III Jornades d'actualització en Insuficiència cardíaca

Què fem en l'estadi B de la IC reduïda…

Betabloquejants i IECA, per suposat!

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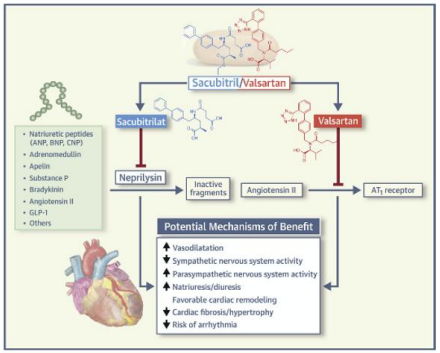
Servei de Cardiologia. Unitat de Insuficiència Cardíaca
Hospital del Mar

Introducción

Sacubitril-Valsartan (PARADIGM-HF)



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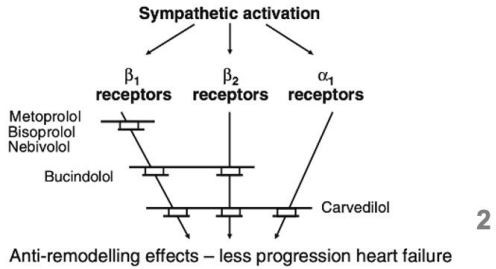
B-bloq (CIBIS II, MERIT-HF, COPERNICUS)



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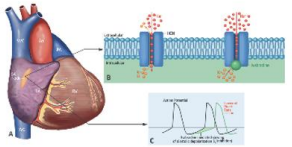
Ivabradina (SHIFT)



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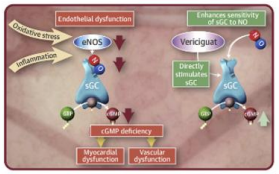
Vericiguat (VICTORIA)



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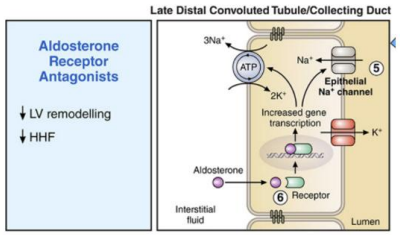
Eplerenona (EMPHASIS-HF)



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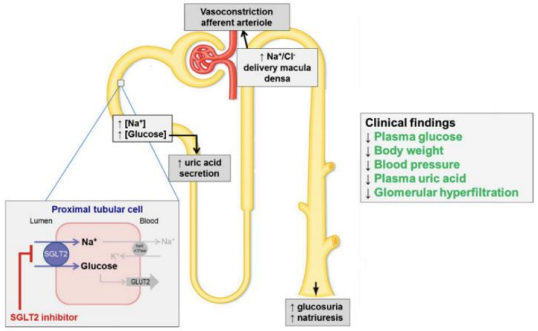
iSGLT2 (DAPA-HF y EMPEROR-Reduced)



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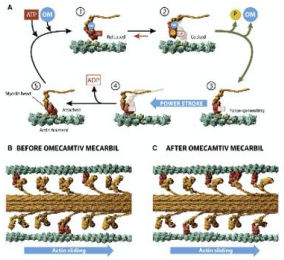
Omecamtiv Mecarbil (GALACTIC-HF)



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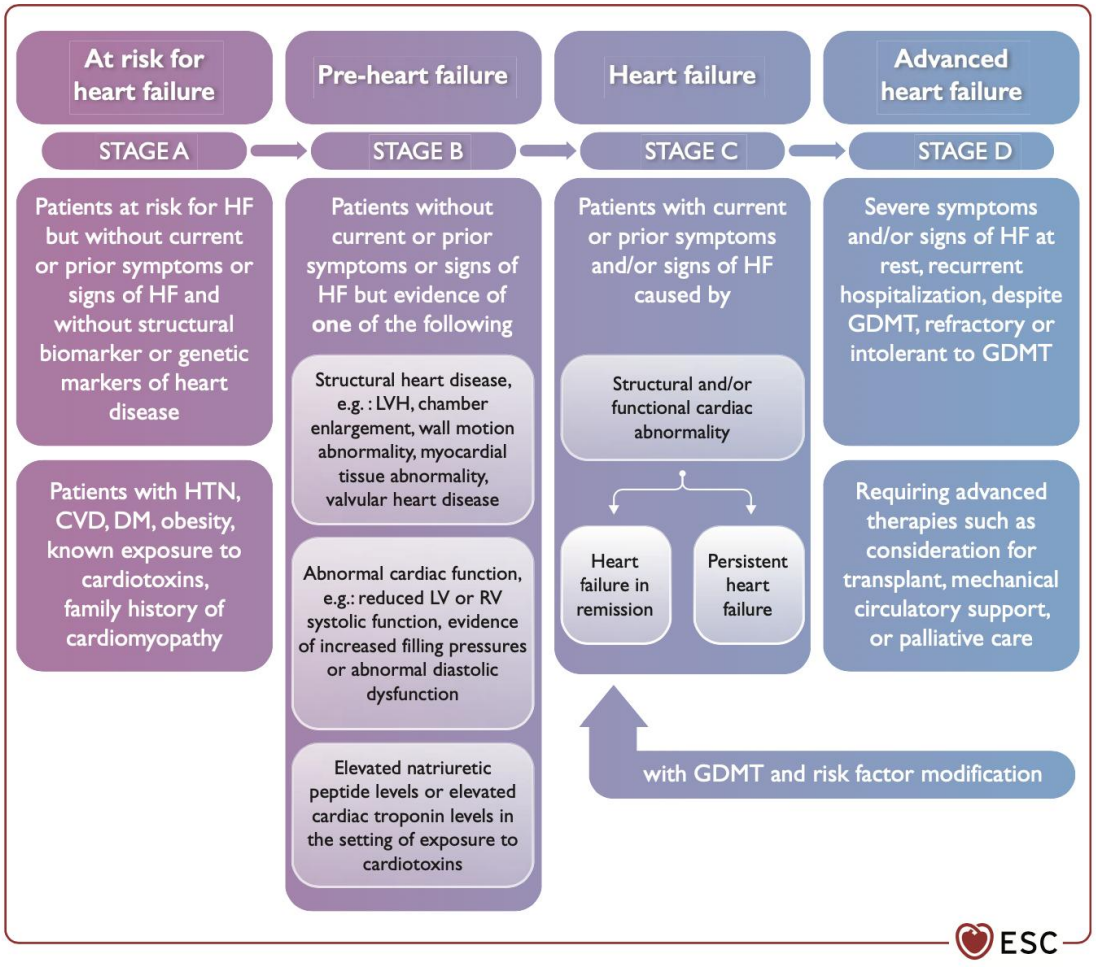
1. Docherty KF et al. J Am Coll Cardiol Heart Fail 2020 Sep, 8(10):800–810 / 2. Remme WJ. Cardiovasc Drugs Ther (2010) 24:351–358 / 3. Koruth JS, et al. J Am Coll Cardiol. 2017 Oct 3;70(14):1777-1784. /4. Armstrong PW, et al. JACC Heart Fail. 2018 Feb;6(2):96-104 / 5. Adaptada de Yulika L et al. Circulation. 2017;136:1643–1658 / 6. van Bommel EJ, et al. Clin J Am Soc Nephrol. 2017 Apr 3;12(4):700-710. / 7. Teerlink JR et al. J Am Coll Cardiol Heart Fail. 2020 Feb, 8 (4) 329–340

Estadio B de la IC con FEVI reducida



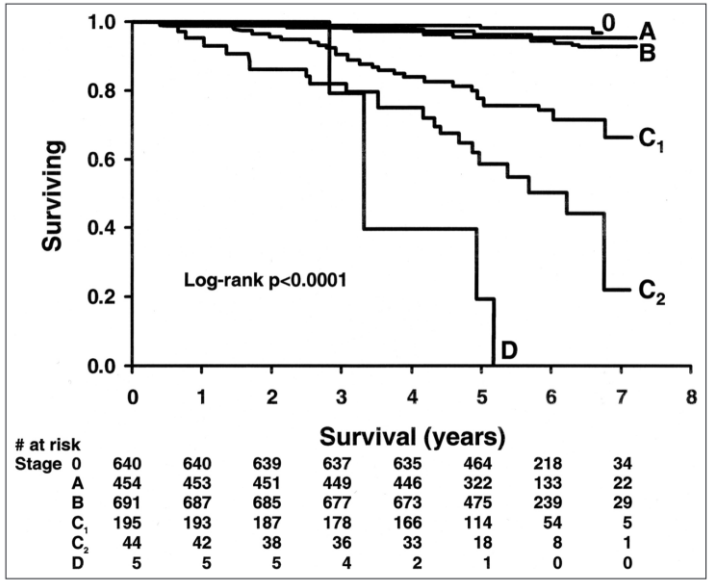
Supplementary Figure 1 Stages in the development and progression of heart failure.[77]
CVD = cardiovascular disease; DM = diabetes mellitus; GDMT = guideline-directed medical therapy; HF = heart failure; HTN = hypertension; LV = left ventricular; LVH = left ventricular hypertrophy; RV = right ventricular.

Riesgo estadio B de la IC con FEVI reducida

HEART FAILURE

Prevalence and Prognostic Significance of Heart Failure Stages

Application of the American College of Cardiology/American Heart Association Heart Failure Staging Criteria in the Community



# at risk									
Stage	0	640	640	639	637	635	464	218	34
	A	454	453	451	449	446	322	133	22
	B	691	687	685	677	673	475	239	29
	C_1	195	193	187	178	166	114	54	5
	C_2	44	42	38	36	33	18	8	1
	D	5	5	5	4	2	1	0	0

Figure 2. Survival curves according to HF stage.

CLINICAL INVESTIGATION AND REPORTS

Natural History of Asymptomatic Left Ventricular Systolic Dysfunction in the Community

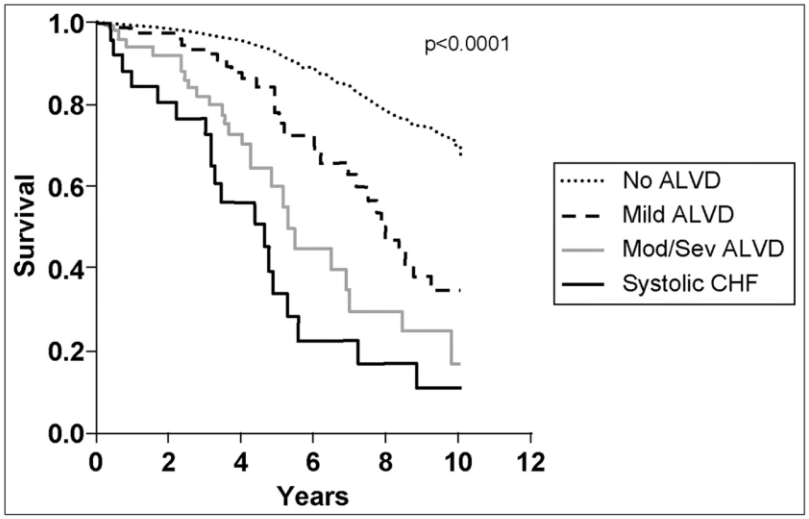
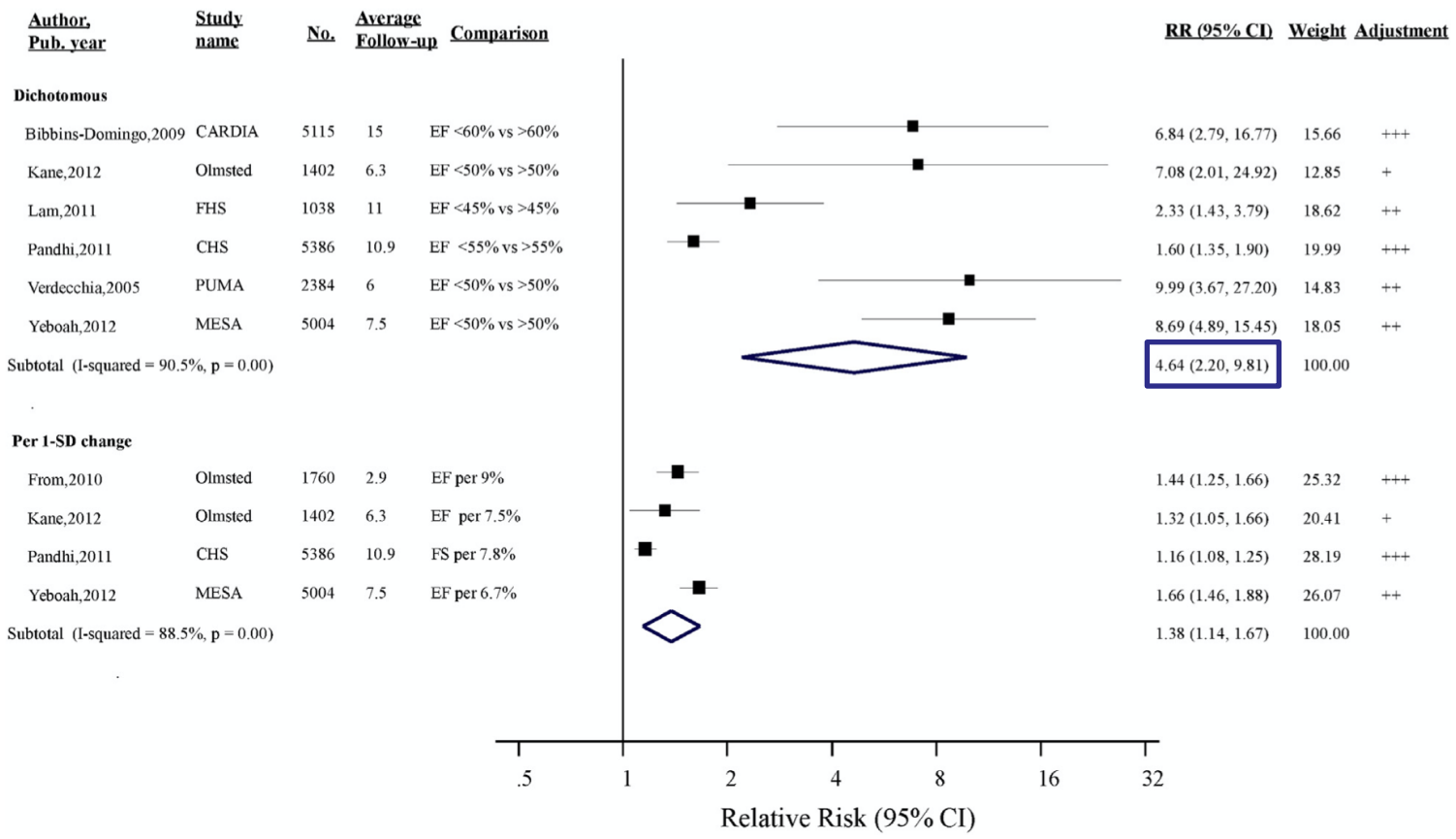


Figure 2. Kaplan-Meier curves for survival. Reference group (No ALVD) consists of subjects with normal LV systolic function (LVEF >50%) and no history of congestive HF. Mild ALVD indicates mild asymptomatic LVSD (LVEF 40% to 50%); Mod/Sev ALVD, moderate-to-severe asymptomatic LVSD (LVEF <40%); and Systolic CHF, congestive heart failure with LVEF ≤50%. Adapted from Wang et al,[5] with permission from the American Heart Association.

Circulation. 2007 Mar 27;115(12):1563-70 // Circulation. 2006 Jun 20;113(24):2851-60.

Riesgo estadio B de la IC con FEVI reducida

FIGURE 4 Meta-Analysis: Association of Asymptomatic LVSD and Incident Clinically Overt Heart Failure (Maximal Adjustment)



Forest plot showing the overall maximally adjusted estimate of the association of asymptomatic LVSD and incident clinically overt heart failure. RR = relative risk; other abbreviations as in Figure 2.

TTO estadio B de la IC con FEVI reducida

TABLE 1. Clinical Trials in Patients With Asymptomatic LVSD

Study	Patient Population (n)	Treatment	Average Duration, mo	Relative Mortality Risk Reduction	Sudden Death Risk Reduction	Death Due to Worsening HF Risk Reduction
ACE inhibitors						
SAVE[21]	AMI and asymptomatic LVSD (2231)	Captopril vs placebo	42	19% (*P*=0.019)	No difference (*P*=NS)	36% (*P*=0.032)
SOLVD Prevention[17]	Asymptomatic LVSD (4228)	Enalapril vs placebo	37.4	8% (*P*=NS)	No difference (*P*=NS)	20%* (*P*<0.001)
TRACE[22,23]	MI and LVSD (6676; 1749 randomized); Asymptomatic LVSD (542)	Trandolapril vs placebo	24–50	22% (*P*=0.001)	24% (*P*=0.03)	29%† (*P*=0.003)
β-Blockers						
Retrospective analysis of SOLVD Prevention[24]	Asymptomatic LVSD (4228; 1015 patients taking β-blockers)	β-Blockers vs no β-blockers plus enalapril	37.4	23% (*P*<0.01)	28%‡ (*P*<0.05)	29% (*P*<0.05)
Post hoc analysis of SAVE[25]	Asymptomatic LVSD (2231; 789 patients taking β-blockers)	β-Blockers vs no β-blockers plus captopril	42	43% (*P*<0.001)	NR	32%† (*P*<0.001)
ANZ[26]	HF (415); asymptomatic LVSD (124)	Carvedilol vs placebo	19	36%* (*P*=0.02)	10% (*P*=NS)	8% (*P*=NS)
CAPRICORN[27]	Post-AMI LVSD (1959); asymptomatic LVSD (1023)	Carvedilol vs placebo (including ACE inhibitor)	15.6	23% (*P*=0.03)	26% (*P*=0.098)	40% (*P*=0.083)
ARBs						
VALIANT[28]	MI and LVSD, HF, or both (14 703) Asymptomatic LVSD (4099)	Valsartan, captopril, or both	24.7	No difference (*P*=NS)	NR	No difference (*P*=NS)
OPTIMAAL[29]	AMI and symptomatic HF (5477); asymptomatic LVSD (1735)	Losartan vs captopril	32.4	13% Increase in risk with losartan (*P*=0.069)	19% Increase in risk with losartan (*P*=0.072)	NR
ICDs						
MADIT-II[30]	MI and LVEF ≤30% (1232); asymptomatic LVSD (461)	ICD vs CMT	20	31% (*P*=0.016)	NR	NR
DEFINITE[31]	Nonischemic dilated cardiomyopathy, LVEF <36% (458); asymptomatic LVSD (99)	ICD vs CMT	29	35% (*P*=NS)	80%§ (*P*=0.006)	NR

AMI indicates acute MI; CMT, conventional medical therapy; and NR, not reported.

*Death or hospitalization for HF.

†Severe HF.

‡Arrhythmic death.

§Sudden death due to arrhythmia.

Circulation. 2006 Jun 20;113(24):2851-60.

Beneficio pronóstico - IECAs -

EFFECT OF CAPTOPRIL ON MORTALITY AND MORBIDITY IN PATIENTS WITH LEFT VENTRICULAR DYSFUNCTION AFTER MYOCARDIAL INFARCTION

Results of the Survival and Ventricular Enlargement Trial

MARC A. PFEFFER, M.D., PH.D., EUGENE BRAUNWALD, M.D., LEMUEL A. MOYÉ, M.D., PH.D., LOFTY BASTA, M.D., EDWARD J. BROWN, JR., M.D., THOMAS E. CUDDY, M.D., BARRY R. DAVIS, M.D., PH.D., EDWARD M. GELTMAN, M.D., STEVEN GOLDMAN, M.D., GREG C. FLAKER, M.D., MARC KLEIN, M.D., GERVASIO A. LAMAS, M.D., MILTON PACKER, M.D., JACQUES ROULEAU, M.D., JEAN L. ROULEAU, M.D., JOHN RUTHERFORD, M.D., JOHN H. WERTHEIMER, M.D., AND C. MORTON HAWKINS, SC.D., ON BEHALF OF THE SAVE INVESTIGATORS*

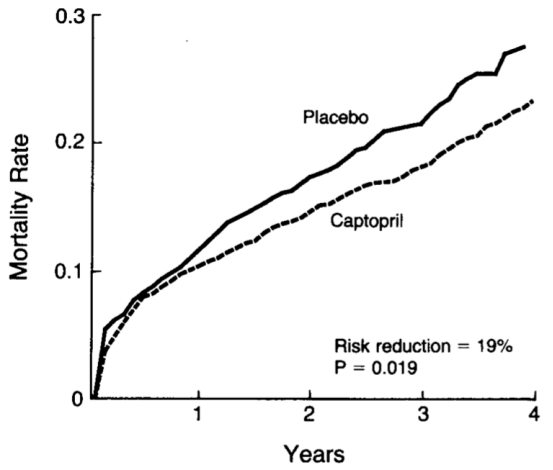


Figure 1. Cumulative Mortality from All Causes in the Study Groups.
The number of patients at risk at the beginning of each year is shown at the bottom.

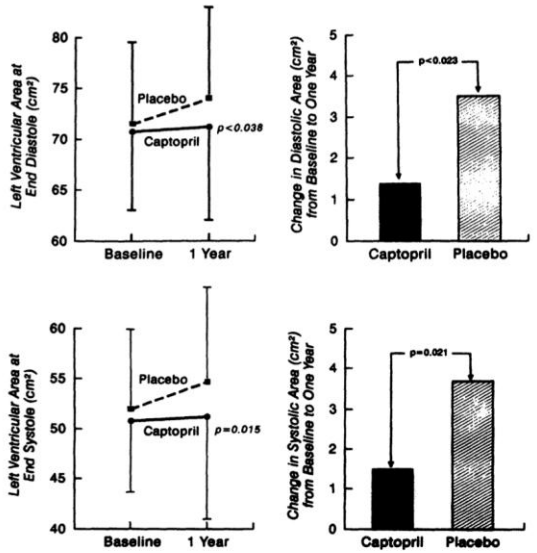


FIG 2. Graphs of left ventricular end-diastolic (top) and end-systolic (bottom) areas at baseline and at 1 year in the two treatment groups show that captopril attenuates left ventricular enlargement.

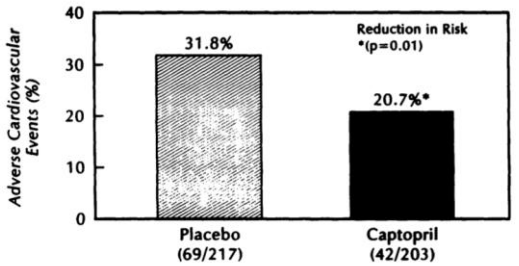


FIG 3. Bar graph shows the incidence of adverse cardiovascular events (cardiovascular death, heart failure requiring hospitalization or open-label angiotensin-converting enzyme inhibitor therapy, and recurrent myocardial infarction) in the placebo-treated and captopril-treated patients during a mean follow-up period of 3 years.

N Engl J Med. 1992 Sep 3;327(10):669-77 // Circulation. 1994;89:68-75.

Beneficio pronóstico – IECAs –

EFFECT OF ENALAPRIL ON SURVIVAL IN PATIENTS WITH REDUCED LEFT VENTRICULAR EJECTION FRACTIONS AND CONGESTIVE HEART FAILURE

THE SOLVD INVESTIGATORS*

n= 2.569, FEVI ≤ 35%, enalapril vs. placebo

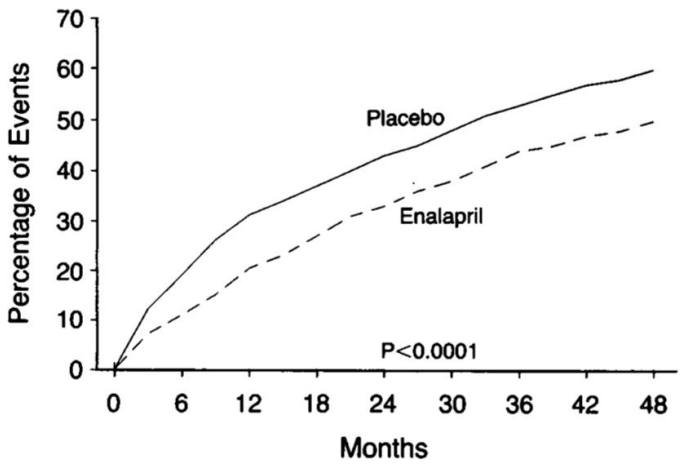


Figure 3. Percentage of Events, Defined as Death or Hospitalization for Congestive Heart Failure, Occurring in the Placebo and Enalapril Groups.

SOLVD Prevention trial

EFFECT OF ENALAPRIL ON MORTALITY AND THE DEVELOPMENT OF HEART FAILURE IN ASYMPTOMATIC PATIENTS WITH REDUCED LEFT VENTRICULAR EJECTION FRACTIONS

THE SOLVD INVESTIGATORS*

n= 4228, FEVI ≤ 35%, asintomáticos, enalapril vs. placebo

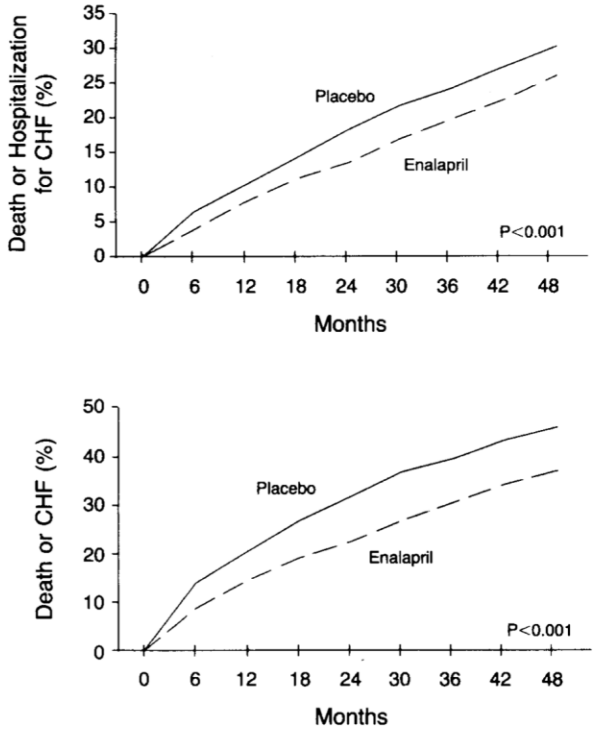


Figure 2. Death or Hospitalization for Congestive Heart Failure (CHF) and Death or Development of Heart Failure in the Prevention Trial.

Beneficio pronóstico – IECAs –

SOLVD Prevention trial

EFFECT OF ENALAPRIL ON MORTALITY AND THE DEVELOPMENT OF HEART FAILURE IN ASYMPTOMATIC PATIENTS WITH REDUCED LEFT VENTRICULAR EJECTION FRACTIONS

THE SOLVD INVESTIGATORS*

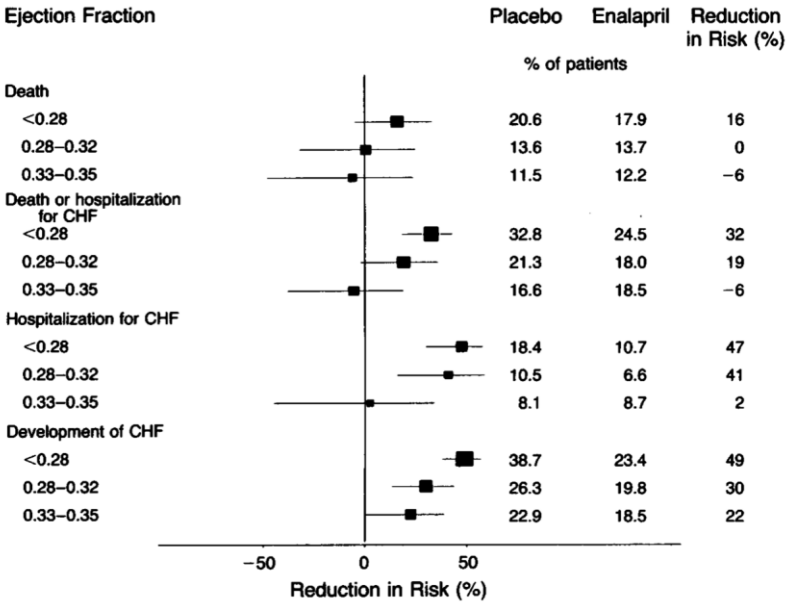


Figure 3. Effect of Enalapril on Mortality, Incidence of Congestive Heart Failure (CHF), and Hospitalization for Heart Failure in Various Subgroups Defined According to the Ejection Fraction.

Effect of enalapril on 12-year survival and life expectancy in patients with left ventricular systolic dysfunction: a follow-up study

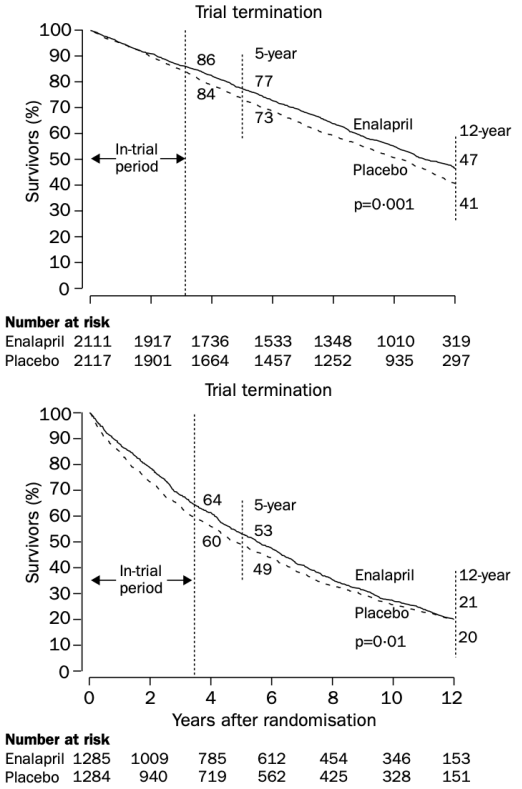


Figure 1: **Survival curves for the enalapril and placebo groups in the prevention (upper) and treatment (lower) trials**
Numbers besides the curves denote the percentages of survivors at trial termination, 5 years, and 12 years after randomisation, calculated by the Kaplan-Meier method.

N Engl J Med. 1992 Sep 3;327(10):685-91 // Lancet 2003; 361: 1843–48

Incluso en estadíos más precoces…

EFFECTS OF AN ANGIOTENSIN-CONVERTING–ENZYME INHIBITOR, RAMIPRIL, ON CARDIOVASCULAR EVENTS IN HIGH-RISK PATIENTS

THE HEART OUTCOMES PREVENTION EVALUATION STUDY INVESTIGATORS*

TABLE 4. INCIDENCE OF SECONDARY AND OTHER OUTCOMES.

OUTCOME	RAMIPRIL GROUP (N=4645)	PLACEBO GROUP (N=4652)	RELATIVE RISK (95% CI)*	Z STATISTIC	P VALUE†
	no. (%)				
Secondary outcomes‡					
Revascularization	742 (16.0)	852 (18.3)	0.85 (0.77–0.94)	−3.17	0.002
Hospitalization for unstable angina	554 (11.9)	565 (12.1)	0.98 (0.87–1.10)	−0.41	0.68
Complications related to diabetes§¶	299 (6.4)	354 (7.6)	0.84 (0.72–0.98)	−2.16	0.03
Hospitalization for heart failure	141 (3.0)	160 (3.4)	0.88 (0.70–1.10)	−1.16	0.25
Other outcomes					
Heart failure§	417 (9.0)	535 (11.5)	0.77 (0.67–0.87)	−4.09	<0.001
Cardiac arrest	37 (0.8)	59 (1.3)	0.62 (0.41–0.94)	−2.28	0.02
Worsening angina§	1107 (23.8)	1220 (26.2)	0.89 (0.82–0.96)	−2.91	0.004
New diagnosis of diabetes‖	102 (3.6)	155 (5.4)	0.66 (0.51–0.85)	−3.31	<0.001
Unstable angina with electrocardiographic changes‡	175 (3.8)	180 (3.9)	0.97 (0.79–1.19)	−0.30	0.76

*CI denotes confidence interval.

†P values were calculated with use of the log-rank test.

‡These events were centrally adjudicated.

§All cases are included, whether or not hospitalization was required.

¶Complications related to diabetes include diabetic nephropathy (defined as urinary albumin excretion of at least 300 mg per day or urinary protein excretion of 500 mg per day), the need for renal dialysis, and the need for laser therapy for diabetic retinopathy.

‖The denominator in the ramipril group is the 2837 patients who did not have diabetes at base line. The denominator in the placebo group is the 2883 patients who did not have diabetes at base line.

JAMA. 1995;273:1450-1456.

Beneficio pronóstico - B-Bloq -

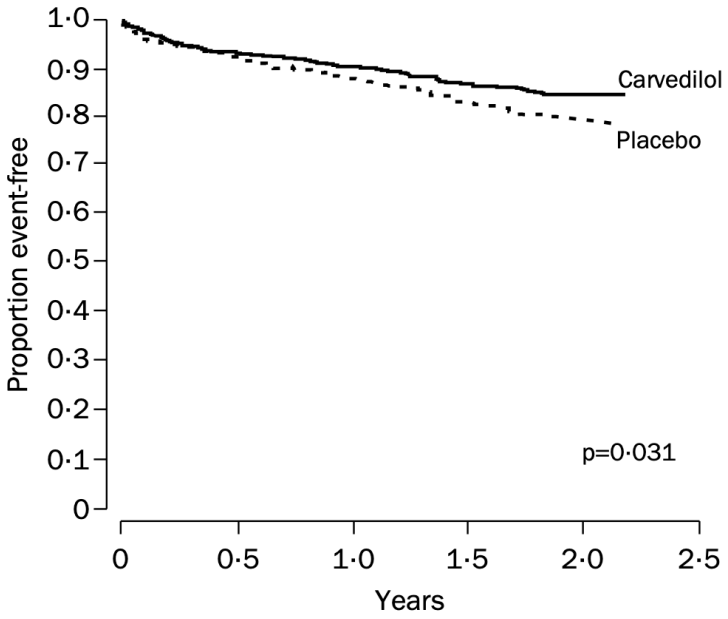
Table 1
Design and results of the main clinical trials of beta-blockers in heart failure

Study (y, patients)	Drug, mean (mg/d)	NYHA	LVEF	Ischemic	Mean follow-up, mo	NYHA class III/IV	NNT 1 life 1 y	Reduction in risk of death				Reduction in risk of hospitalization	
								Total	CV	Sudden	Due to HF	Total	Due to HF
CIBIS-II[6] (1999, n = 2647)	Bisoprolol 7.5 mg/d	III-IV	≤ 35%	50%	15	100%	23	34%	29%	44%	26%	20%	36%
MERIT-HF[7] (1999, n = 3991)	Metoprolol 159 mg/d	II-IV	≤ 40%	65%	12	59%	27	34%	38%	41%	49%	18%	35%
US carvedilol[10] (1996, n = 1094)	Carvedilol 45 mg/d	II-IV	≤ 35%	48%	6	60%	15	65%	65%	55%	79%	27%	—
COPERNICUS[8] (2002, n = 2289)	Carvedilol 37 mg/d	III-IV	< 25%	67%	10	100%	15	35%	—	—	—	20%	33%
COMET[9] (2003, n = 3029)	Carvedilol 42 mg/d vs metoprolol 85 mg/d	II-IV	< 35%	51%	58	51%	—	17%	20%			3%, NS	
BEST[5] (2001, n = 2708)	Bucindolol 152 mg/d	III-IV	≤ 35%	59%	24	100%	—	10%, NS	14%, NS	12%, NS	15%, NS	8%, NS	22%
SENIORS[4] (2005, n = 2128)	Nebivolol 7.7 mg/d	II-IV	*	68%	21	40%	—	12%, NS	16%, NS	—	—	4%, NS	—

CV, cardiovascular; HF, heart failure; LVEF, left ventricular ejection fraction; NNT, number needed to treat; NS, not significant; NYHA, New York Heart Association.
All studies analyzed beta-blockers vs placebo, except COMET (carvedilol vs metoprolol tartrate). All risk reductions are significant, unless otherwise indicated.
* LVEF was not an inclusion criterion, but 36% of patients had a LVEF > 35%; the patients included were older than 70 years of age.

Beneficio pronóstico - B-Bloq -

Effect of carvedilol on outcome after myocardial infarction in patients with left-ventricular dysfunction: the CAPRICORN randomised trial



Numbers at risk

Carvedilol	975	856	648	364	117	16
Placebo	984	861	638	358	123	8

Figure 2: **Kaplan-Meier estimates of all-cause mortality**

Lancet 2001; 357: 1385–90

Remodelado inverso es estadios precoces

Metoprolol Reverses Left Ventricular Remodeling in Patients With Asymptomatic Systolic Dysfunction

The REversal of VEntricular Remodeling with Toprol-XL (REVERT) Trial

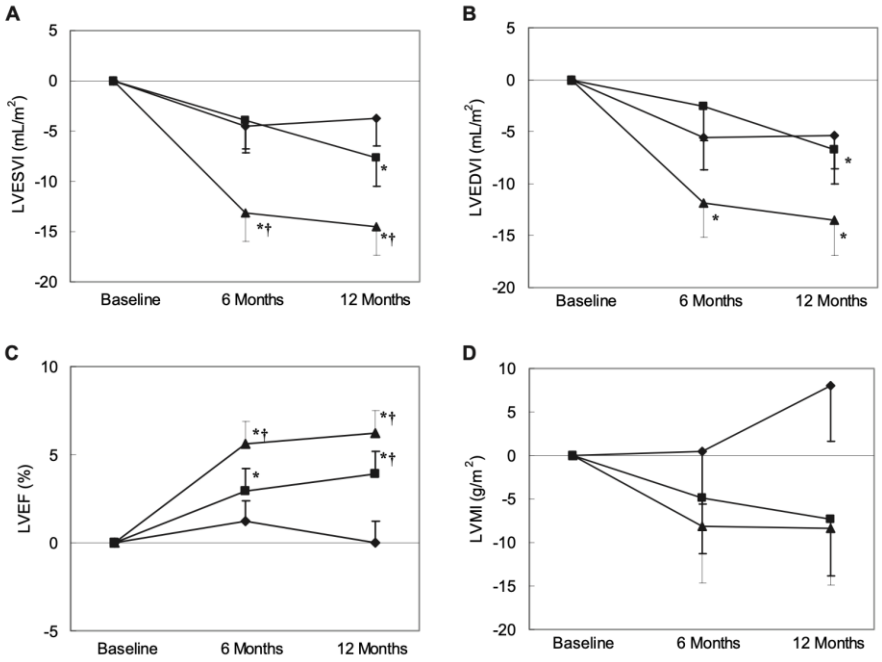


Figure 2. Effect of metoprolol succinate on LV volumes. Shown are the least square mean changes (SE) in LVESVI (A), LVEDVI (B), LVEF (C), and LVMI (D) compared with baseline for patients receiving metoprolol succinate 200 mg (triangles), 50 mg (squares), or placebo (diamonds). *$P<0.05$ vs baseline; †$P<0.05$ vs placebo.

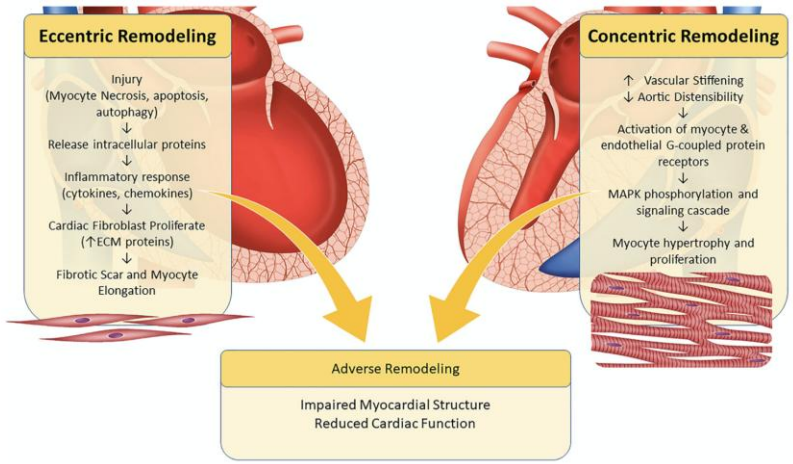


Fig. 1 Visual representation of concentric and eccentric adverse myocardial remodeling

Beneficio pronóstico tto combinado

SOLVD Prevention trial

Beta-Adrenergic Blocking Agent Use and Mortality in Patients With Asymptomatic and Symptomatic Left Ventricular Systolic Dysfunction: A Post Hoc Analysis of the Studies of Left Ventricular Dysfunction

Table 4. Mortality Reduction Associated With the Use of Beta-Blockers in Patients Randomized to Enalapril and Placebo

	Placebo		Enalapril	
Trial	Number	Relative Risk* (95% CI)	Number	Relative Risk* (95% CI)
Prevention	2,116	0.91 (0.70 to 1.18)	2,107	0.64 (0.48 to 0.86)†
Treatment	1,282	0.62 (0.41 to 0.93)‡	1,285	0.69 (0.47 to 1.01)§

*Unadjusted (univariate). †$p < 0.01$. ‡$p < 0.05$. §$p < 0.10$. CI = confidence interval.

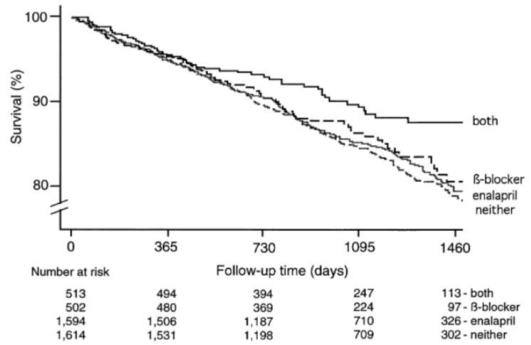


Figure 1. Unadjusted all-cause mortality survival curves for Prevention trial participants. Patients receiving neither enalapril nor a beta-blocker (neither) are represented by the **broken gray** line, those receiving enalapril alone by the **solid gray** line, patients receiving beta-blockers alone by the **broken black** line and those receiving both enalapril and a beta-blocker (both) by the **solid black** line. The number of patients at risk of death during each 365-day period is shown. Patients with asymptomatic left ventricular dysfunction who received both a beta-blocker and enalapril had the lowest mortality ($p \leq 0.03$).

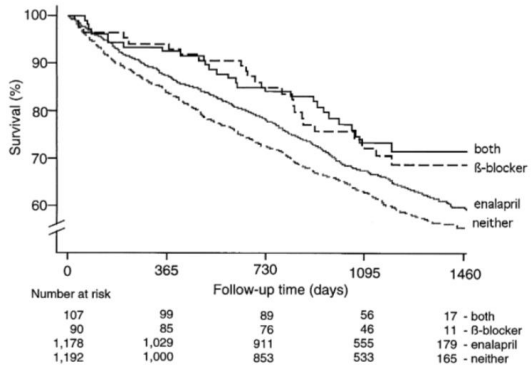


Figure 2. Unadjusted all-cause mortality survival curves for Treatment trial participants. Patients receiving neither enalapril nor a beta-blocker (neither) are represented by the **broken gray** line, those receiving enalapril alone by the **solid gray** line, patients receiving beta-blockers alone by the **broken black** line and those receiving both enalapril and a beta-blocker (both) by the **solid black** line. The number of patients at risk of death during each 365-day period is shown.

Am Coll Cardiol 1999;33:916 –23.

Beneficio pronóstico tto combinado

Effect of Beta Blockers Alone, of Angiotensin-Converting Enzyme Inhibitors Alone, and of Beta Blockers Plus Angiotensin-Converting Enzyme Inhibitors on New Coronary Events and on Congestive Heart Failure in Older Persons With Healed Myocardial Infarcts and Asymptomatic Left Ventricular Systolic Dysfunction

TABLE 2 Incidence of New Coronary Events and of CHF in Persons Treated With Beta Blockers Alone, ACE Inhibitors Alone, Beta Blockers Plus ACE Inhibitors, and No Beta Blockers or ACE Inhibitors

Variable	Beta Blockers (1) (n = 107)	ACE Inhibitors (2) (n = 89)	Beta Blockers Plus ACE Inhibitors (3) (n = 132)	None (4) (n = 149)
New coronary events	75 (70%)	68 (76%)	76 (58%)	146 (98%)
CHF	45 (42%)	42 (47%)	46 (35%)	123 (83%)

For new coronary events: $p = 0.046$ for (1) versus (3), $p = 0.004$ for (2) versus (3), $p < 0.0001$ for (1) versus (4), (2) versus (4), and (3) versus (4); for congestive heart failure: $p < 0.0001$ for (1) versus (4), (2) versus (4), and (3) versus (4).

TABLE 3 Percent Reduction of a New Coronary Event and of CHF in Persons Treated With Beta Blockers Alone, ACE Inhibitors Alone, and Beta Blockers Plus ACE Inhibitors Compared With No Beta Blockers or ACE Inhibitors Using the Cox Regression Model

	Beta Blockers Alone (%)	ACE Inhibitors Alone (%)	Beta Blockers Plus ACE Inhibitors (%)
Percent reduction in new coronary events	25	17	37
Percent reduction in CHF	41	32	60

Am J Cardiol. 2001 Dec 1;88(11):1298-300.

Disfunción ventricular por cardiotóxicos

Recommendations for the management of patients with cancer and heart failure

Recommendation	Class[a]	Level[b]
It is recommended that cancer patients at increased risk for cardiotoxicity, defined by a history or risk factors of CV disease, previous cardiotoxicity or exposure to cardiotoxic agents, undergo CV evaluation before scheduled anticancer therapy, preferably by a cardiologist with experience/interest in Cardio-Oncology.	I	C
Treatment with an ACE-I and a beta-blocker (preferably carvedilol) should be considered in cancer patients developing LV systolic dysfunction, defined as a 10% or more decrease in LVEF and to a value lower than 50%, during anthracycline chemotherapy.[861,862]	IIa	B
A baseline CV risk assessment should be considered in all cancer patients scheduled to receive a cancer treatment with the potential to cause heart failure.[846,865]	IIa	C

ACE-I = angiotensin-converting enzyme inhibitor; CV = cardiovascular; LV = left ventricular; LVEF = left ventricular ejection fraction.
[a]Class of recommendation.
[b]Level of evidence.

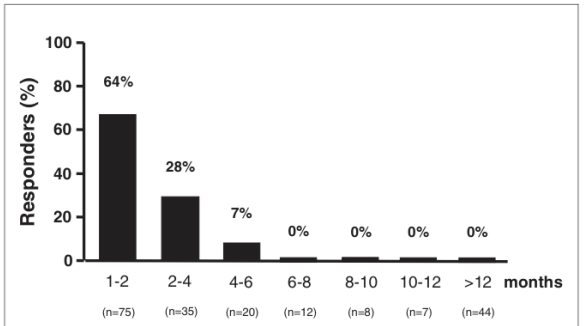


Figure 1 Percentage of Responders According to the Time Elapsed From AC Administration and Start of HF Therapy

AC = anthracyclines; HF = heart failure.

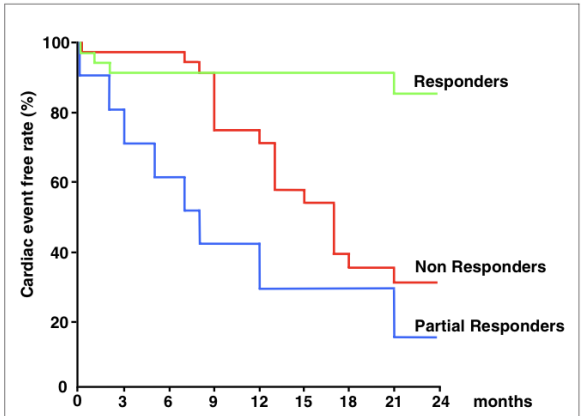


Figure 2 Cumulative Cardiac Event Rate During the Study Follow-Up

2-year Kaplan-Meier analysis for major adverse cardiac events in the 3 study groups. p = 0.0003 (log-rank test).

Conclusiones

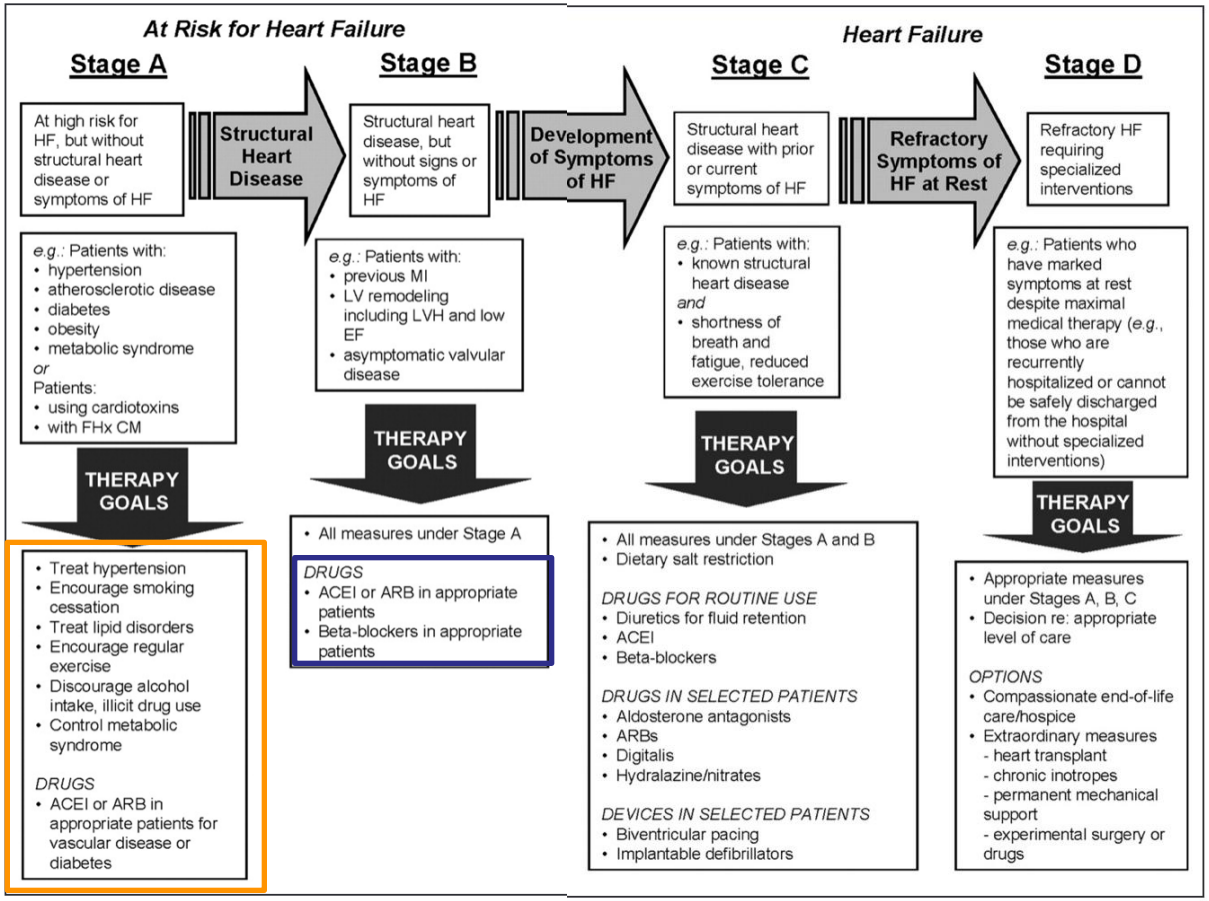


Figure 1. ACC/AHA guidelines for the evaluation and management of chronic HF: evolution of HF and recommended therapy by stage. ACEI indicates ACE inhibitors; EF, ejection fraction; FHx CM, family history of cardiomyopathy; IV, intravenous; LVH, LV hypertrophy. Adapted from Hunt et al,[3] with permission from the American College of Cardiology Foundation.

Circulation. 2006;113:2851-2860.

Conclusiones

Recommendations to prevent or delay the development of overt heart failure or prevent death before the onset of symptoms

Recommendations	Class [a]	Level [b]	Ref [c]
Treatment of hypertension is recommended to prevent or delay the onset of HF and prolong life.	I	A	126, 129, 150, 151
Treatment with statins is recommended in patients with or at high-risk of CAD whether or not they have LV systolic dysfunction, in order to prevent or delay the onset of HF and prolong life.	I	A	137–140, 152
Counselling and treatment for smoking cessation and alcohol intake reduction is recommended for people who smoke or who consume excess alcohol in order to prevent or delay the onset of HF.	I	C	131–134
Treating other risk factors of HF (e.g. obesity, dysglycaemia) should be considered in order to prevent or delay the onset of HF.	IIa	C	130, 141, 153–155
Empagliflozin should be considered in patients with type 2 diabetes in order to prevent or delay the onset of HF and prolong life.	IIa	B	130
ACE-I is recommended in patients with asymptomatic LV systolic dysfunction and a history of myocardial infarction in order to prevent or delay the onset of HF and prolong life.	I	A	5, 144, 145
ACE-I is recommended in patients with asymptomatic LV systolic dysfunction without a history of myocardial infarction, in order to prevent or delay the onset of HF.	I	B	5
ACE-I should be considered in patients with stable CAD even if they do not have LV systolic dysfunction, in order to prevent or delay the onset of HF.	IIa	A	142
Beta-blocker is recommended in patients with asymptomatic LV systolic dysfunction and a history of myocardial infarction, in order to prevent or delay the onset of HF or prolong life.	I	B	146
ICD is recommended in patients: a) with asymptomatic LV systolic dysfunction (LVEF ≤30%) of ischaemic origin, who are at least 40 days after acute myocardial infarction, b) with asymptomatic non-ischaemic dilated cardiomyopathy (LVEF ≤30%), who receive OMT therapy, in order to prevent sudden death and prolong life.	I	B	149, 156–158

ACEI = angiotensin-converting enzyme inhibitor; CAD = coronary artery disease; HF = heart failure; ICD = implantable cardioverter-defibrillator; LV = left ventricular; LVEF = left ventricular ejection fraction; OMT = optimal medical therapy
[a]Class of recommendation.
[b]Level of evidence.
[c]Reference(s) supporting recommendations.

Table 10 Risk factors for the development of heart failure and potential corrective actions

Risk factors for heart failure	Preventive strategies
Sedentary habit	Regular physical activity
Cigarette smoking	Cigarette smoking cessation
Obesity	Physical activity and healthy diet
Excessive alcohol intake[286]	General population: no/light alcohol intake is beneficial Patients with alcohol-induced CMP should abstain from alcohol
Influenza	Influenza vaccination
Microbes (e.g. *Trypanosoma cruzi*, Streptococci)	Early diagnosis, specific antimicrobial therapy for either prevention and/or treatment
Cardiotoxic drugs (e.g., anthracyclines)	Cardiac function and side effect monitoring, dose adaptation, change of chemotherapy
Chest radiation	Cardiac function and side effect monitoring, dose adaptation
Hypertension	Lifestyle changes, antihypertensive therapy
Dyslipidaemia	Healthy diet, statins
Diabetes mellitus	Physical activity and healthy diet, SGLT2 inhibitors
CAD	Lifestyle changes, statin therapy

CAD = coronary artery disease; CMP = cardiomyopathy; SGLT2 = sodium-glucose co-transporter 2.

Gracias