IX congresso nazionale
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TORINO 6-8 NOVEMBRE 2014

Cardioversione a tutti i costi?

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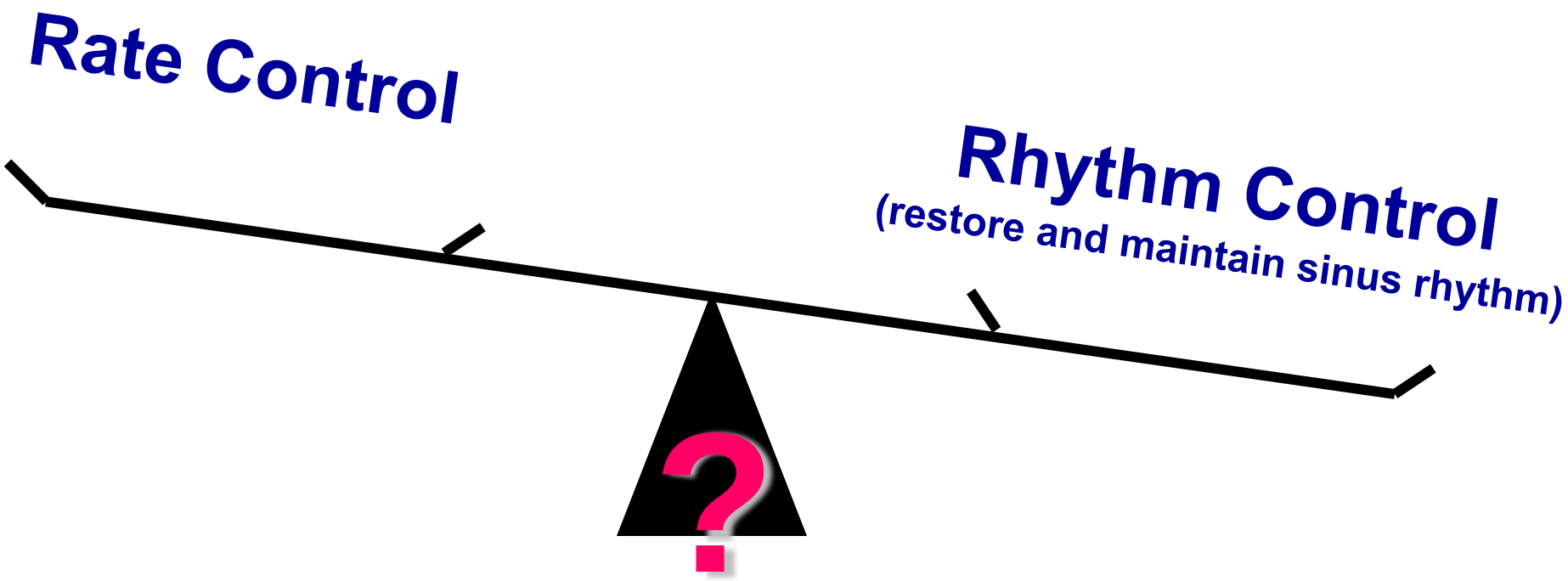
Cardioversione a tutti i costi?



Cardioversione a tutti i costi?

Impact of Atrial Fibrillation on the Risk of Death: The Framingham Heart Study

Emelia J. Benjamin, Philip A. Wolf, Ralph B. D'Agostino, Halit Silbershatz, William B. Kannel and Daniel Levy

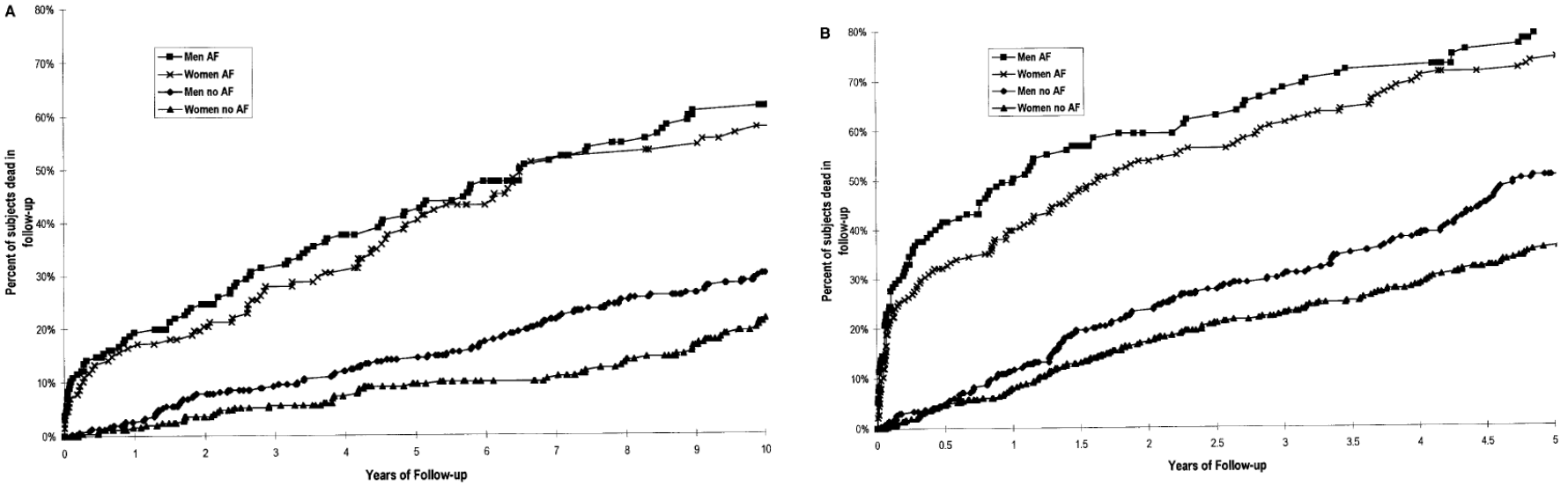


TABLE 4. Cause-Specific 1 Year Mortality in Subjects by AF Status

	AF Status, Men				AF Status, Women			
	Yes, n (%)		No, n (%)		Yes, n (%)		No, n (%)	
n	296		592		325		650	
Follow-up interval	30 d	30 d–1 y	30 d	30 d–1 y	30 d	30 d–1 y	30 d	30 d–1 y
CHD	10 (3.4)	19 (6.4)	0	10 (1.7)	12 (3.7)	10 (3.1)	0	5 (0.8)
Stroke	6 (2.0)	2 (0.7)	0	2 (0.3)	8 (2.5)	5 (1.5)	0	3 (0.5)
Other CVD	4 (1.4)	5 (1.7)	1 (0.2)	2 (0.3)	7 (2.2)	10 (3.1)	1 (0.2)	4 (0.6)
Other	23 (7.8)	24 (8.1)	1 (0.2)	21 (3.5)	18 (5.5)	17 (5.2)	1 (0.2)	13 (2.0)
Unknown	2 (0.7)	3 (1.0)	0	0	2 (0.6)	6 (1.8)	1 (0.2)	8 (1.2)
Total dead	45 (15.2)	53 (17.9)	2 (0.3)	35 (5.9)	47 (14.5)	48 (14.8)	3 (0.5)	33 (5.1)

CHD indicates coronary heart disease; CVD, cardiovascular disease (not stroke or CHD). Percentages are the percentages of all subjects in the category (eg, male with AF, or male without AF) dying within the specified time interval unadjusted for clinical covariates. Matched cohort analysis (non-AF subjects matched to AF subjects by age, sex, and calendar year).

Circulation. 1998;98:946-952

Cardioversione a tutti i costi?

Study or subgroup	Rate control Events	Total	Rhythm control Events	Total	Weight	Risk ratio M-H, Random, 95% CI	Year
PIAF	2	125	2	127	0.3%	1.02 [0.15, 7.10]	2000
AFFIRM	310	2027	356	2033	52.1%	0.87 [0.76, 1.00]	2002
RACE	21	256	19	266	2.8%	1.15 [0.63, 2.09]	2002
STAF	8	100	4	100	0.7%	2.00 [0.62, 6.43]	2003
HOT CAFE	1	101	3	104	0.2%	0.34 [0.04, 3.25]	2004
AF-CHF	228	694	217	682	43.2%	1.03 [0.89, 1.20]	2008
J-RHYTHM	3	404	4	419	0.5%	0.78 [0.18, 3.45]	2009
CAFE-II	1	31	1	30	0.1%	0.97 [0.06, 14.78]	2009
Total (95% CI)	**3738**		**3761**		**100.0%**	**0.95 [0.86, 1.05]**	
Total events	574		606				

Heterogeneity : $Tau^2 = 0.00$; $Chi^2 = 3.57$, df = 7 ($P = 0.61$); $I^2 = 0\%$

Test for overall effect : Z = 0.99 ($P = 0.32$)

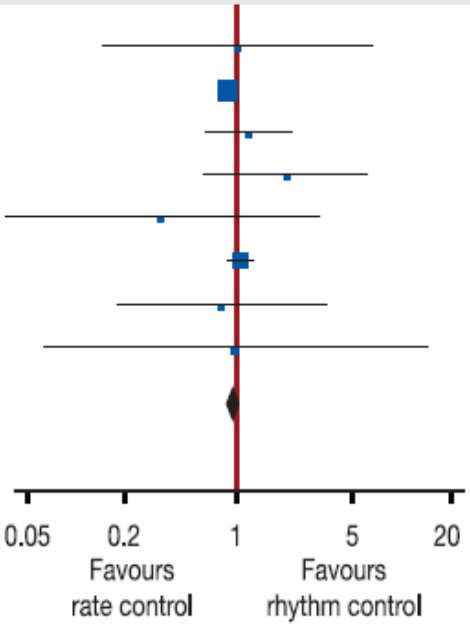
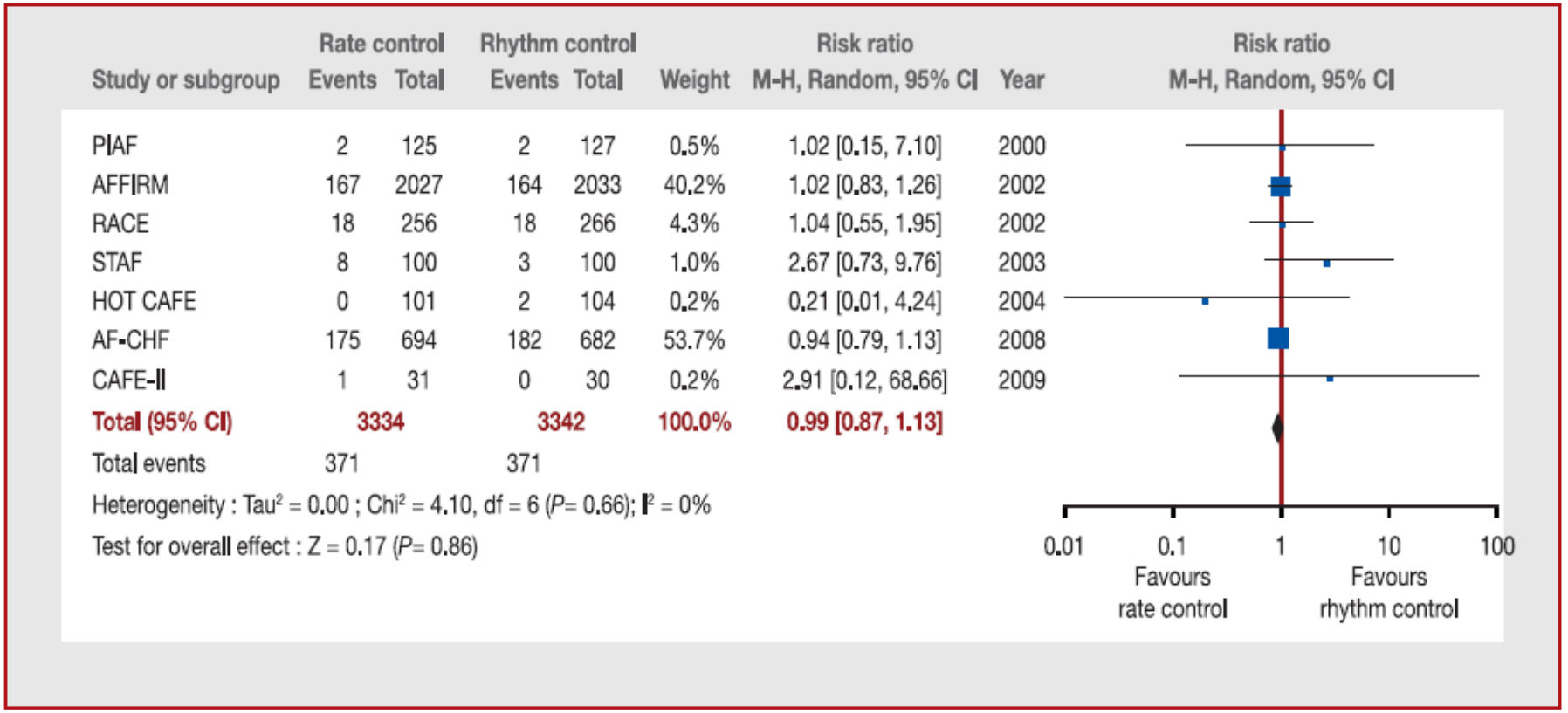


Figure 2. Forest plot for all-cause mortality. AFFIRM: Atrial Fibrillation Follow-up Investigation of Rhythm Management study; AF-CHF: Atrial Fibrillation and Congestive Heart Failure study; CAFÉ-II: controlled study of rate versus rhythm control in patients with chronic atrial fibrillation and heart failure; CI: confidence interval; HOT CAFÉ: How to Treat Chronic Atrial Fibrillation study; J-RHYTHM: Japanese Rhythm Management Trial for Atrial Fibrillation; M-H: Mantel-Haenszel; PIAF: Pharmacological Intervention in Atrial Fibrillation study; RACE: Rate Control versus Electrical Cardioversion for Persistent Atrial Fibrillation study; STAF: Strategies of Treatment of Atrial Fibrillation study.

Archives of Cardiovascular Disease (2012) 105, 226—238

Cardioversione a tutti i costi?



Study or subgroup	Rate control Events	Total	Rhythm control Events	Total	Weight	Risk ratio M-H, Random, 95% CI	Year
PIAF	2	125	2	127	0.5%	1.02 [0.15, 7.10]	2000
AFFIRM	167	2027	164	2033	40.2%	1.02 [0.83, 1.26]	2002
RACE	18	256	18	266	4.3%	1.04 [0.55, 1.95]	2002
STAF	8	100	3	100	1.0%	2.67 [0.73, 9.76]	2003
HOT CAFE	0	101	2	104	0.2%	0.21 [0.01, 4.24]	2004
AF-CHF	175	694	182	682	53.7%	0.94 [0.79, 1.13]	2008
CAFE-II	1	31	0	30	0.2%	2.91 [0.12, 68.66]	2009
Total (95% CI)		**3334**		**3342**	**100.0%**	**0.99 [0.87, 1.13]**	
Total events	371		371				

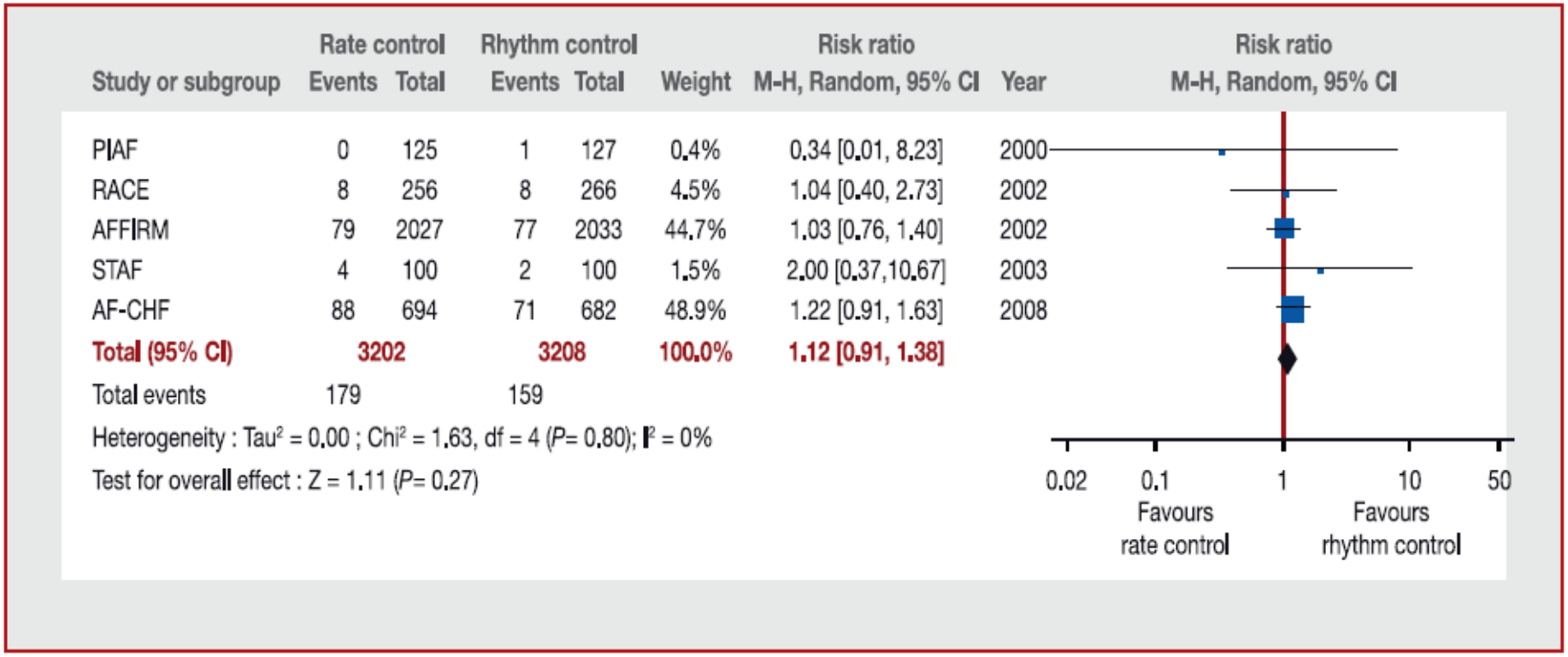
Heterogeneity : $Tau^2 = 0.00$; $Chi^2 = 4.10$, df = 6 ($P = 0.66$); $I^2 = 0\%$

Test for overall effect : $Z = 0.17$ ($P = 0.86$)

Figure 3. Forest plot for cardiovascular mortality. AFFIRM: Atrial Fibrillation Follow-up Investigation of Rhythm Management study; AF-CHF: Atrial Fibrillation and Congestive Heart Failure study; CAFÉ-II: controlled study of rate versus rhythm control in patients with chronic atrial fibrillation and heart failure; CI: confidence interval; HOT CAFÉ: How to Treat Chronic Atrial Fibrillation study; M-H: Mantel-Haenszel; PIAF: Pharmacological Intervention in Atrial Fibrillation study; RACE: Rate Control versus Electrical Cardioversion for Persistent Atrial Fibrillation study; STAF: Strategies of Treatment of Atrial Fibrillation study.

Archives of Cardiovascular Disease (2012) 105, 226—238

Cardioversione a tutti i costi?



Study or subgroup	Rate control Events	Total	Rhythm control Events	Total	Weight	Risk ratio M-H, Random, 95% CI	Year
PIAF	0	125	1	127	0.4%	0.34 [0.01, 8.23]	2000
RACE	8	256	8	266	4.5%	1.04 [0.40, 2.73]	2002
AFFIRM	79	2027	77	2033	44.7%	1.03 [0.76, 1.40]	2002
STAF	4	100	2	100	1.5%	2.00 [0.37,10.67]	2003
AF-CHF	88	694	71	682	48.9%	1.22 [0.91, 1.63]	2008
Total (95% CI)		**3202**		**3208**	**100.0%**	**1.12 [0.91, 1.38]**	
Total events	179		159				

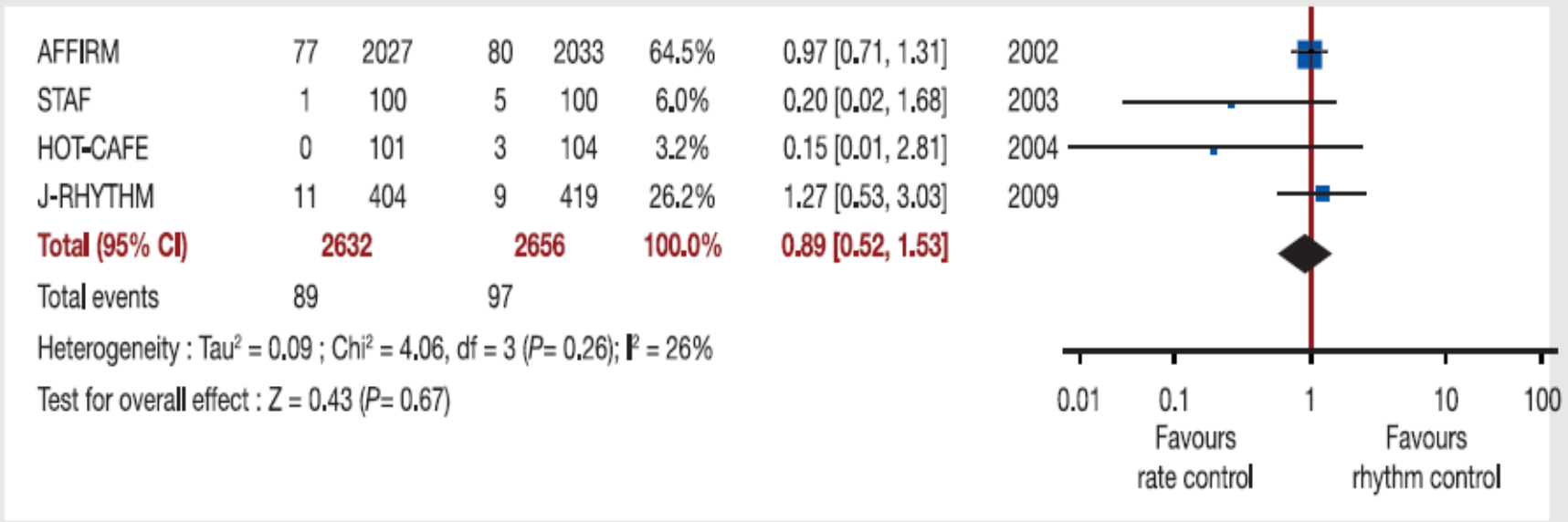
Heterogeneity : $Tau^2 = 0.00$; $Chi^2 = 1.63$, df = 4 ($P = 0.80$); $I^2 = 0\%$

Test for overall effect : Z = 1.11 ($P = 0.27$)

Figure 4. Forest plot for arrhythmic/sudden death mortality. AFFIRM: Atrial Fibrillation Follow-up Investigation of Rhythm Management study; AF-CHF: Atrial Fibrillation and Congestive Heart Failure study; CI: confidence interval; M-H: Mantel-Haenszel; PIAF: Pharmacological Intervention in Atrial Fibrillation study; RACE: Rate Control versus Electrical Cardioversion for Persistent Atrial Fibrillation study; STAF: Strategies of Treatment of Atrial Fibrillation study.

Archives of Cardiovascular Disease (2012) 105, 226—238

Cardioversione a tutti i costi?



Study or subgroup	Rate control Events	Total	Rhythm control Events	Total	Weight	Risk ratio M-H, Random, 95% CI	Year
AFFIRM	77	2027	80	2033	64.5%	0.97 [0.71, 1.31]	2002
STAF	1	100	5	100	6.0%	0.20 [0.02, 1.68]	2003
HOT-CAFE	0	101	3	104	3.2%	0.15 [0.01, 2.81]	2004
J-RHYTHM	11	404	9	419	26.2%	1.27 [0.53, 3.03]	2009
Total (95% CI)		**2632**		**2656**	**100.0%**	**0.89 [0.52, 1.53]**	
Total events	89		97				

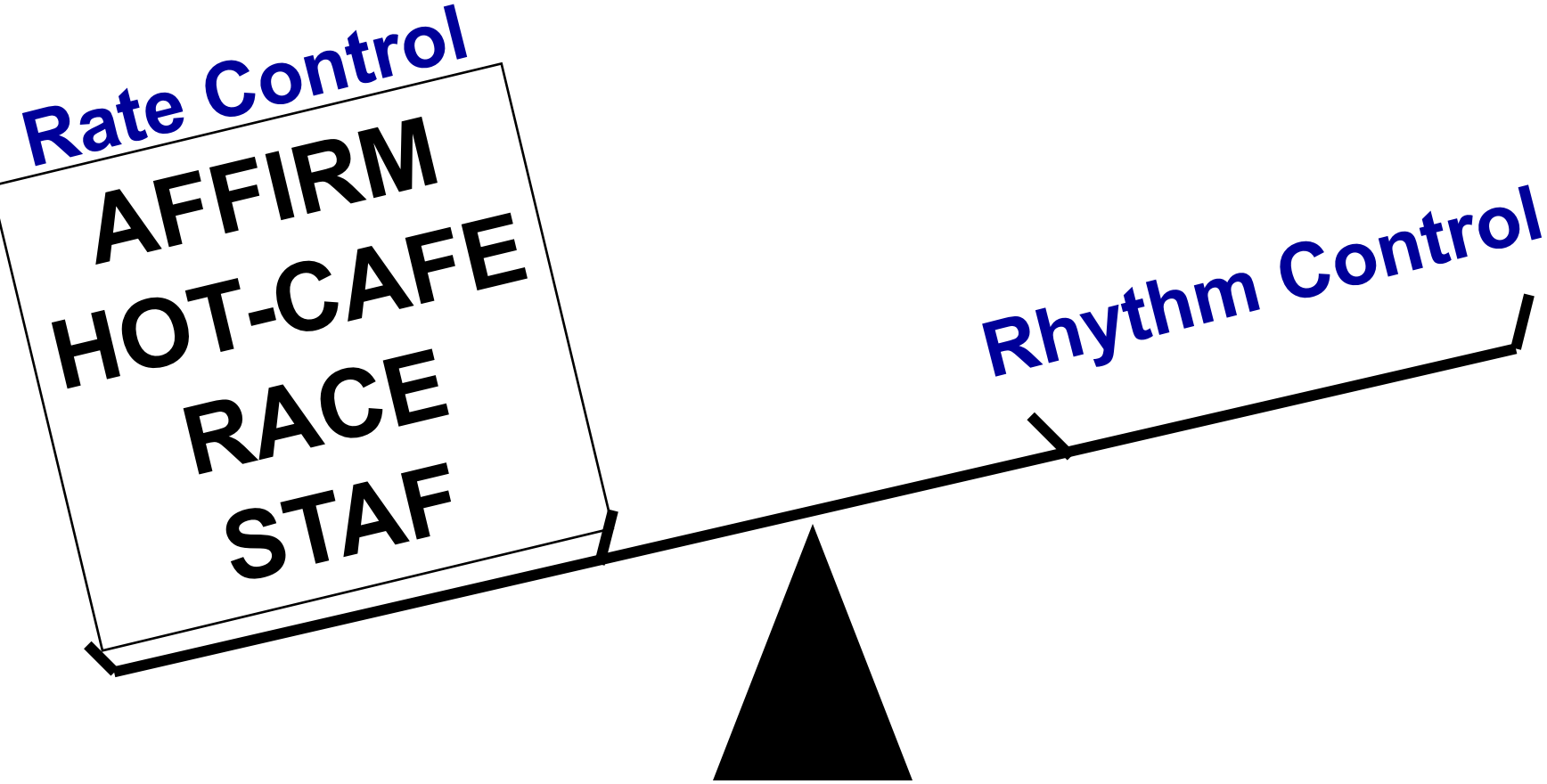
Heterogeneity : $Tau^2 = 0.09$; $Chi^2 = 4.06$, df = 3 ($P = 0.26$); $I^2 = 26\%$

Test for overall effect : Z = 0.43 ($P = 0.67$)

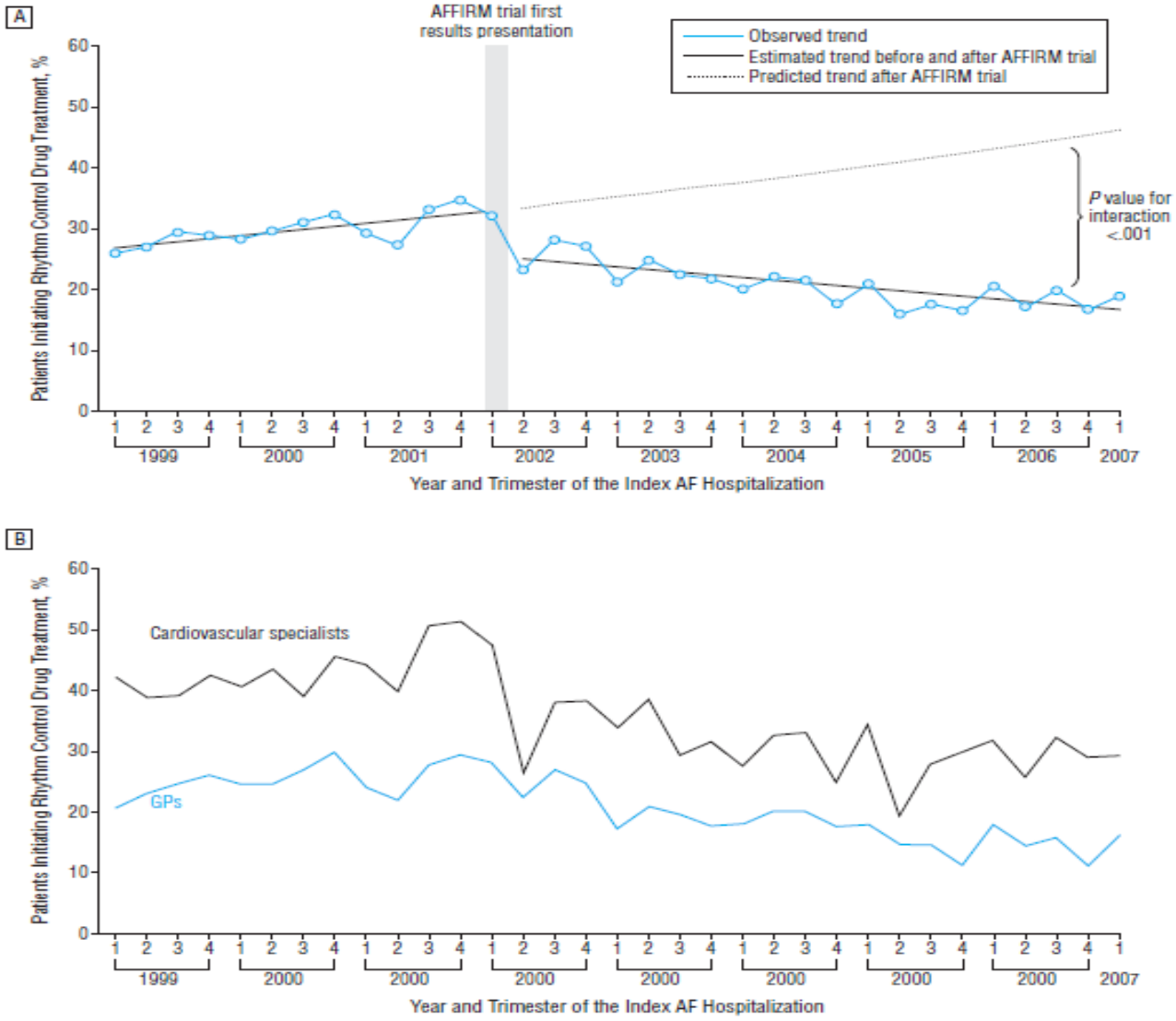
Figure 5. Forest plot for ischaemic stroke. AFFIRM: Atrial Fibrillation Follow-up Investigation of Rhythm Management study; CI: confidence interval; HOT CAFÉ: How to Treat Chronic Atrial Fibrillation study; J-RHYTHM: Japanese Rhythm Management Trial for Atrial Fibrillation; M-H: Mantel-Haenszel; STAF: Strategies of Treatment of Atrial Fibrillation study.

Archives of Cardiovascular Disease (2012) 105, 226—238

Cardioversione a tutti i costi?



Cardioversione a tutti i costi?



Arch Intern Med. 2012;172(13):997-1004.

Cardioversione a tutti i costi?

CONTROVERSIES IN CARDIOVASCULAR MEDICINE

Pharmacological and electrical conversion of atrial fibrillation to sinus rhythm: Is it worth it?

Circulation. 2009;120:1444-1452

Pharmacological and Electrical Conversion of Atrial Fibrillation to Sinus Rhythm Is Worth the Effort

Elad Anter, MD; David J. Callans, MD

Cardioversion of Atrial Fibrillation for Maintenance of Sinus Rhythm

A Road to Nowhere

D. George Wyse, MD, PhD

Cardioversione a tutti i costi?

Table 1 Main study characteristics.

	PIAF [11]	RACE [16,18]	AFFIRM [17,19]	STAF [10]	HOT CAFÉ [13]	AF-CHF [14]	J-RHYTHM [12]	CAFÉ-II [15]
AF population	New-onset AF present for ≥ 7 days and < 1 year	Recurrent and persistent AF or flutter for < 1 year	Likely to be recurrent AF in pts aged > 65 years with risk factors for stroke or death	Recurrent and persistent AF present for ≥ 4 weeks and < 2 years with ≥ 1 previous cardioversion	AF present for ≥ 7 days and < 2 years	LVEF ≤ 35%, symptoms of CHF and history of paroxysmal or persistent AF for < 1 year	Paroxysmal and persistent AF for < 1 year	Persistent AF with chronic HF and NYHA ≥ II
No. of pts	252	522	4060	200	205	1376	823	61
Mean age (SD)	61 (10)	68 (9)	70 (9)	66 (9)	61 (11)	67	64.8 (11)	72 (7)
Men (%)	73	63.4	60.7	63.5	65.4	82	69.3	84
Hypertension (%)	48.8	50	50.8	62.5	64.3	48	42.8	70
Valvular disease (%)	16.2	17	4.9	13	15.1	5	5.6	N/A
HF (%)	N/A	50	23.1	55.5 (NYHA ≥ II)	70	100	3.6	100
CHD (%)	23.4	27	26.1	43.5	43.9	48	7.4	50
Recommended anticoagulation	All pts anticoagulated (INR 2—3)	Acenocoumarol or fenprocoumon 4 weeks before and after electrical cardioversion. Rate arm anticoagulated if age > 65 years or cardiac disease	Both arms anticoagulated; if sinus rhythm restored after 4 to 12 weeks with antiarrhythmic agents, anticoagulation could be stopped	ACCP guidelines	ACCP guidelines	Recommended for all pts: ACC/AHA/ESC 2006 AF guidelines	Modified AFFIRM protocol for non-valvular AF; Japanese guidelines on AF management for valvular AF	Recommended for all pts: warfarin (INR 2—3)
Anticoagulated pts: rate vs rhythm (%)	N/A	96 vs 86	> 85 vs 70	N/A	74.3 vs 15.6	90 pts received oral anticoagulant	59.4 vs 60.1	98

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Cardioversione a tutti i costi?

A COMPARISON OF RATE CONTROL AND RHYTHM CONTROL IN PATIENTS WITH ATRIAL FIBRILLATION

THE ATRIAL FIBRILLATION FOLLOW UP INVESTIGATION OF RHYTHM MANAGEMENT (AFFIRM) INVESTIGATORS

TABLE 1. BASE-LINE CHARACTERISTICS OF THE PATIENTS.*

CHARACTERISTIC	OVERALL (N=4060)	RATE-CONTROL GROUP (N=2027)	RHYTHM-CONTROL GROUP (N=2033)	P VALUE
Age — yr	69.7±9.0	69.8±8.9	69.7±9.0	0.82
Female sex — no. (%)	1594 (39.3)	823 (40.6)	771 (37.9)	0.08
Ethnic minority group — no. (%)	461 (11.4)	241 (11.9)	220 (10.8)	0.28
Predominant cardiac diagnosis — no. (%)				0.29
Coronary artery disease	1059 (26.1)	497 (24.5)	562 (27.6)	
Cardiomyopathy	194 (4.8)	99 (4.9)	95 (4.7)	
Hypertension	2063 (50.8)	1045 (51.6)	1018 (50.1)	
Valvular disease	198 (4.9)	98 (4.8)	100 (4.9)	
Other	42 (1.0)	23 (1.1)	19 (0.9)	
No apparent heart disease	504 (12.4)	265 (13.1)	239 (11.8)	
History of congestive heart failure — no. (%)	939 (23.1)	475 (23.4)	464 (22.8)	0.64
Duration of qualifying atrial fibrillation ≥2 days — no. (%)	2808 (69.2)	1406 (69.4)	1402 (69.0)	0.80
First episode of atrial fibrillation (vs. recurrent episode) — no. (%)†	1391 (35.5)	700 (35.8)	691 (35.3)	0.74
Any prerandomization failure of an antiarrhythmic drug — no. (%)	713 (17.6)	364 (18.0)	349 (17.2)	0.51
Size of left atrium normal — no. (%)‡	1103 (35.3)	549 (35.3)	554 (35.3)	0.98
Left ventricular ejection fraction — %§	54.7±13.5	54.9±13.1	54.6±13.8	0.74
Normal left ventricular ejection fraction — no. (%)‡	2244 (74.0)	1131 (74.9)	1113 (73.2)	0.29

*Plus–minus values are means ±SD.

N Engl J Med 2002;347:1825-33.

Cardioversione a tutti i costi?

A COMPARISON OF RATE CONTROL AND RHYTHM CONTROL IN PATIENTS WITH RECURRENT PERSISTENT ATRIAL FIBRILLATION

Characteristic	Rate Control (N=256)	Rhythm Control (N=266)
Age — yr	68±9	68±8
Male sex — no. (% of patients)	161 (63)	170 (64)
Atrial fibrillation — % of patients	93	93
Atrial flutter — % of patients	7	7
Duration of atrial fibrillation — days		
Median	337	309
Range	14–4820	10–14,399
Duration of current episode of atrial fibrillation — days		
Median	32	34
Range	1–399	1–395
Coronary artery disease — % of patients	29	26
Old myocardial infarction — % of patients	16	14
Valve disease — % of patients	18	16
Mitral	13	10
Aortic	5	5
Aortic and mitral	0	1
Cardiomyopathy — % of patients	11	7
Dilated	7	3
Hypertrophic	2	2
Other	2	2
History of hypertension — % of patients	43	55
History of chronic obstructive lung disease — % of patients	23	17
History of diabetes mellitus — % of patients	12	9
No heart disease — % of patients	21	21

Characteristic	Rate Control (N=256)	Rhythm Control (N=266)
History of heart failure — % of patients	51	49
History of cerebrovascular accident — % of patients	16	12
NYHA class — % of patients†		
I	49	51
II	48	46
III	3	3
Treatment — % of patients		
Digitalis alone	32	38
Beta-blocker alone	26	33
Verapamil or diltiazem alone	16	11
Digitalis and beta-blocker	15	10
Digitalis and calcium antagonist	4	5
Beta-blocker and calcium antagonist	6	2
Digitalis, beta-blocker, and calcium antagonist	1	1
Angiotensin-converting–enzyme inhibitor	26	32
Heart rate		
Mean — beats/min	91±21	90±20
>100 beats/min — % of patients	25	22
Blood pressure — mm Hg		
Systolic	142±21	145±22
Diastolic	85±11	86±11
Echocardiographic findings — mm		
Size of left atrium, long axis	45±7	45±7
Left ventricular end-diastolic diameter	53±7	52±7
Left ventricular end-systolic diameter	37±8	37±8
Septal thickness	10.1±2	10.5±3
Posterior-wall thickness	9.4±2	9.7±2
Fractional shortening — %	30±10	30±10

N Engl J Med 2002;347:1834-40.

Cardioversione a tutti i costi?

Table 1 Main study characteristics.

	PIAF [11]	RACE [16,18]	AFFIRM [17,19]	STAF [10]	HOT CAFÉ [13]	AF-CHF [14]	J-RHYTHM [12]	CAFÉ-II [15]
AF population	New-onset AF present for ≥ 7 days and < 1 year	Recurrent and persistent AF or flutter for < 1 year	Likely to be recurrent AF in pts aged > 65 years with risk factors for stroke or death	Recurrent and persistent AF present for ≥ 4 weeks and < 2 years with ≥ 1 previous cardioversion	AF present for ≥ 7 days and < 2 years	LVEF ≤ 35%, symptoms of CHF and history of paroxysmal or persistent AF for < 1 year	Paroxysmal and persistent AF for < 1 year	Persistent AF with chronic HF and NYHA ≥ II
No. of pts	252	522	4060	200	205	1376	823	61
Mean age (SD)	61 (10)	68 (9)	70 (9)	66 (9)	61 (11)	67	64.8 (11)	72 (7)
Men (%)	73	63.4	60.7	63.5	65.4	82	69.3	84
Hypertension (%)	48.8	50	50.8	62.5	64.3	48	42.8	70
Valvular disease (%)	16.2	17	4.9	13	15.1	5	5.6	N/A
HF (%)	N/A	50	23.1	55.5 (NYHA ≥ II)	70	100	3.6	100
CHD (%)	23.4	27	26.1	43.5	43.9	48	7.4	50
Recommended anticoagulation	All pts anticoagulated (INR 2—3)	Acenocoumarol or fenprocoumon 4 weeks before and after electrical cardioversion. Rate arm anticoagulated if age > 65 years or cardiac disease	Both arms anticoagulated; if sinus rhythm restored after 4 to 12 weeks with antiarrhythmic agents, anticoagulation could be stopped	ACCP guidelines	ACCP guidelines	Recommended for all pts: ACC/AHA/ESC 2006 AF guidelines	Modified AFFIRM protocol for non-valvular AF; Japanese guidelines on AF management for valvular AF	Recommended for all pts: warfarin (INR 2—3)
Anticoagulated pts: rate vs rhythm (%)	N/A	96 vs 86	> 85 vs 70	N/A	74.3 vs 15.6	90 pts received oral anticoagulant	59.4 vs 60.1	98

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Cardioversione a tutti i costi?

Occurrence and Characteristics of Stroke Events in the Atrial Fibrillation Follow-up Investigation of Sinus Rhythm Management (AFFIRM) Study

Table 3. Anticoagulation Therapy and Sinus Rhythm at the Time of Stroke*

Variable	Total	Rate Control Group	Sinus Rhythm Control Group	*P* Value†
Patients Who Had Ischemic Strokes				
Warfarin sodium use/INR at time of stroke	**152**	75	77	.79
Not receiving warfarin therapy	**69** (45.4)	25 (33.3)	44 (57.1)	.01
Receiving warfarin therapy				
INR <2.0	**44** (28.9)	27 (36.0)	17 (22.1)	
INR ≥2.0	**39** (25.7)	23 (30.7)	16 (20.8)	
Rhythm at time of stroke	**128**	61	67	<.001
AF	**67** (52.3)	42 (68.9)	25 (37.3)	
Sinus rhythm	**61** (47.7)	19 (31.1)	42 (62.7)	
Patients Who Had Cardioembolic or Suspected Cardioembolic Strokes				
Warfarin use/INR at time of stroke	**85**	41	44	
Not receiving warfarin therapy	**42** (49.4)	16 (39.0)	26 (59.1)	.16
Receiving warfarin therapy				
INR<2.0	**27** (31.8)	15 (36.6)	12 (27.3)	
INR≥2.0	**16** (18.8)	10 (24.4)	6 (13.6)	
Rhythm at time of stroke	**71**	32	39	.001
AF	**43** (60.6)	26 (81.3)	17 (43.6)	
Sinus rhythm	**28** (39.4)	6 (18.8)	22 (56.4)	

Arch Intern Med. 2005;165:1185-1191

Cardioversione a tutti i costi?

Occurrence and Characteristics of Stroke Events in the Atrial Fibrillation Follow-up Investigation of Sinus Rhythm Management (AFFIRM) Study

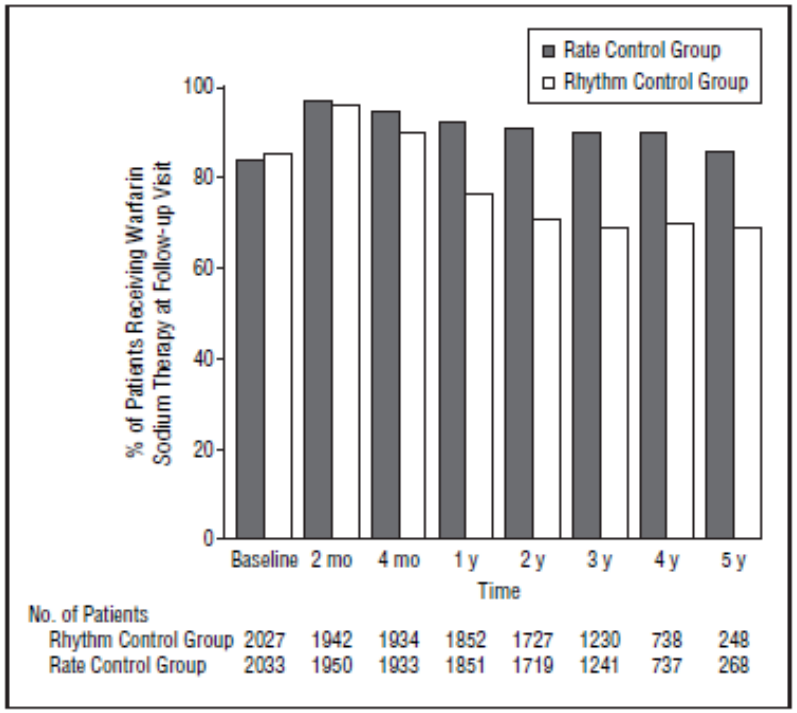


Figure 1. Warfarin sodium use over time.

Arch Intern Med. 2005;165:1185-1191

Cardioversione a tutti i costi?

Table 1 (*Continued*)

	PIAF [11]	RACE [16,18]	AFFIRM [17,19]	STAF [10]	HOT CAFÉ [13]	AF-CHF [14]	J-RHYTHM [12]	CAFÉ-II [15]
Rate intervention	Diltiazem as initial drug	Digitalis, non-dihydropyridine calcium-channel blocker and beta-blocker	Beta-blocker, non-dihydropyridine calcium-channel blocker and digoxin	Beta-blocker, digitalis and calcium-channel blocker; AV nodal ablation or modification ± pacemaker	Beta-blocker, non-dihydropyridine calcium-channel blocker and digoxin; cardioversion or AV nodal ablation and pacemaker	Beta-blocker and digoxin; AV nodal ablation and pacemaker	Beta-blocker, calcium-channel blocker or digitalis	Digoxin and beta-blocker
Beta-blocker in rate control (%)	N/A	41	68.1	N/A	89.1	N/A	51.5	90
Rhythm intervention	Amiodarone or electrical cardioversion followed by amiodarone	Electrical cardioversion and sotalol, flecainide, propafenone or amiodarone	Many antiarrhythmic agents and/or electrical cardioversion	Electrical cardioversion and class I antiarrhythmic agents or sotalol; CHD or LV dysfunction, amiodarone	Electrical cardioversion and disopyramide, propafenone, sotalol or amiodarone	Electrical cardioversion and amiodarone (or sotalol or dofetilide)	Electrical cardioversion and antiarrhythmic agents (pilsicainide, cibenzoline, propafenone, disopyramide)	Amiodarone and electrical cardioversion
Amiodarone in rhythm control (%)	100	N/A	62.8	42	56.7	82	0.5	80
Mean years of follow-up (SD)	1	2.3 (0.6)	3.5	1.6 (0.7)	1.7 (0.4)	3.1 (1.6)	1.58	1.2[a]
PEDro score	6	7	6	7	7	6	6	7

Archives of Cardiovascular Disease (2012) 105, 226—238

Cardioversione a tutti i costi?

Mixed treatment comparison of dronedarone, amiodarone, sotalol, flecainide, and propafenone, for the management of atrial fibrillation

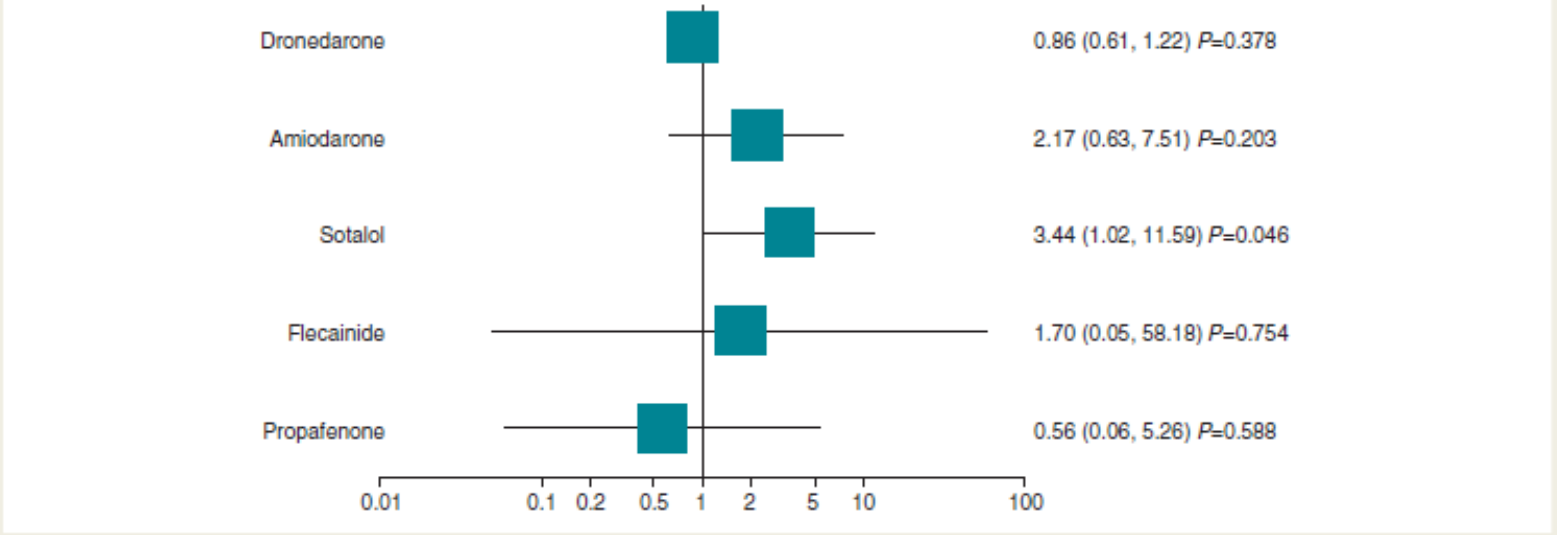
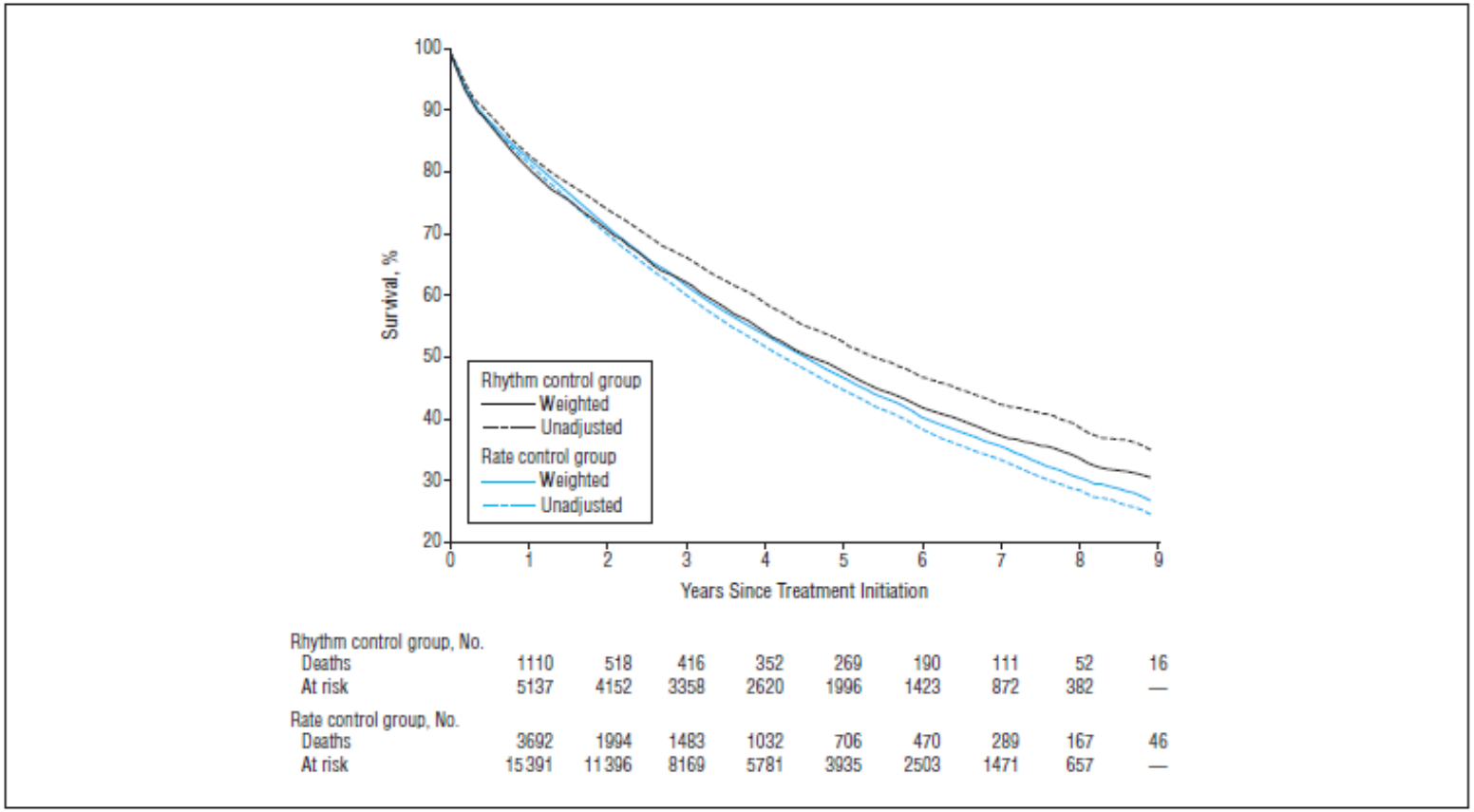


Figure 2 Mixed treatment comparison analysis: effect of anti-arrhythmic drugs on all-cause mortality. Odds ratios and 95% confidence intervals. Note—odds ratio smaller than 1 indicates a benefit (lower mortality) for the active agent.

Europace (2011) 13, 329–345

Cardioversione a tutti i costi?

Comparative Effectiveness of Rhythm Control vs Rate Control Drug Treatment Effect on Mortality in Patients With Atrial Fibrillation



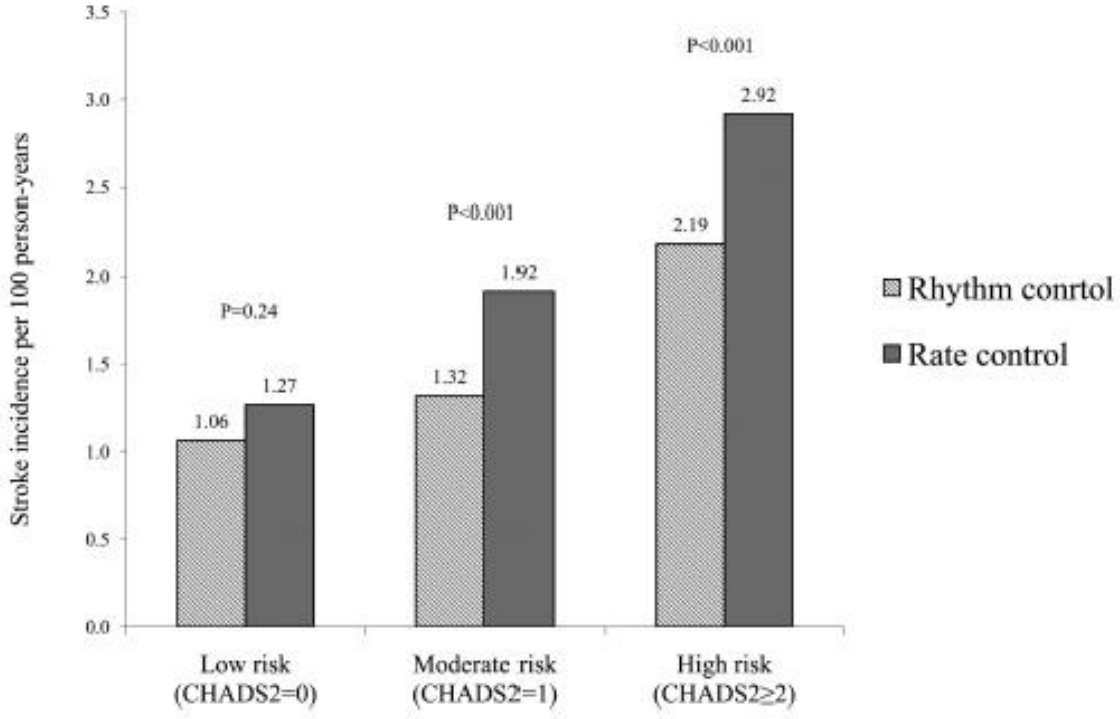
Rhythm control group, No.									
Deaths	1110	518	416	352	269	190	111	52	16
At risk	5137	4152	3358	2620	1996	1423	872	382	—
Rate control group, No.									
Deaths	3692	1994	1483	1032	706	470	289	167	46
At risk	15391	11396	8169	5781	3935	2503	1471	657	—

Figure 3. Weighted survival of patients with atrial fibrillation (AF) on rhythm vs rate control treatment. The weighted survival curves were weighted by inverse probabilities of treatment that are equivalent to the standardization of the survival curves to the whole study population.[20] The deaths in the footnote are counted in the preceding 1-year interval. The number of patients at risk in the footnote are counted at the end of each 1-year interval.

Arch Intern Med. 2012;172(13):997-1004.

Cardioversione a tutti i costi?

Rhythm Versus Rate Control Therapy and Subsequent Stroke or Transient Ischemic Attack in Patients With Atrial Fibrillation



Circulation. 2012;126:2680-2687

Table 1. Baseline Characteristics

	Rate N=41 193	Rhythm N=16 325	*P*
Demographics			
Age, y, mean±SD	79.5±7.2	77.1±6.7	<0.001
Sex (male), %	43.8	46.8	<0.001
Comorbidities 1 y before AF admission, %			
Coronary artery disease	46.4	48.7	<0.001
Hyperlipidemia	21.7	27.0	<0.001
Valvular disease	21.0	21.4	0.308
Acute myocardial infarction	17.7	20.2	<0.001
Chronic kidney disease	16.5	15.9	0.066
Bleeding events and complications	6.0	5.5	0.019
Liver disease	3.4	2.6	<0.001
Specific components of $CHADS_2$ score, %			
Congestive heart failure	32.9	28.5	<0.001
Hypertension	58.8	57.4	0.003
Age ≥75 y	71.2	59.1	<0.001
Diabetes	24.4	21.9	<0.001
Previous stroke (including TIA and retinal infarction)	7.3	6.2	<0.001
$CHADS_2$ score within 1 y before admission with AF, %			
Mean $CHADS_2$ score (±SD)	2.0±1.1	1.8±1.1	<0.001
Low ($CHADS_2$ score=0)	7.2	11.7	<0.001
Moderate ($CHADS_2$ score=1)	25.8	30.2	<0.001
High ($CHADS_2$ score ≥2)	67.0	58.1	<0.001
Index admission with primary diagnosis of AF, %	27.6	42.9	<0.001
Primary treating physician during hospitalization, %			
General	52.0	45.2	<0.001
Internist	10.4	8.7	<0.001
Cardiologist	20.2	32.6	<0.001

SD indicates standard deviation; AF, atrial fibrillation; $CHADS_2$, congestive heart failure, hypertension, age ≥75 y, diabetes, and previous stroke or transient ischemic attack; and TIA, transient ischemic attack.

Cardioversione a tutti i costi?

Radiofrequency Ablation vs Antiarrhythmic Drugs as First-line Treatment of Symptomatic Atrial Fibrillation
A Randomized Trial

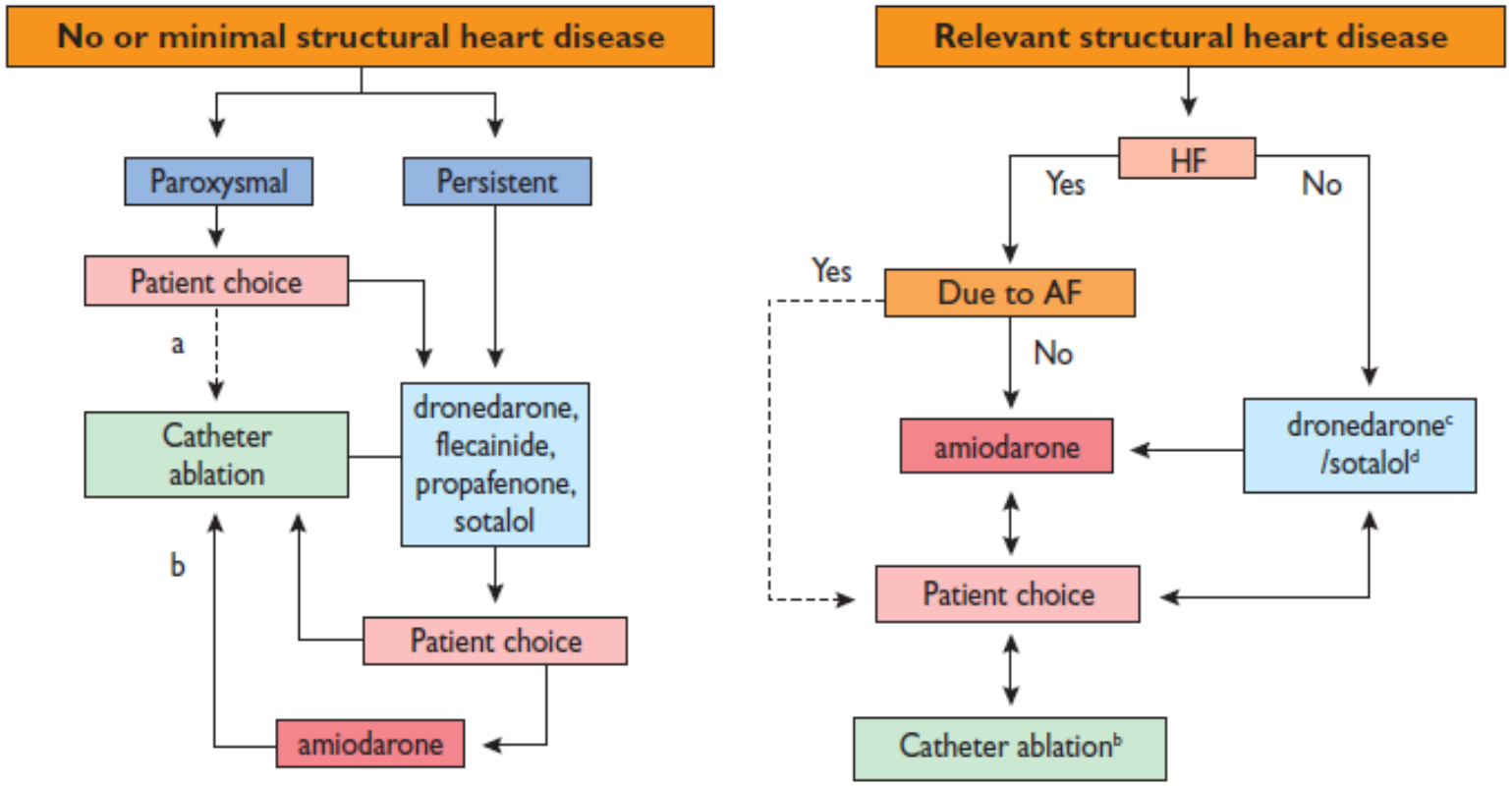
JAMA. 2005;293:2634-2640

Radiofrequency Ablation as Initial Therapy in Paroxysmal Atrial Fibrillation

N Engl J Med 2012;367:1587-95.

Cardioversione a tutti i costi?

2012 focused update of the ESC Guidelines for the



AF = atrial fibrillation; HF = heart failure. [a]Usually pulmonary vein isolation is appropriate. [b]More extensive left atrial ablation may be needed. [c]Caution with coronary heart disease. [d]Not recommended with left ventricular hypertrophy. Heart failure due to AF = tachycardiomyopathy.

European Heart Journal (2012) 33, 2719–2747

Cardioversione a tutti i costi?

Recommendations	Class[a]	Level[b]
Catheter ablation of symptomatic paroxysmal AF is recommended in patients who have symptomatic recurrences of AF on antiarrhythmic drug therapy (amiodarone, dronedarone, flecainide, propafenone, sotalol) and who prefer further rhythm control therapy, when performed by an electrophysiologist who has received appropriate training and is performing the procedure in an experienced centre.	I	A
Catheter ablation of AF should target isolation of the pulmonary veins.	IIa	A
Catheter ablation of AF should be considered as first-line therapy in selected patients with symptomatic paroxysmal AF as an alternative to antiarrhythmic drug therapy, considering patient choice, benefit, and risk.	IIa	B

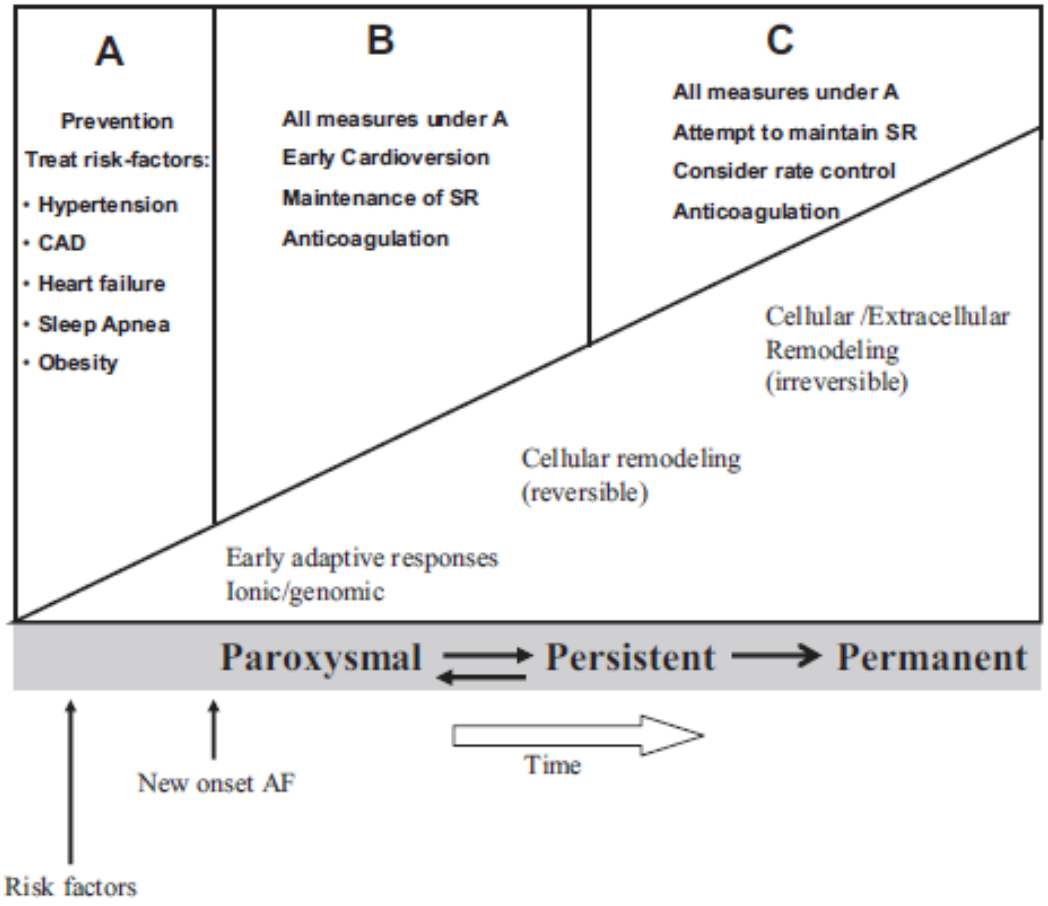
European Heart Journal (2012) 33, 2719–2747

Cardioversione a tutti i costi?

The problem with allowing AF to persist for years is that it may then be impossible to restore sinus rhythm as a consequence of electrical and structural remodeling, which preclude successful restoration or maintenance of sinus rhythm and favor permanent AF. This makes it important to ensure that a window of opportunity to maintain sinus rhythm is not overlooked early in the course of management of a patient with AF.

ACCF/AHA/HRS Guidelines for the Management of Patients With Atrial Fibrillation. *Circulation. 2011*

Cardioversione a tutti i costi?



Circulation. 2009;120:1444-1452

Cardioversione a tutti i costi?

AF progresses from paroxysmal to persistent in many patients and subsequently results in electrical and structural remodeling that becomes irreversible with time. For this reason, accepting AF as permanent in a patient may render future rhythm-control therapies less effective. This may be more relevant for a younger individual who wishes to remain a candidate for future developments in rhythm-control therapies. Early intervention with a rhythm-control strategy to prevent the progression of AF may be beneficial.

AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation. *Circulation 2014.*

Cardioversione a tutti i costi?

The New England Journal of Medicine

VOLUME 344 MAY 10, 2001 NUMBER 19

USE OF TRANSESOPHAGEAL ECHOCARDIOGRAPHY TO GUIDE CARDIOVERSION IN PATIENTS WITH ATRIAL FIBRILLATION

Europace (2000) **2**, 119–126
doi:10.1053/eupc.1999.0093, available online at http://www.idealibrary.com on IDEAL®

Early cardioversion of atrial fibrillation and atrial flutter guided by transoesophageal echocardiography

Cardioversione a tutti i costi?

2014 AHA/ACC/HRS Guideline for the Management of Patients With Atrial Fibrillation: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and the Heart Rhythm Society

TEE guidance is an alternative to 3 weeks of anticoagulation prior to cardioversion. Therapeutic anticoagulation is achieved, followed by a TEE; if no thrombus is seen (including in the LAA), cardioversion is performed and anticoagulation is continued for a ≥4 weeks.

Cardioversione a tutti i costi?

Linee guida AIAC per la gestione e il trattamento della fibrillazione atriale.

• La strategia di controllo del ritmo è la strategia di prima scelta nei pazienti al primo episodio di FA.	I	C
• La strategia di controllo del ritmo va mantenuta come prima scelta nei pazienti con FA ricorrente sintomatica in cui la probabilità di mantenere il ritmo sinusale sia elevata o in cui non sia possibile mantenere un adeguato controllo della risposta ventricolare media o nei quali la FA determini un deterioramento emodinamico.	I	C
o per la presenza di una cardiopatia sottostante, non sia possibile seguire la strategia di controllo del ritmo.		
• La strategia di controllo della frequenza è da preferire nei pazienti anziani, asintomatici o paucisintomatici, con FA persistente e buon compenso emodinamico.	I	C
• La strategia di controllo della frequenza è da preferire nei soggetti anziani, con FA ricorrente, scompenso cardiaco e bassa frazione di eiezione.	I	C

G Ital Cardiol 2013;14(3):215-240

IX congresso nazionale simeu TORINO 6-8 NOVEMBRE 2014

Cardioversione a tutti i costi?

Linee guida AIAC per la gestione e il trattamento della fibrillazione atriale.

• La strategia di controllo della frequenza è da preferire nei pazienti refrattari alla terapia farmacologica antiaritmica, che hanno presentato numerose recidive ai tentativi di cardioversione e che non abbiano indicazione all'ablazione transcatetere, o nei pazienti in cui, per motivi anagrafici o per la presenza di una cardiopatia sottostante, non sia possibile seguire la strategia di controllo del ritmo.	I	C
• La strategia di controllo della frequenza è da preferire nei pazienti anziani, asintomatici o paucisintomatici, con FA persistente e buon compenso emodinamico.	I	C
• La strategia di controllo della frequenza è da preferire nei soggetti anziani, con FA ricorrente, scompenso cardiaco e bassa frazione di eiezione.	I	C

G Ital Cardiol 2013;14(3):215-240

Cardioversione a tutti i costi?

Table 1. Factors favouring rate versus rhythm control

Favours rate control	Favours rhythm control
Persistent AF	Paroxysmal AF Newly detected AF
Less symptomatic	More symptomatic
Aged ≥65 years	Aged <65 years
Hypertension	No hypertension
No history of congestive heart failure	Congestive heart failure clearly exacerbated by AF
Previous antiarrhythmic drug failure	No previous antiarrhythmic drug failure
Patient preference	Patient preference

AF, atrial fibrillation.

Canadian Cardiovascular Society Atrial Fibrillation Guidelines
Canadian Journal of Cardiology 27 (2011) 47–59

Cardioversione a tutti i costi?

When to offer rate or rhythm control

1.6.1 Offer rate control as the first-line strategy to people with atrial fibrillation, except in people:

• whose atrial fibrillation has a reversible cause

• who have heart failure thought to be primarily caused by atrial fibrillation

• with new-onset atrial fibrillation

• with atrial flutter whose condition is considered suitable for an ablation strategy to restore sinus rhythm

• for whom a rhythm control strategy would be more suitable based on clinical judgement. [new 2014]

Rhythm control

1.6.6 Consider pharmacological and/or electrical rhythm control for people with atrial fibrillation whose symptoms continue after heart rate has been controlled or for whom a rate-control strategy has not been successful. [new 2014]

Cardioversion

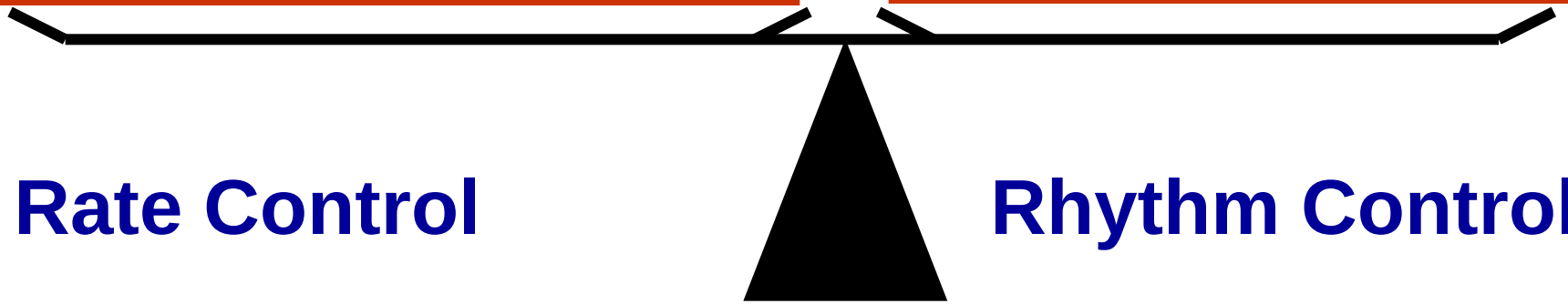
1.6.7 For people having cardioversion for atrial fibrillation that has persisted for longer than 48 hours, offer electrical (rather than pharmacological) cardioversion. [new 2014]

2014 NICE clinical guideline

Cardioversione a tutti i costi?

FA persistente
Pazienti anziani
Asintomatici
Fallimento terapia antiaritmica
Coesistenza cardiopatia imp.
No indicazioni ablazione
HF a bassa frazione di eiezione

Primo episodio di FA
Pazienti giovani
FA ricorrente sintomatica
HF riacutizzato dalla FA
Mancato controllo frequenza
Presente causa reversibile
Possibilità ablazione



Rate Control

Rhythm Control

Cardioversione a tutti i costi?