los datos confirman que es **bien tolerado**

4. **Conviene fomentar su presripción** en la IC-FE, cuando indicado, para aumentar su uso en los casos con FE-reducida

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Caso 1

Mujer de 79 años, hipertensa, de largo tiempo de evolución, con antecedentes de IC-FEP y FA en tratamiento con IECA, digoxina (niveles 1,3) y amlodipino. Refiere disnea ante mínimos esfuerzos. Su PA es 150/85 mmHg y su Fc en reposo 85lpm, y en pequeños esfuerzos 110.

¿Qué modificaciones terapéuticas realizaría?:

Caso 2

Varón de 82 años, con HTA, y DM,con historia de IC-FEP y angor de reciente comienzo en tratamiento con ARA II. Refiere disnea de moderados esfuerzos. Su PA es 170/80

¿Qué modificaciones terapéuticas realizaría?:

Caso 3

Mujer de 75 años, con IMC 36, sin otros antecedentes, que Refiere disnea de meses de evolución y edema en MMII. Su BNP es de 150 pg/mL y el ecocardio demuestra una FE de 65% con AI de 3.9 cm de diámetro.

¿Qué modificaciones terapéuticas realizaría?:

Ensayos clínicos en IC con FE preservada

Ensayo	Fármaco	Edad	FE	Nº Pacientes	
CHARM-P	Candesartan	67	>40%	3023	*Fin*
PEP-CHF	Perindopril	75	>40%	850	*Fin*
DIG-PEF	Digoxina	67	>45%	988	*Fin*
SENIORS	Nebivolol	76	>45%	~ 450	*Fin*
I-PRESER	Irbesartan	72	>45%	4133	*Fin*
TOPCAT	Espironolac.	>50	>45%	*reclutando*	

Ningún medicación en ensayo clínico ha demostrado beneficioque justifique su uso sistemático

¿Por tanto, no deberíamos usar ni BB, IECA ARA II, ni CA?

La ausencia de evidencia no implica que no sea racional el uso de BB

I-PRESERVE. Características basales

Baseline characteristics of patients in community (white columns) and hospital based (light grey columns) studies of heart failure with preserved ejection, compared to I-PRESERVE (dark grey column)

	I-PRESERVE (n=4133)	Framingham[11] (n=37)	Olmsted County[12] (n=308)	CV Health Study[13] (n=170)	ECHOES[14] (n=230)	EuroHeart Failure[15] (n=3148)	Medicare[a16] (n=6754)	OPTIMIZE-HF[17] (n=21,149)	ADHERE[18] (n=26,322[c])
Age (yr)	72	72	77	75	76	71	80	75	74
Female (%)	60	65	57	56	52	55	71	62	62
Co-morbidity (%)									
Any CHD	48	57	–	58	–	59	46	38[c]	50
MI	24	24	36	–	20	–	21	–	24
Angina	40	46	–	–	34	–	–	–	–
Hypertension	88	75	86	59	44	59	69	76	77
Diabetes	27	14	36	27	11	26	37	43	45
AF	29	35	31	15	–	25	36	33[d]	21[d]
Valve disease	11	19	17	–	–	–	–	–	21
COPD	10	–	38	–	–	–	–	–	31
ECG LVH	31	22	–	–	–	–	–	–	–
Physiological measures									
BMI kg/m^2	29.6	–	29.6	–	26	–	–	–	–
SBP mmHg	136	143	–	138	153	–	–	149	153
DBP mmHg	79	73	–	68	84	–	–	76	79
Creatinine µmol/L (mg/dL)	88 (1.0)	–	–	106 (1.2)	–	–	–	115 (1.3)	150 (1.7)
Creatinine clearance[f]	72	–	54	–	–	–	–	–	–

CHD = coronary heart disease, MI = myocardial infarction, AF = atrial fibrillation, COPD = chronic obstructive pulmonary disease, LVH = left ventricular hypertrophy, BMI = body mass index, SBP = systolic blood pressure, DBP = diastolic blood pressure.

[a] Patients aged 65 years or older (subset with measurement of LVEF).
[b] Admissions (not patients).
[c] Ischaemic aetiology.
[d] Atrial arrhythmia.
[e] On first ECG.
[f] ml/min/1.73 m^2 in I-PRESERVE and ml/min in Olmsted County.

Eur J Heart Fail 2008; 10:149

Current understanding of heart failure with preserved ejection fraction

Akshay Desai

Curr Opin Cardiol. 2007;22:578-575

Table 2 Completed or ongoing randomized clinical trials enrolling patients with symptomatic heart failure and preserved ejection fraction

Trial	Drug (target dose)	Size	Inclusion criteria	Endpoints
Completed				
CHARM-Preserved	Candesartan (32 mg)	3023	EF >40%	CV death/HF hospitalization
PEP-CHF	Perindopril (4 mg)	850	Age ≥70, diastolic dysfunction, HF hospitalization, EF >40%	All-cause death/HF hospitalization
SENIORS	Nebivolol (10 mg)	2135 (762)	Age ≥70, EF ≤35% or HF hospitalization	All-cause death/CV hospitalization
Ongoing				
I-Preserve	Irbesartan (300 mg)	4138	Age ≥60, EF ≥45%, HF hospitalization or substrate for HF	All-cause death/CV hospitalization
TOPCAT	Spironolactone (30 mg)	~4500	Age ≥50, EF ≥45%, HF hospitalization or elevated BNP	CV death/HF hospitalization