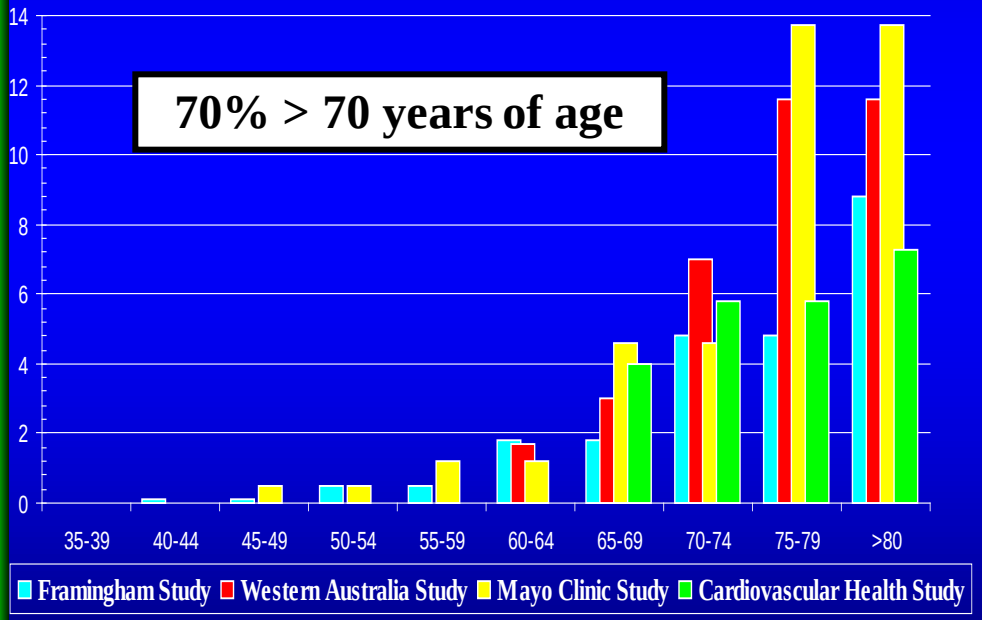
Atrial fibrillation and advanced age

Prof. Fiorenzo Gaita

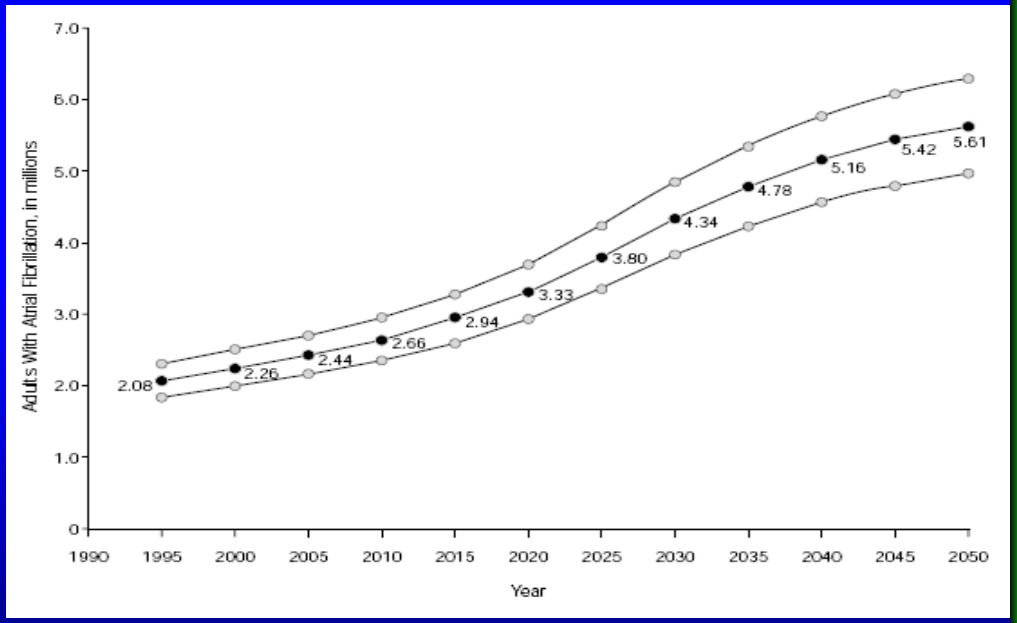
Director of the Cardiology School
University of Turin, Italy

Prevalence of AF in the general population

Prevalence and age distribution in patients with atrial fibrillation



Projected number of adult with AF in the USA between 1995-2050

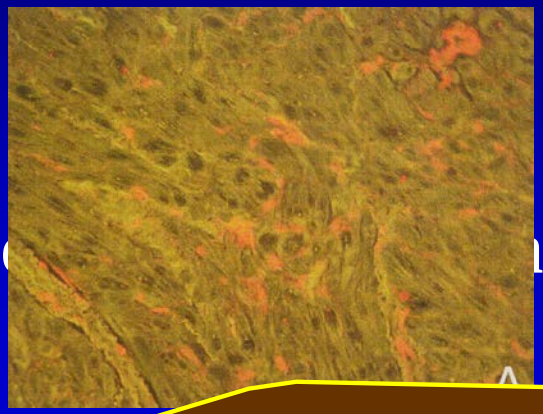


Feinberg WM et al. Arch Intern Med 1995;155: 469-473.

Go AS et al. JAMA 2001;285: 2370-2375. (ATRIA Study)

Ederly AF patients are different from Younger

- Atrial substrate modifications related to senescence

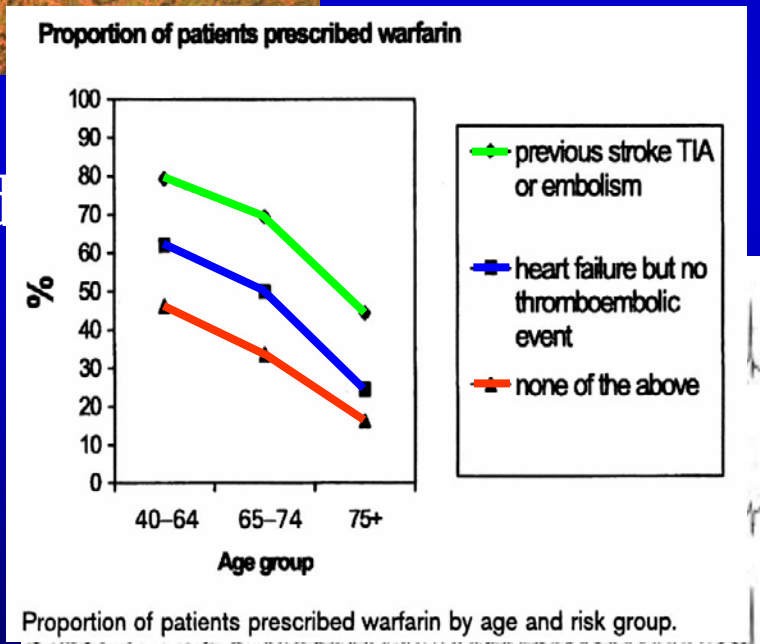


- Proble aging

Anticoagulation Paradox

- Antiarrhythm c theraphy is more d

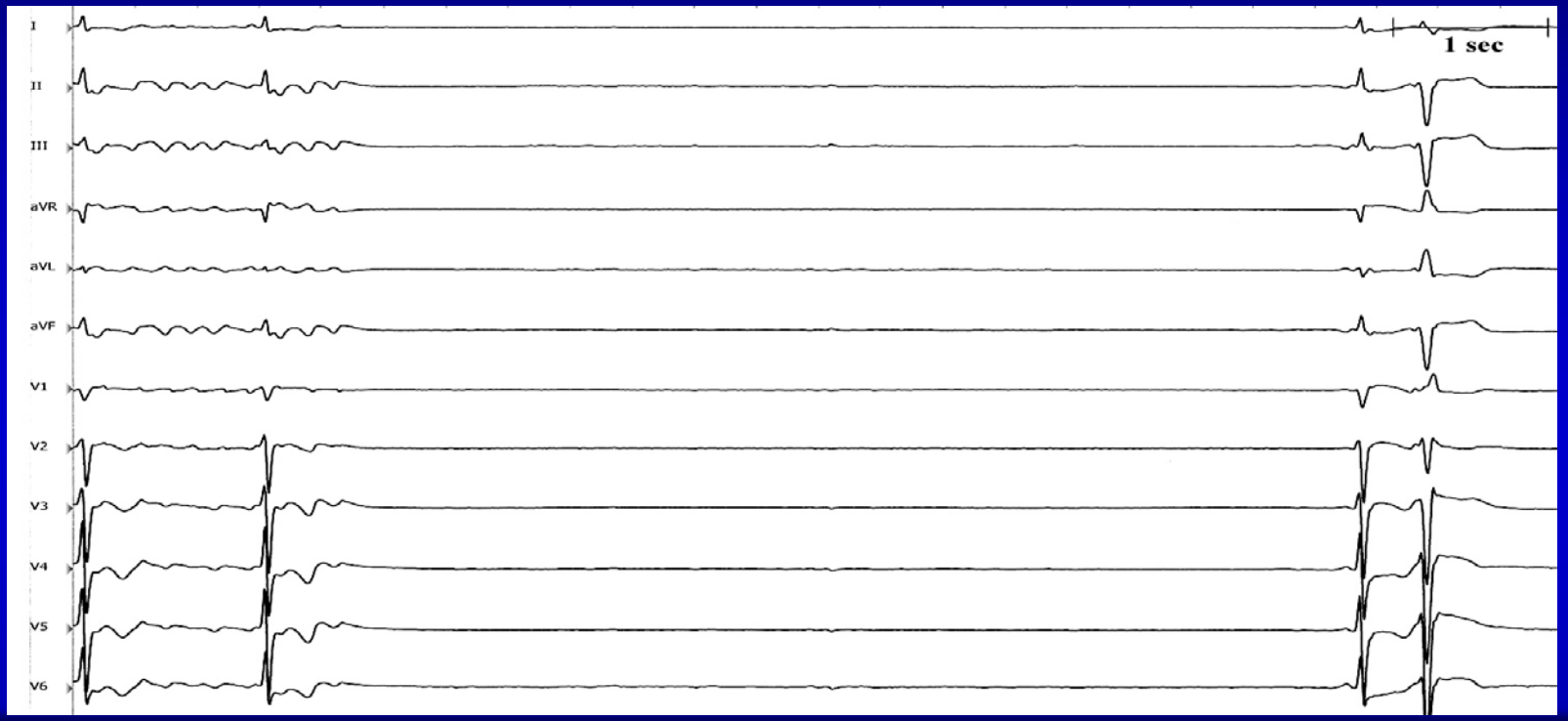
Altered liver nd renal function,
electrolyt abnor
aco al interactions,
poor compliance → pro-arrhythmias



Proportion of patients prescribed warfarin by age and risk group.

Dayer et al. Am J Geriatr Cardiol 2002

- More comorbidities, associated diseases particularly SSS

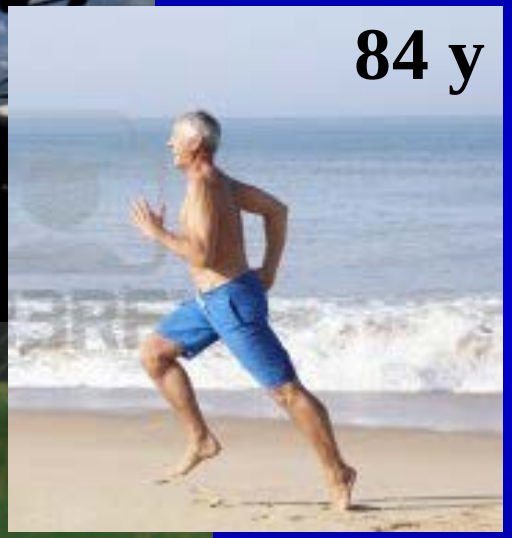


Pathologic recovery time of sinus node

(increased by ADDs therapy)

Ederly AF patients are different from Younger

…but, above all, they are different from each others



Final program

11:00-12:30
Room 1.4 - Level 1 / Méditerranée

SESSION 108
APPROACHES TO ATRIAL FIBRILLATION AND STROKE PREVENTION: NEW TECHNIQUES, NEW TECHNOLOGY, NEW ANTICOAGULANTS AND NEW DRUGS FOR THE ELDERLY

Co-Chair:
Gaita F. - Asti, ITA / ***Munger T.T.*** - Rochester, USA

11:00 ■ State of the Art Lecture:
AF in the Elderly: Drugs, Ablation and Devices
Calkins H. - *Baltimore, USA* 108/1

11:20 ■ Case 1: 86 yr W, HTN, Diabetic w/ 2 recurrent TIAs in setting of PAF, GI bleeds/fall
Friedman P. - *Rochester, USA* 108/2

11:40 ■ Case 2: 90 yr M, persistent AF, HTN, CHF, and COPD
Shen W. - *Rochester, USA* 108/3

12:00 ■ Case 3: 85 yr retired surgeon runs marathon, sinus bradycardia and symptomatic PAF
Hocini M. - *Bordeaux, FRA* 108/4

Clinical Case

Retired Surgeon, 85 yr, marathon runner

-Symptomatic Paroxysmal AF with rapid ventricular rate

-Sinus bradycardia

-Hypertension

-Impaired renal function

What could you do?

a. AADs + OAC

b. Rate control therapy + OAC

c. AADs + LA appendage closure

d. Rate control therapy + LAA closure

e. PM+ AADs + OAC

f. PM +AV node abl+ OAC

g. PM + AVnode abl + LA appendage closure

h. Afib ablation + strictly SR monitorization (Loop Recorder)

i. Afib ablation + LA appendage closure

CHA_2DS_2VASc

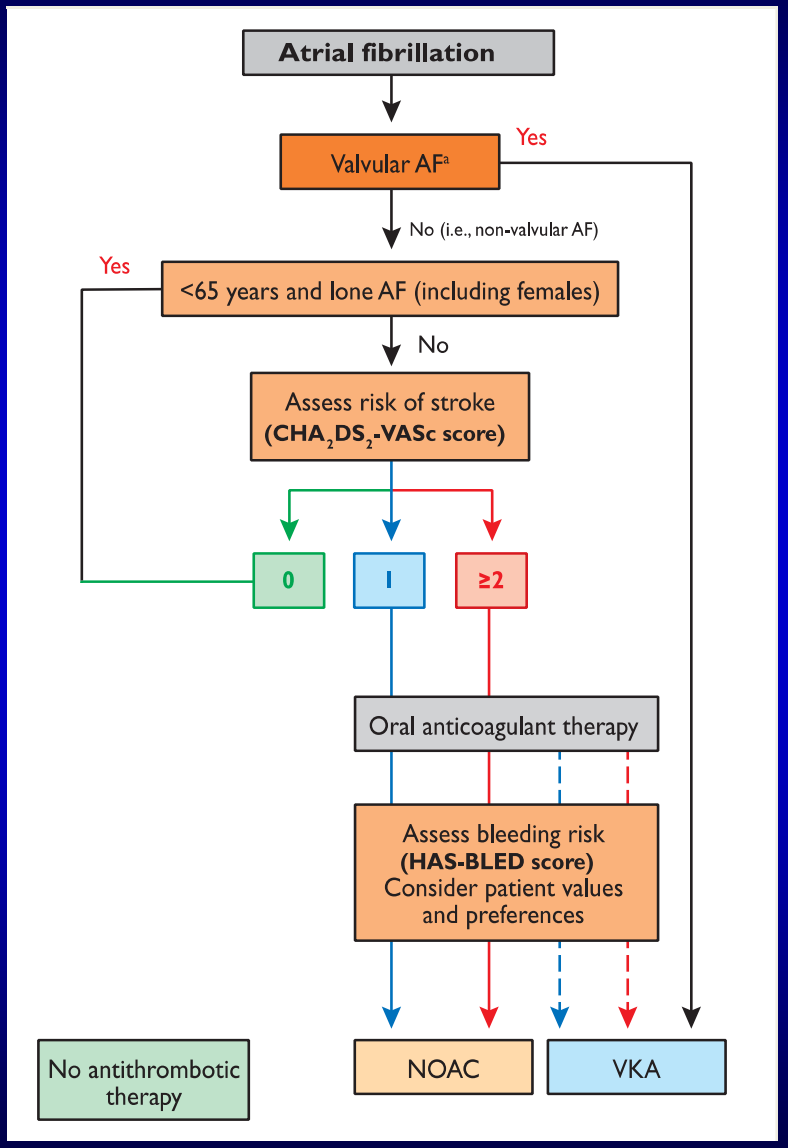
RISK FACTORS	SCORE
Congestive HF/ LV disfunction	1
Hypertension	1
Age ≥ 75	2* major risk factor
Diabetes mellitus	1
Stroke/TIA/ thromboembolism	2* major risk factor
Vascular disease	1

CHA2DS2VASC 3

TE risk ranging from 3.2- 6%/y

ESC AF Guidelines 2010

Choice of anticoagulant



2012 Update of the ESC AF Guidelines

CHA_2DS_2VASc

RISK FACTORS	SCORE
Congestive HF/ LV disfunction	1
Hypertension	1
Age ≥ 75	2*major risk factor
Diabetes mellitus	1
Stroke/TIA/ thromboembolism	2* major risk factor
Vascular disease	1
Age 65-74	1
Sex category (f)	1

HAS-BLED

RISK FACTORS	SCORE
Hypertension	1
Abnormal renal and liver function (1 point each)	1 o r 2
Stroke	1
Bleeding	1
Labile INRs	1
Elderly (age> 65 y)	1

HASBLED 3

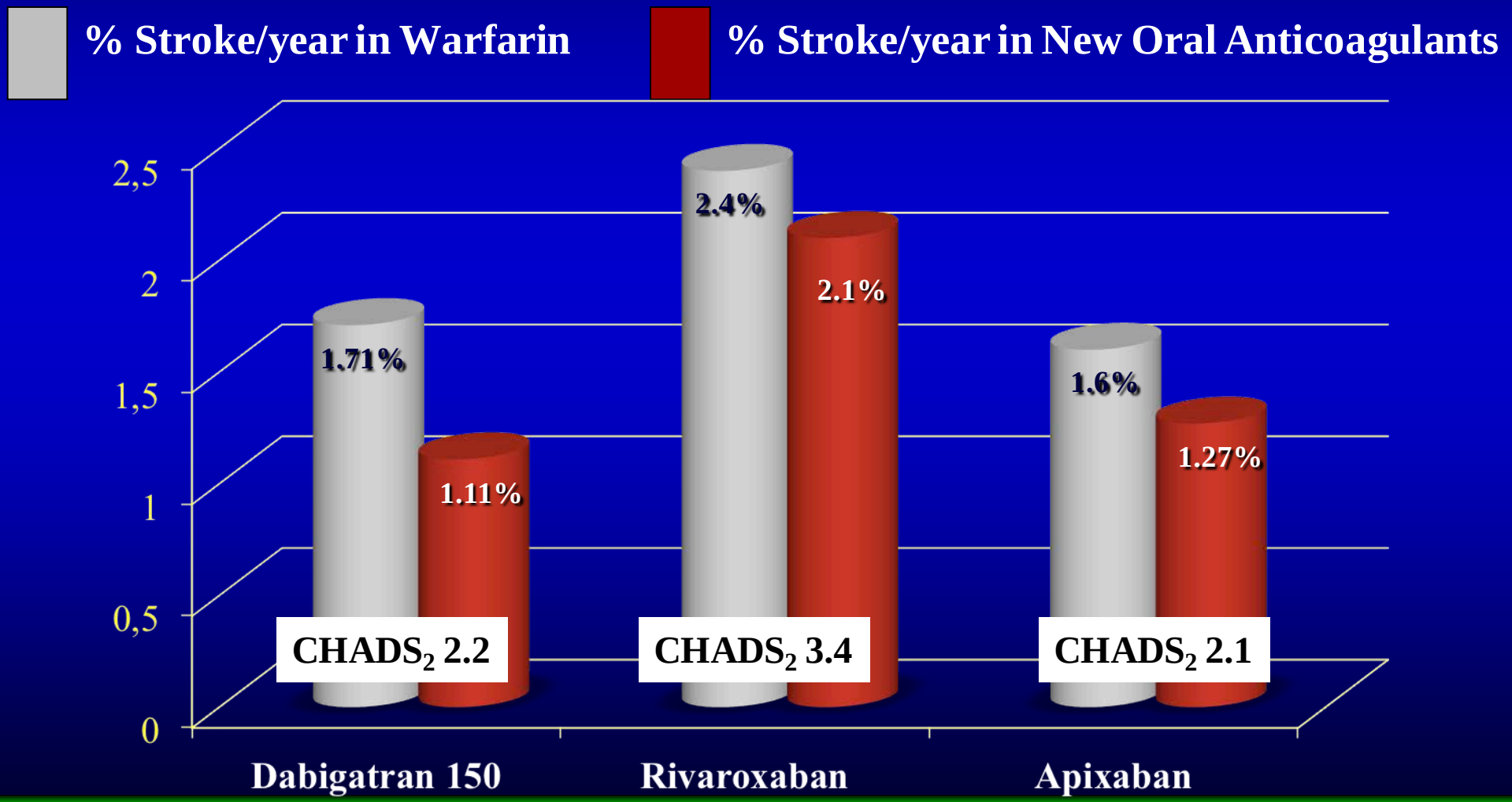
Hemorragic risk 3.8%/y

ESC AF Guidelines 2010

Annual Thromboembolic Risk

in pts with non valvular AF

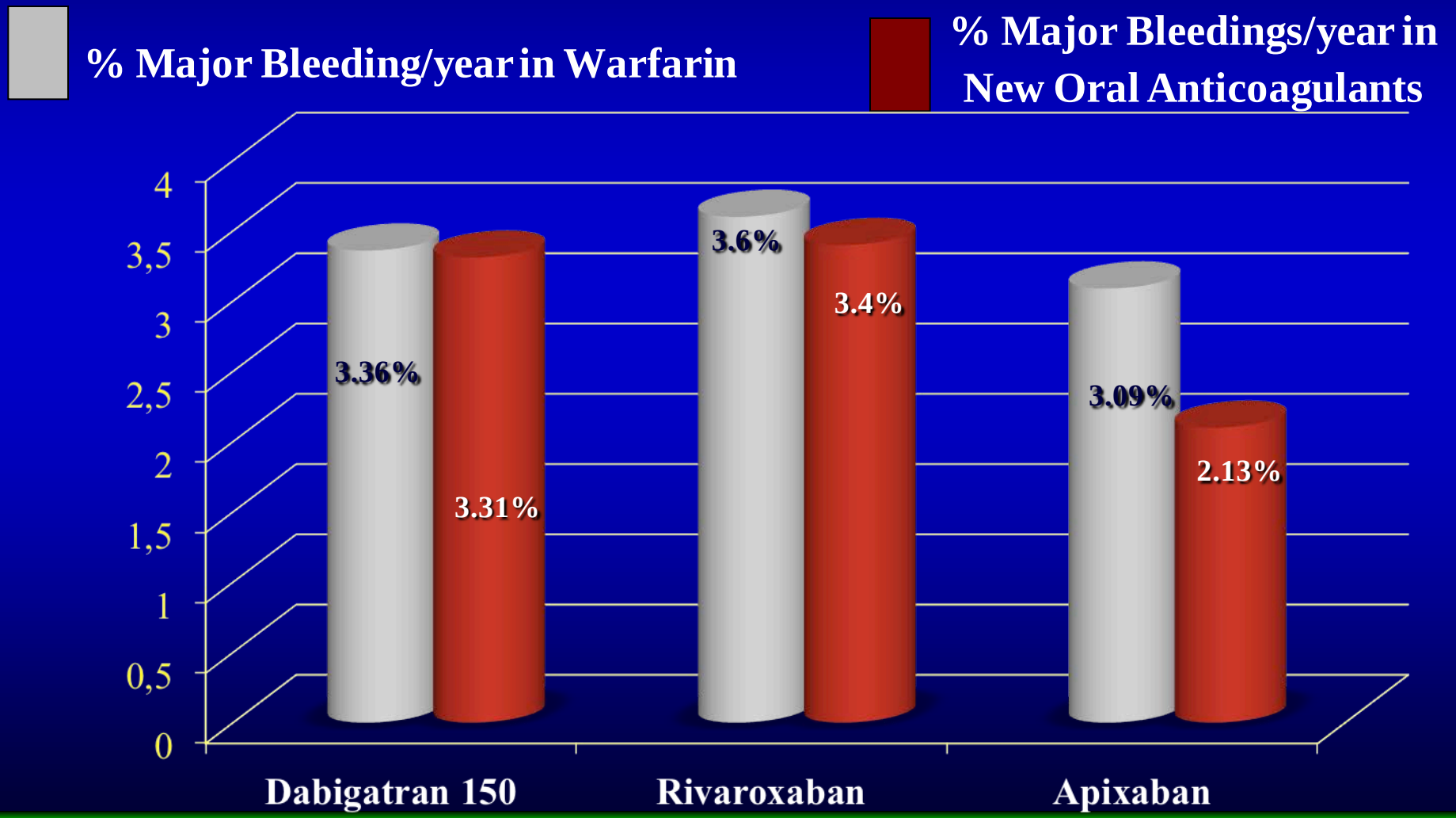
Treated with Warfarin or New Oral Anticoagulants



Annual Hemorragic Complications

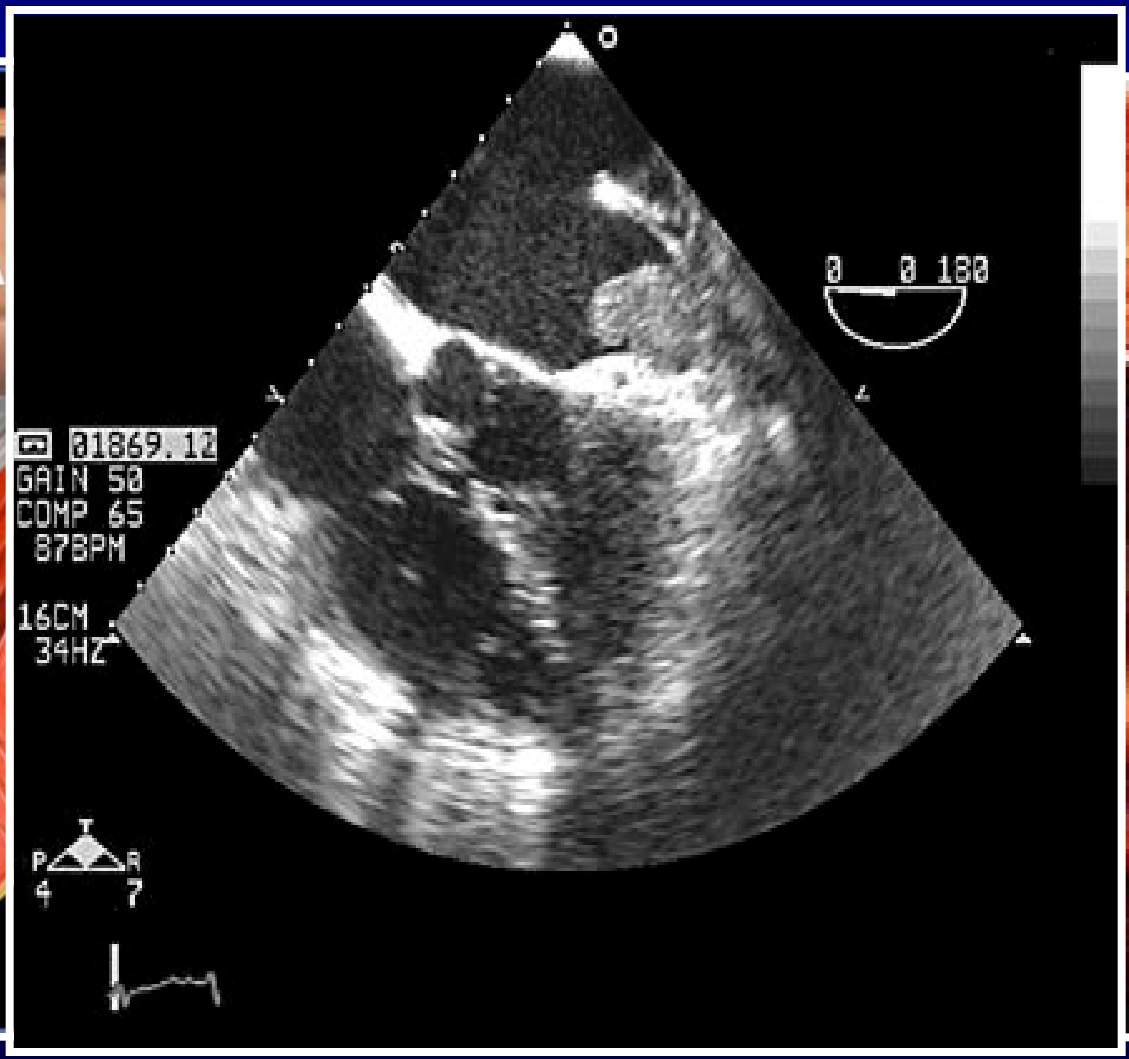
in pts with non valvular AF

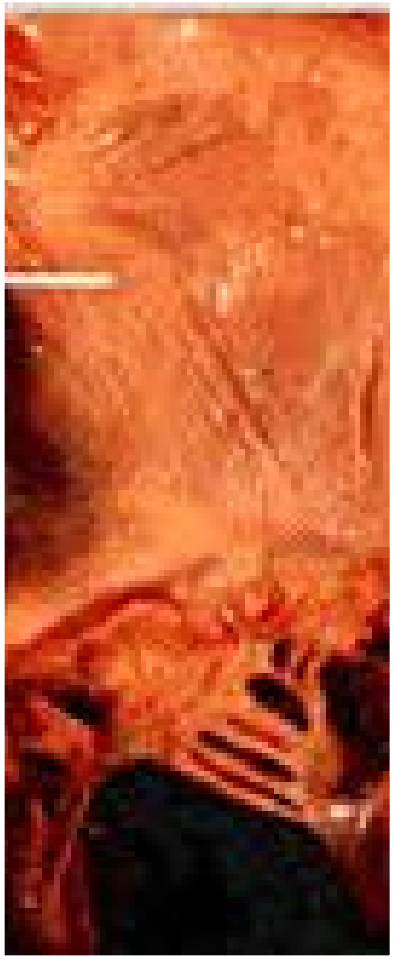
Treated with Warfarin or New Oral Anticoagulants



LAA and thromboembolic risk

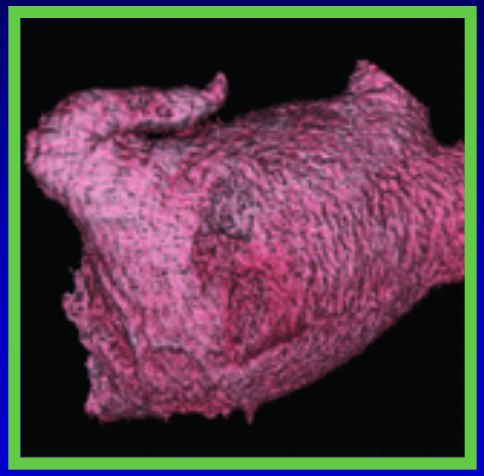
Incidence of thrombus in LAA reaches up to 91%



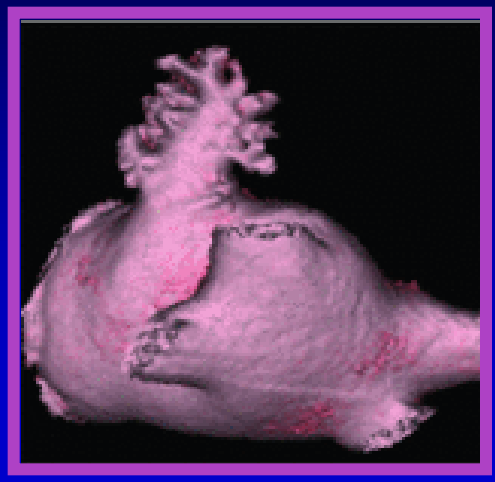


Odell JA *et al*. Ann Thorac Surg 1996;**61**:565–9

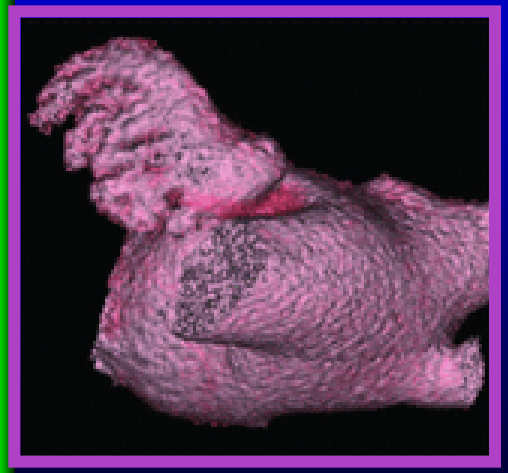
Chickenwing type LAA,
451 (48%) pts



Cactus type LAA,
278 (30%) pts

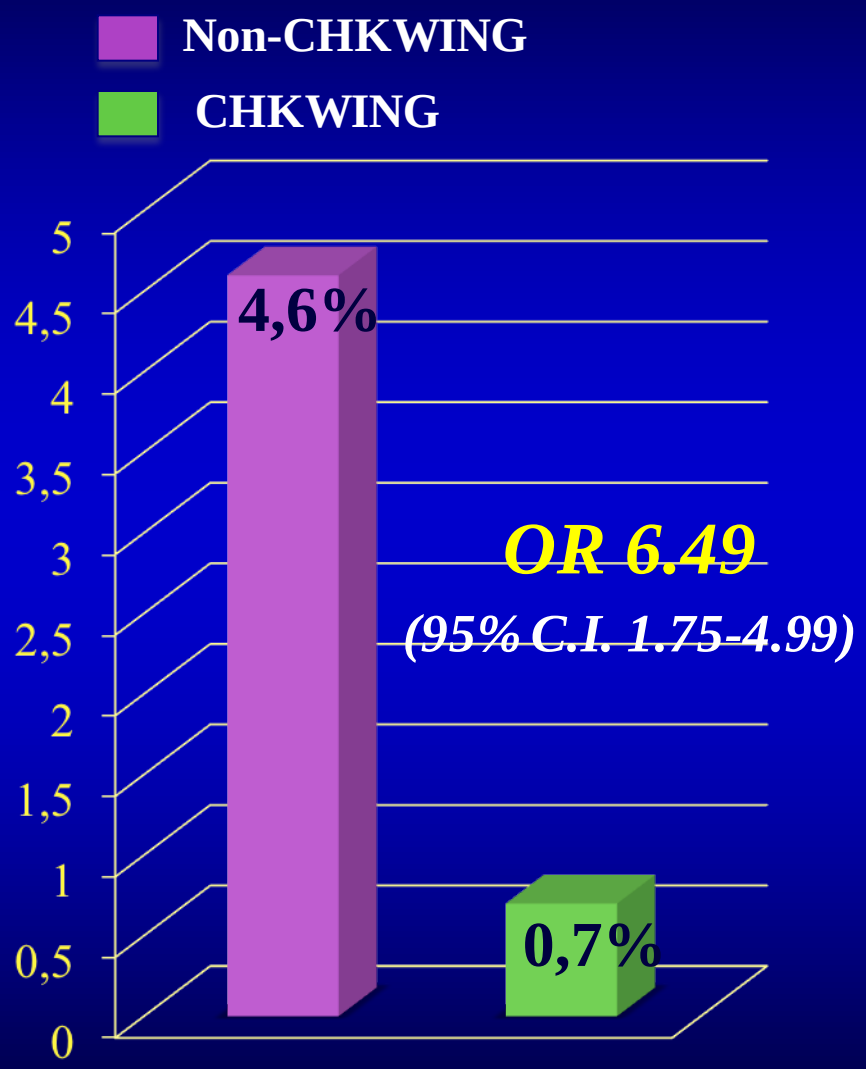


Windsock type LAA,
179 (19%) pts



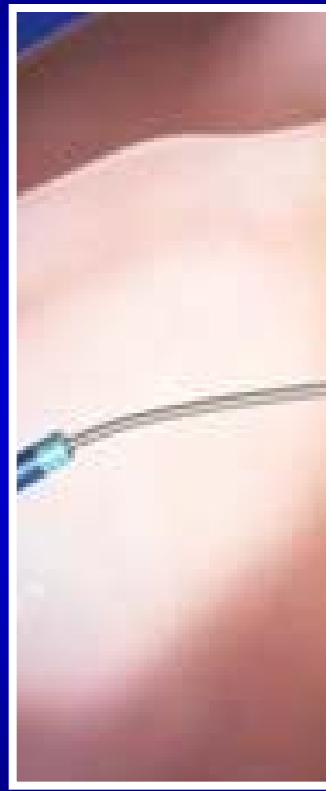
Cauliflower type LAA,
24 (3%) pts

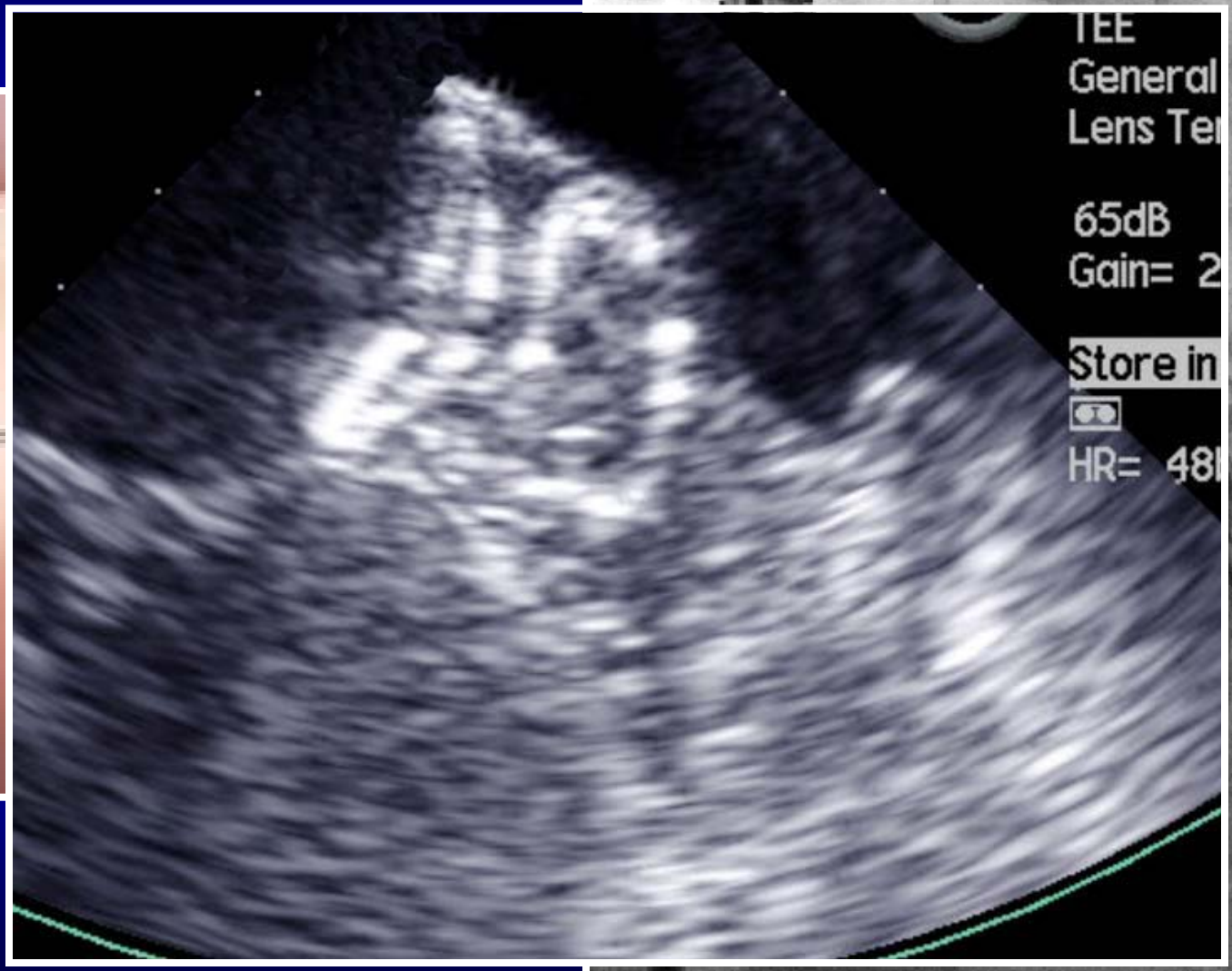
LA appendage morphology and thromboembolic risk



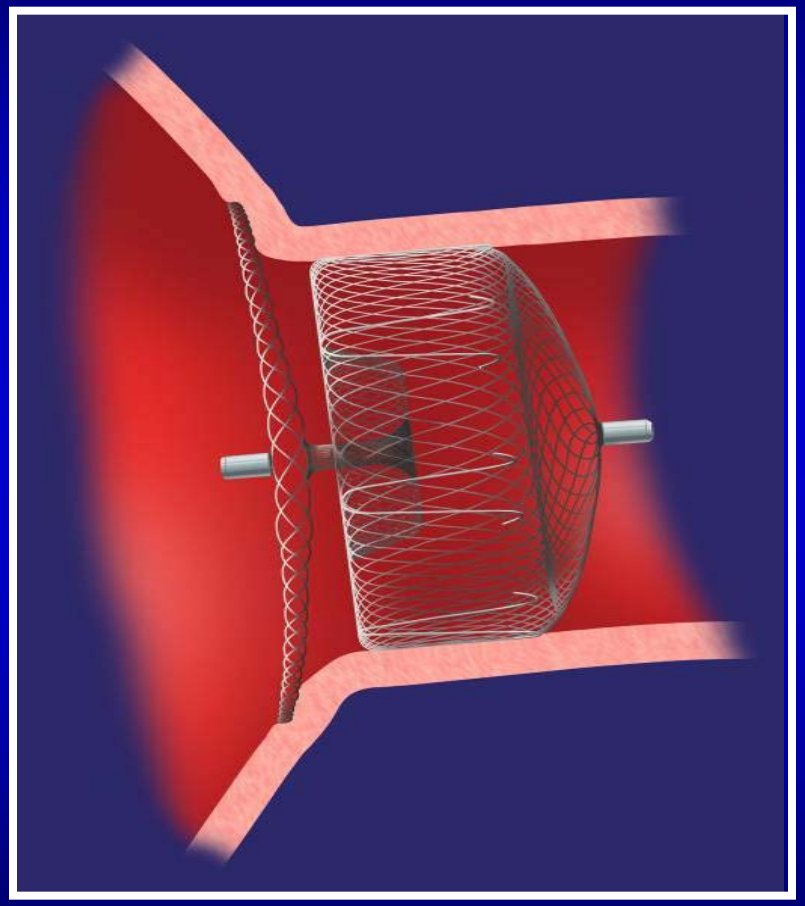
Gaita F. et al. JACC 2012;60:531-8

LA appendage closure





LA appendage Closure devices



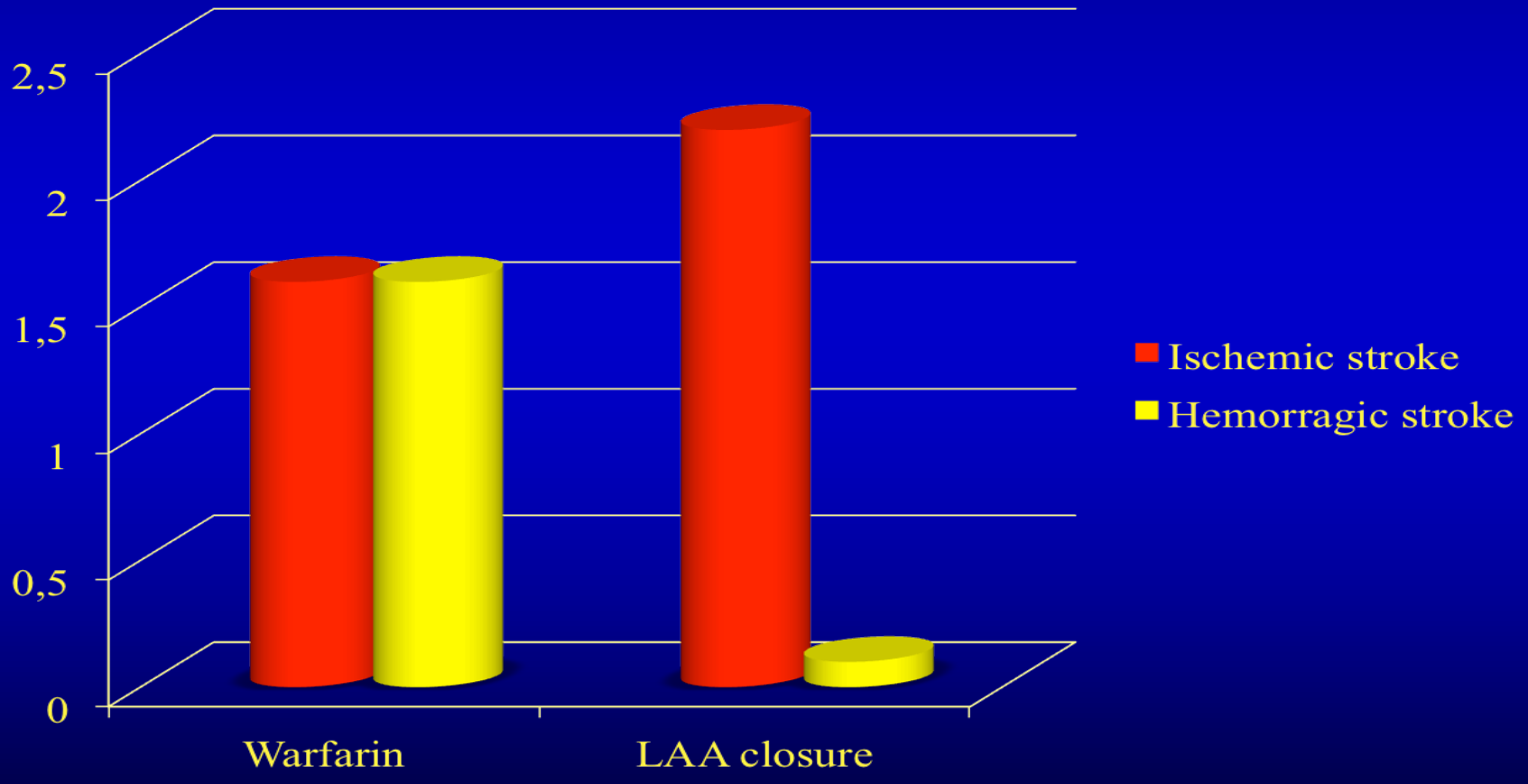
Amplatzer

Watchman

PROTECT-AF: 707 pts

M 70%, 72 y, 36% permanent AF, 38% previous stroke/TIA

463 percutaneous LAA closure vs 244 Warfarin (INR 2-3)



Holmes DR et al. Lancet 2009

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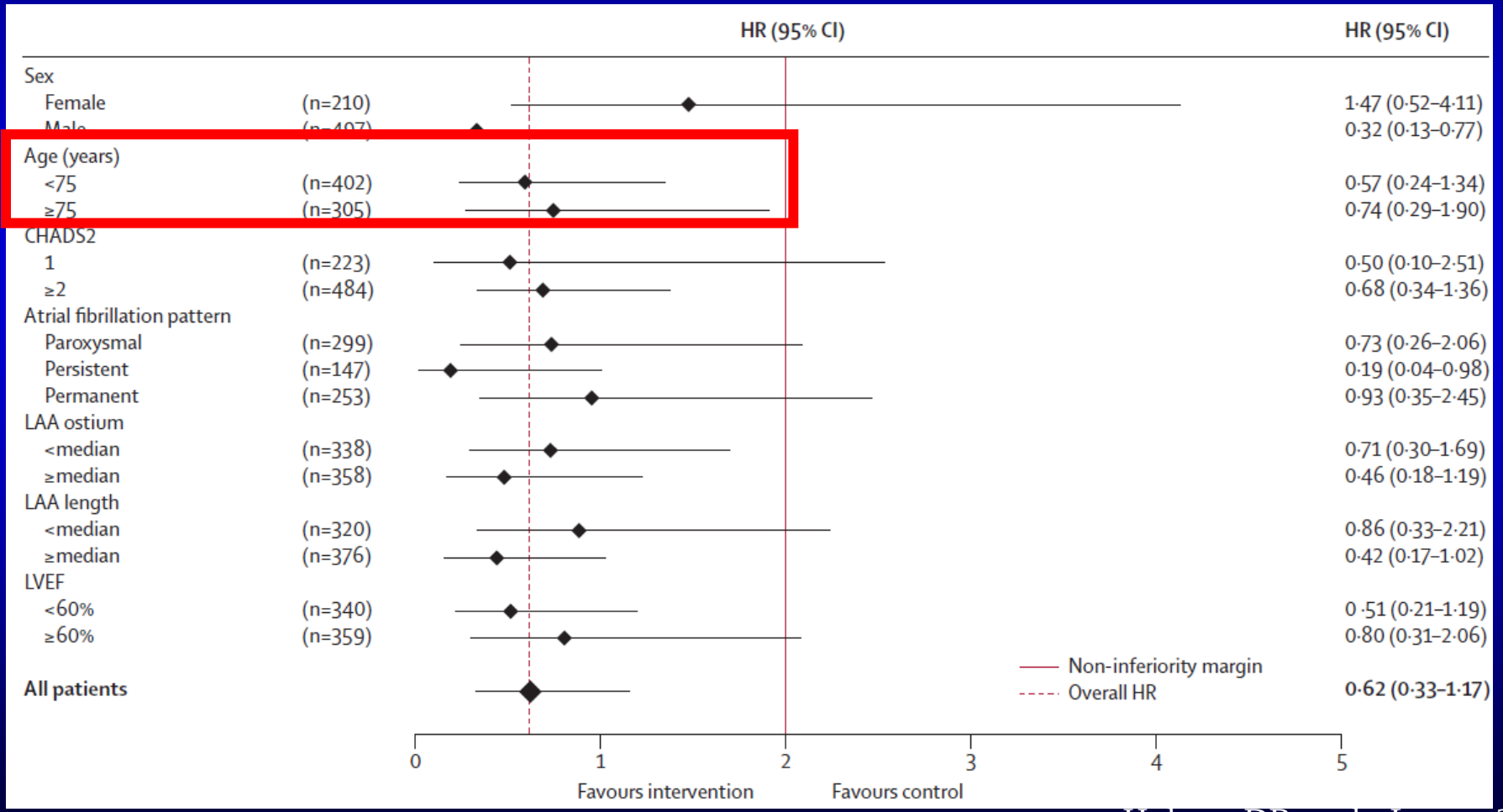


Holmes DR et al. Lancet 2009

Updated ESC guidelines

Recommendations for LAA closure/occlusion/excision

Recommendations	Class[a]	Level[b]	Ref[c]
Interventional, percutaneous LAA closure may be considered in patients with a high stroke risk and contraindications for long-term oral anticoagulation.	IIb	B	115, 118
Surgical excision of the LAA may be considered in patients undergoing open heart surgery.	IIb	C	

Eur Heart J 2012

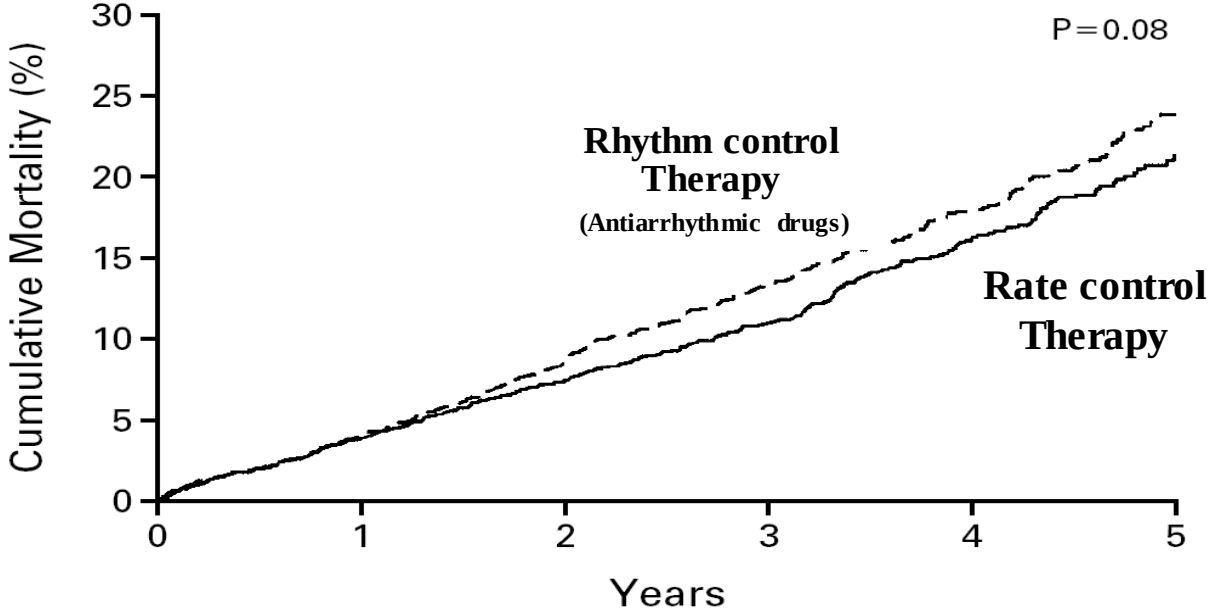
AFFIRM: Total Mortality (at 5 years)

Rate control *vs* Rhythm control
Rate control therapy *vs* Rhythm control therapy

4060 pts,
Age 69.7±9 years
528 pts (13%) > 80 y

-70.8% Hypertension
-38.2% Ischemic
-↓ EF 26%
-↑ Left atrium 64,7%

Mean FU: 3,5 y



No. of Deaths		number (percent)				
Rhythm control	0	80 (4)	175 (9)	257 (13)	314 (18)	352 (24)
Rate control	0	78 (4)	148 (7)	210 (11)	275 (16)	306 (21)

New Engl. J. Med 2002;347:1825–1833

AF therapy in the Elderly

RATE CONTROL THERAPY

- **No difference in term of mortality, compared to SR maintenance**
- **Easily achieved in persistent AF**
- **β-blockers simpler to manage than AADs**
- **Avoids proarrhythmic effects of AADs**

..but our patient had Paroxysmal AF and Sinus Bradycardia…

AFFIRM:

"On treatment" analysis in a subgroup of 2796 pts

Covariates associated to survival:

Covariate	p	HR
Sinus Rhythm	<0.0001	0.53
Warfarin	<0.0001	0.50
AADs	0.0005	1.49
Digoxin	0.0007	1.42

RS e Warfarin
↓of about 50%
risk of death

AADs and digoxin
↑ of about 50%
risk of death

Circulation 2004; 109:1509

New Therapies for SR maintenance

2010:

Dronedarone

ATHENA TRIAL

4500 patients with paroxysmal (75%) / persistent AF (25%)

Inclusion criteria:

age ≥ 75 years

or ≥ 70 years with ≥ 1 risk factor:

hypertension; diabetes; prior stroke/TIA;

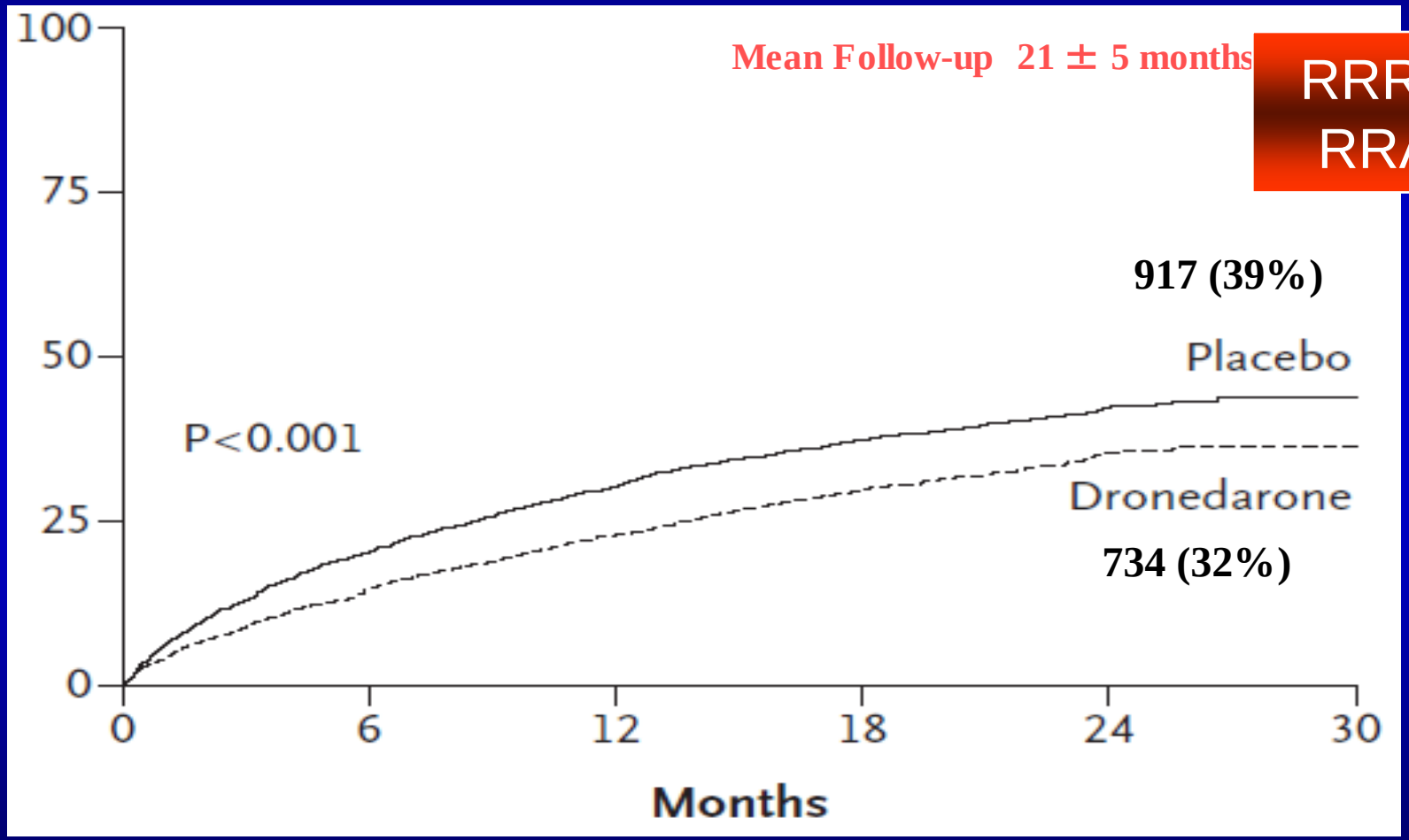
LA ≥ 50 mm; LVEF≤ 0.40

Dronedarone 400 mg BID vs Placebo

N Engl J Med 2009;360:668-78

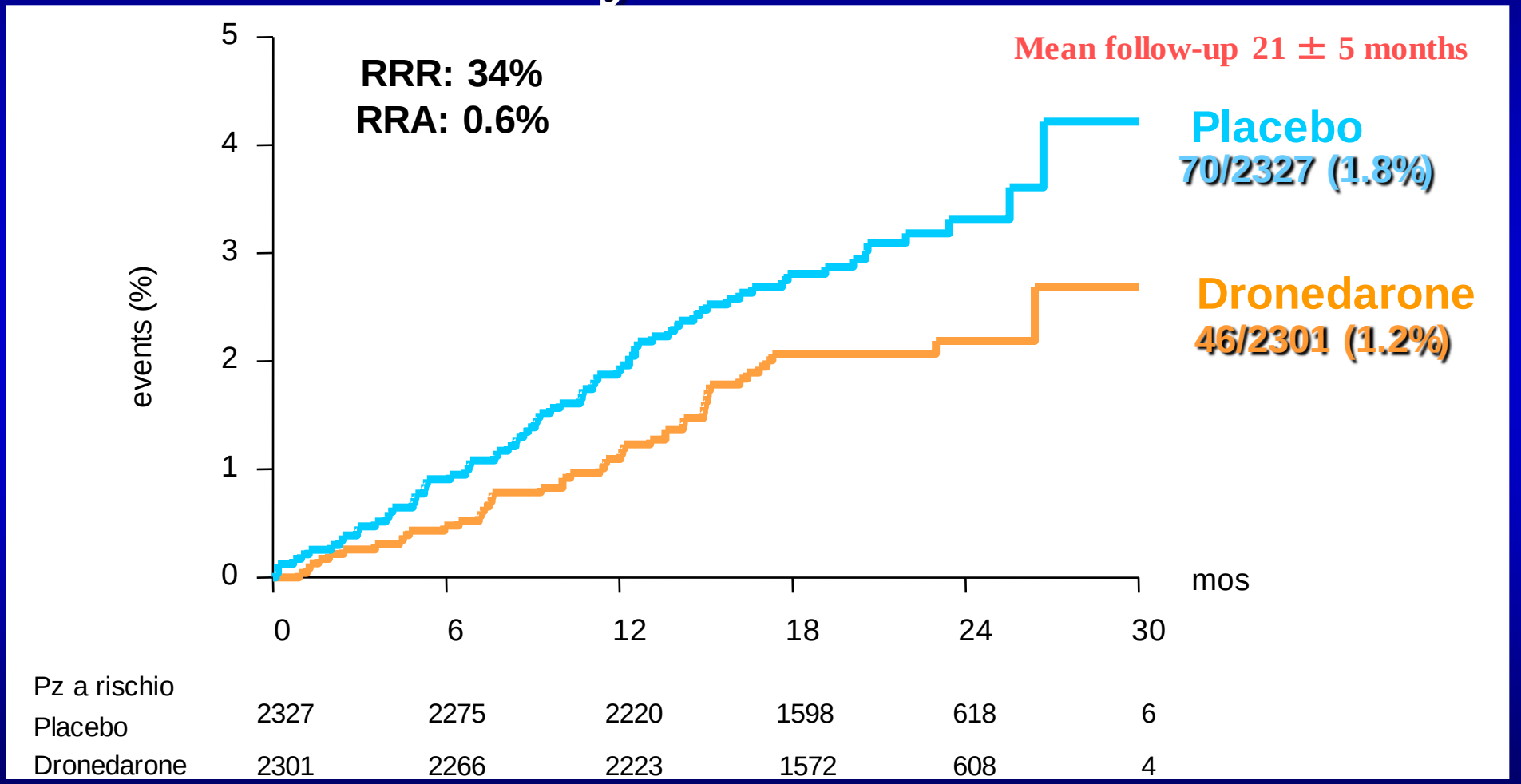
Primary Endpoint

Time to first cardiovascular hospitalization or death



N Engl J Med 2009;360:668-78

ATHENA Substudy:
Analysis of Stroke



ATHENA. Circulation 2009;120:1174-1180

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LA ≥ 50 mm; LVEF≤ 0.40

Dronedarone 400 mg BID vs Placebo

Exclusion criteria:

Sinus-node disease, bradycardia (HR < 50 bpm)

PR > 0.28 sec, GFR < 10 ml/min; K < 3.5 mmol/l

N Engl J Med 2009;360:668-78

In case of SSS, of about 30% of patients need PM implant
The preferred stimulation is AAI

Permanent transvenous Atrial Pacing:
an experimental and clinical study
Smyth N.P.D. et al ann Thorac Surg 1971;11:360-370

South Med J. 1975 May;68(5):580-3.

The sick sinus syndrome: treatment by permanent transvenous atrial pacing (a new approach).

Moore CB, Bower PJ.

Bifascicular bundle branch block	37
Blood pressure >250/120 mm Hg	37
Atrial fibrillation >50% of time (2–4 days before implantation)	34
Age <50 yr	17
Atrial fibrillation with RR interval >3 s	12
Cardiac surgery planned	9
Cancer	8

DANISH STUDY Lancet 1994;344:1523-28

Long-term follow-up of patients from a randomised trial of atrial versus ventricular pacing for sick-sinus syndrome

Henning Rud Andersen, Jens Cosedis Nielsen, Poul Erik Bloch Thomsen, Leif Thuesen, Peter Thomas Mortensen, Thomas Vesterlund, Anders Kirstein Pedersen

Lancet 1997;350:1210-16

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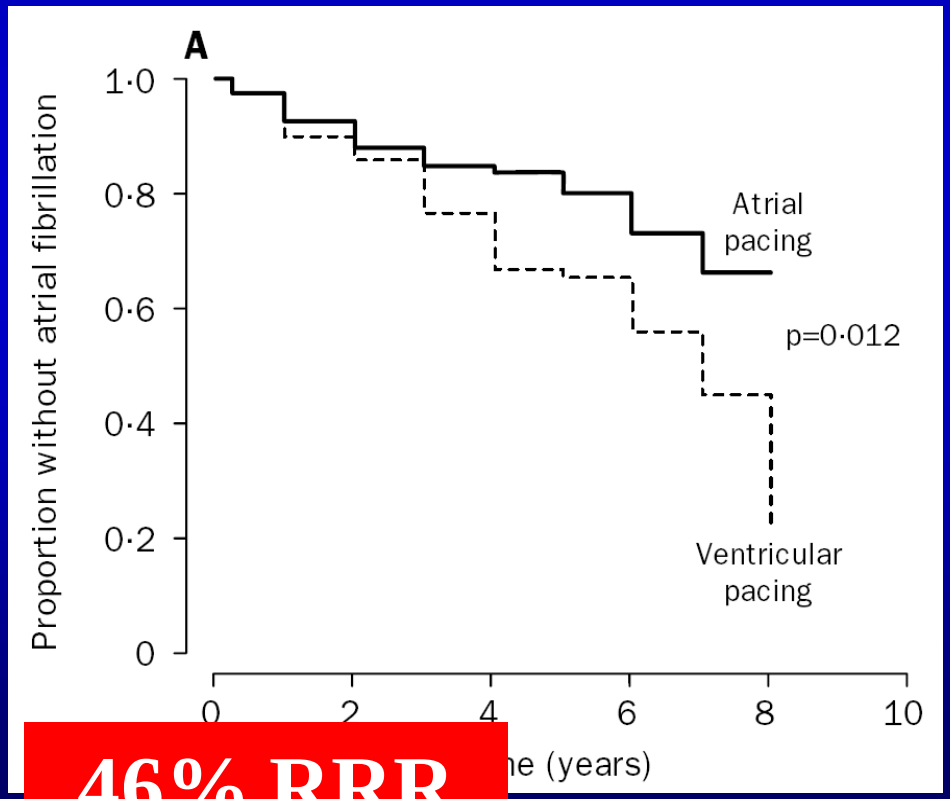
Atrial Fibrillation



46% RRR

225 pts,

age 76 y with SSS

Atrial pacing (104 pts)

VS

Ventricular pacing (115 pts)

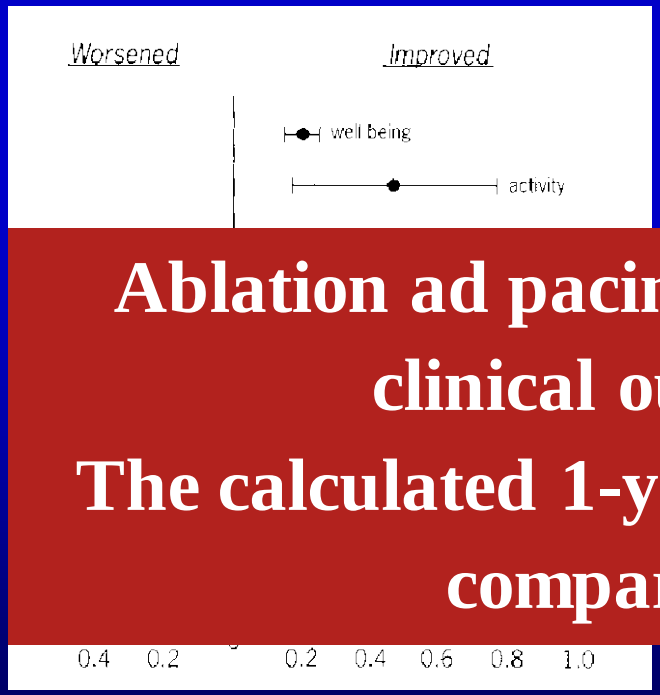
Lancet 1997; 350: 1210-16

Clinical Outcomes After Ablation and Pacing Therapy for Atrial Fibrillation

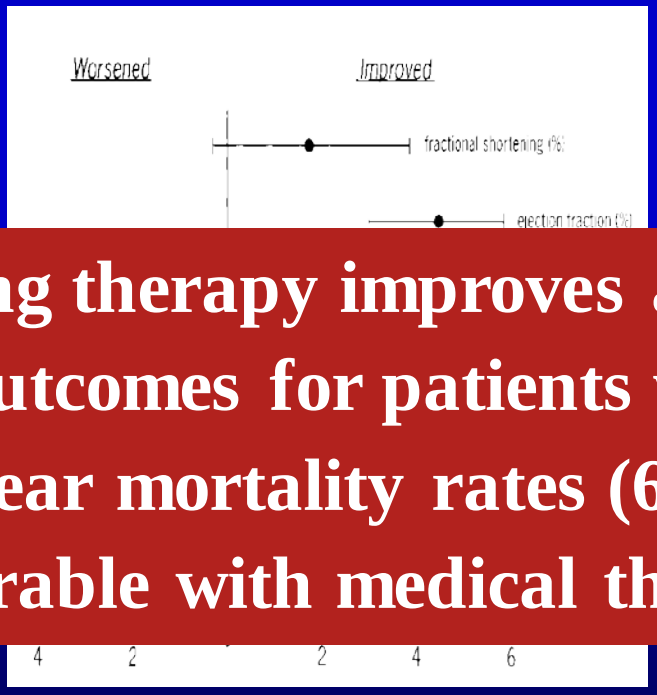
A Meta-Analysis

1181 patients with symptomatic and medically refractory AF

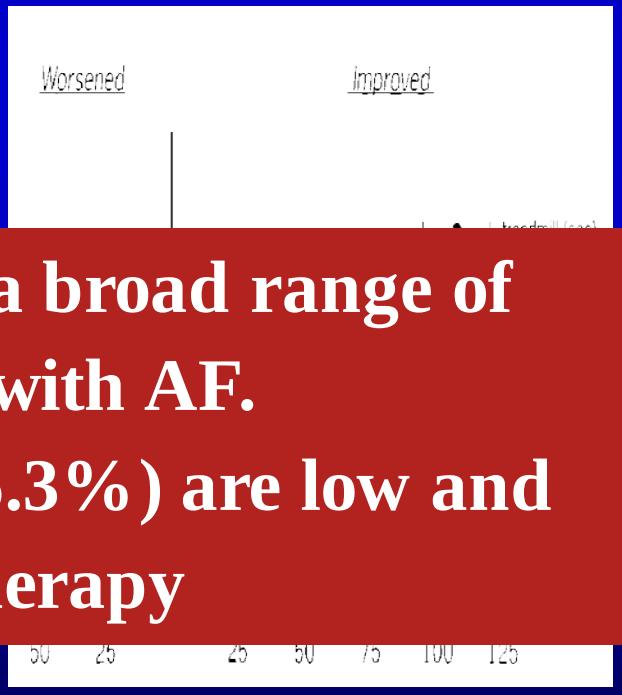
Qol



LV function, Healtcare Use NYHA



Exercise duration, heart rate



Ablation ad pacing therapy improves a broad range of clinical outcomes for patients with AF.

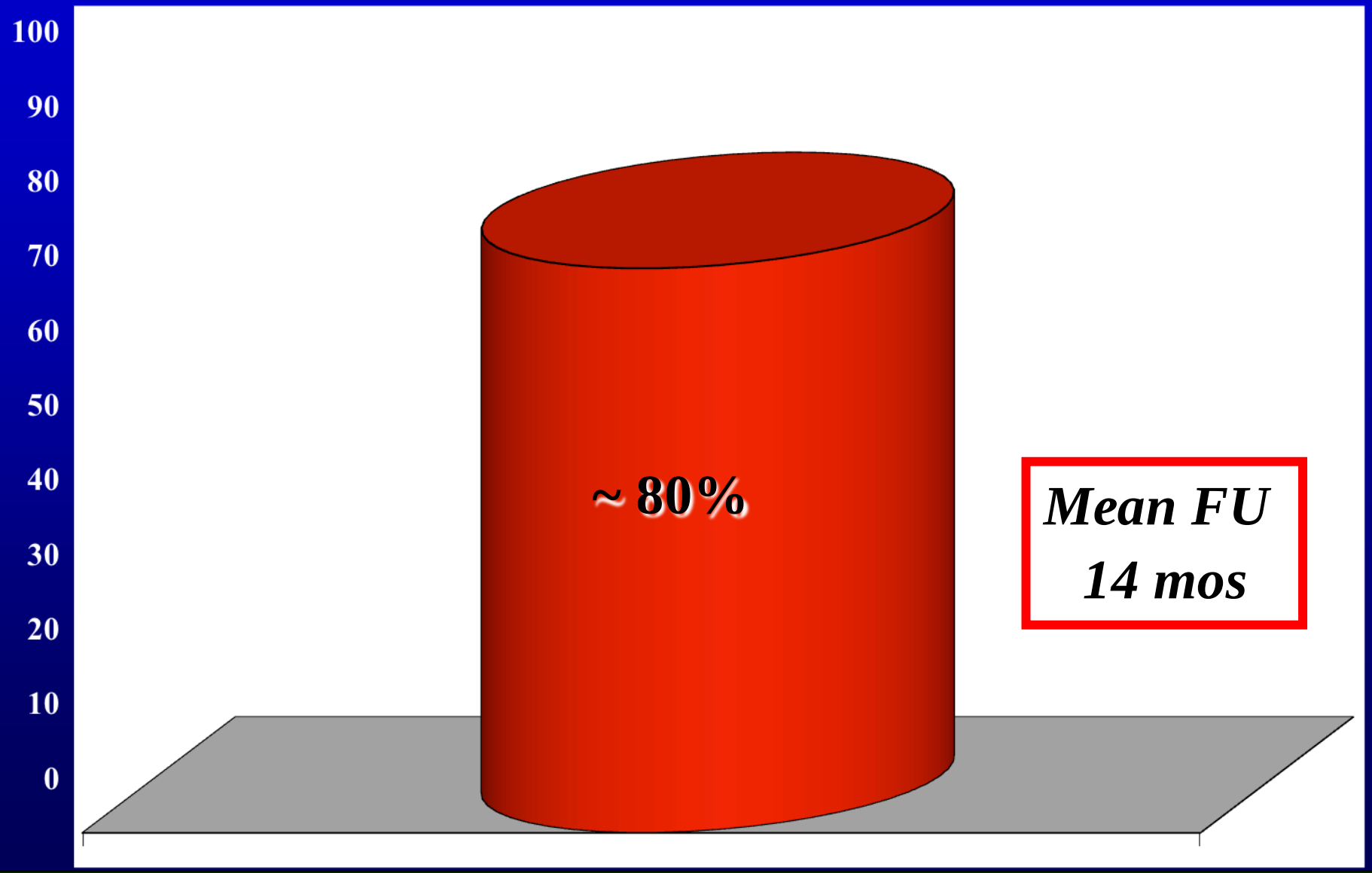
The calculated 1-year mortality rates (6.3%) are low and comparable with medical therapy

Wood MA et al. Circulation 2000;101:1138-44

Why don’t try Afib ablation in the Elederly?

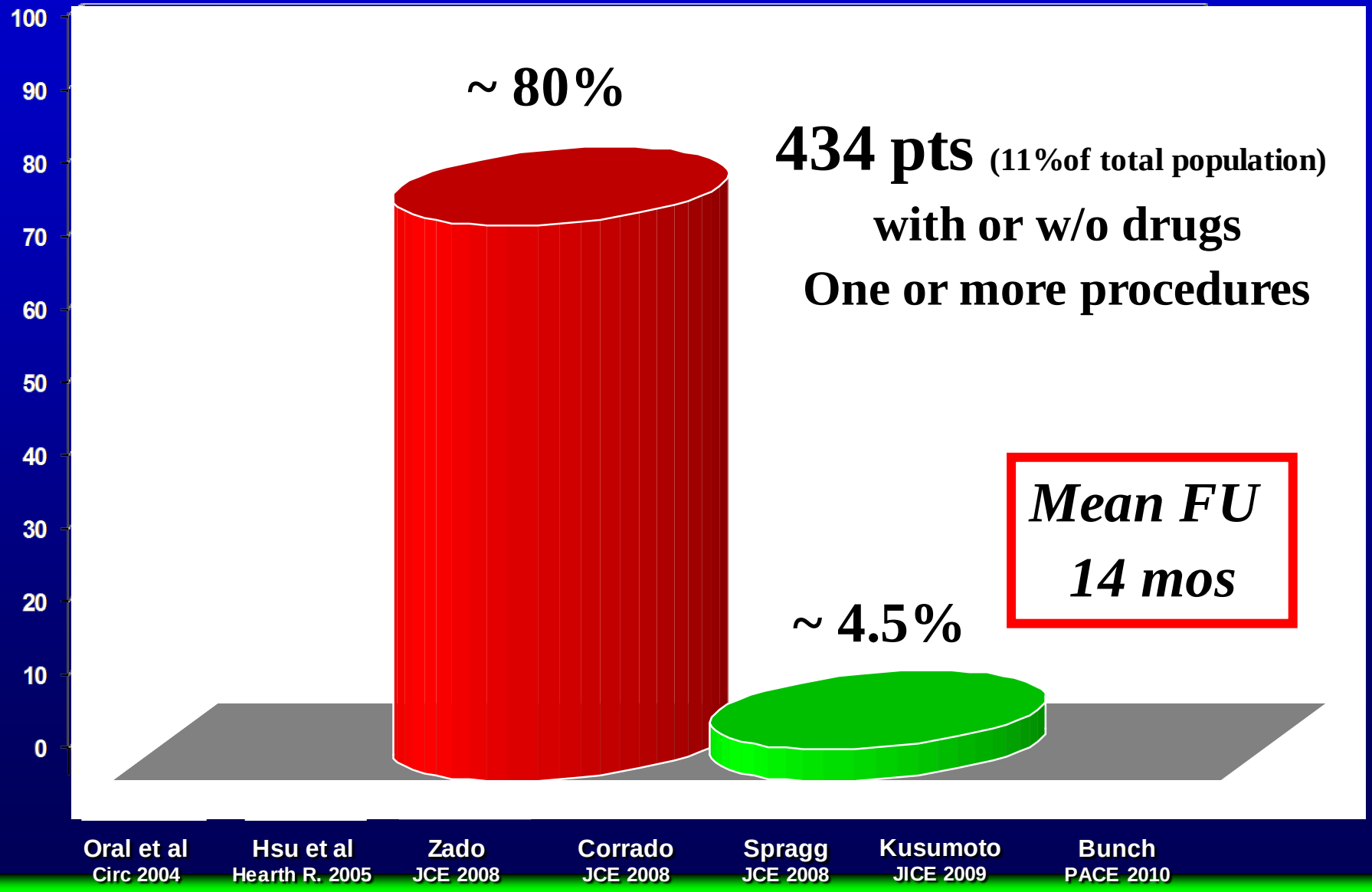
EFFICACY of AF Ablation in the Elderly:

7 retrospective studies 434 pts > 70 years / 3935 total population (11%)



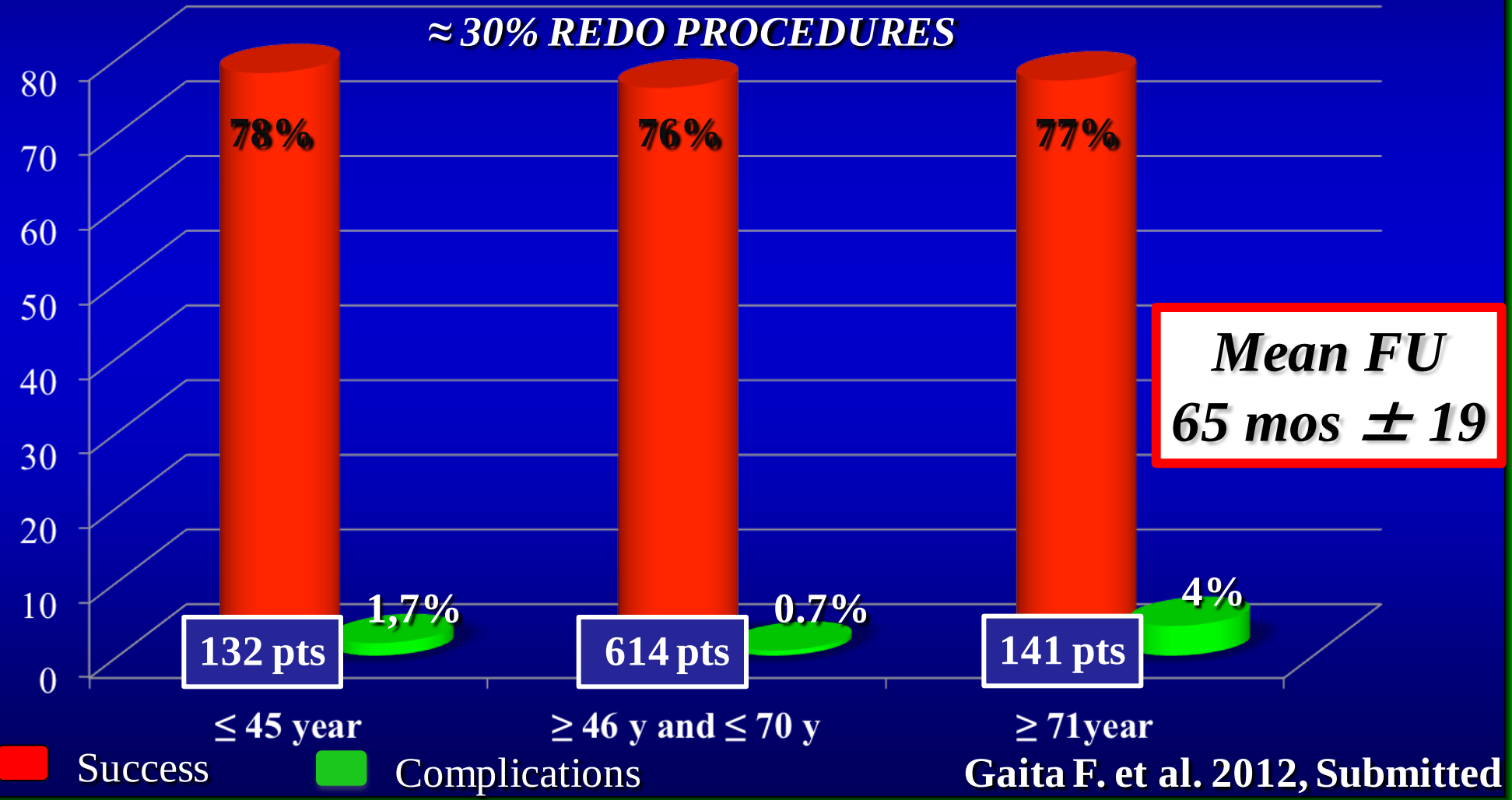
SAFETY of AF Ablation in the Elderly:

7 retrospective studies 434 pts > 70 years / 3935 total population (11%)



Efficacy and Safety of Afib ablation at Long-term follow up stratified for age (paroxysmal and persistent AF)

887 pts, 1241 procedures (Jan 2001 and Jan 2009)



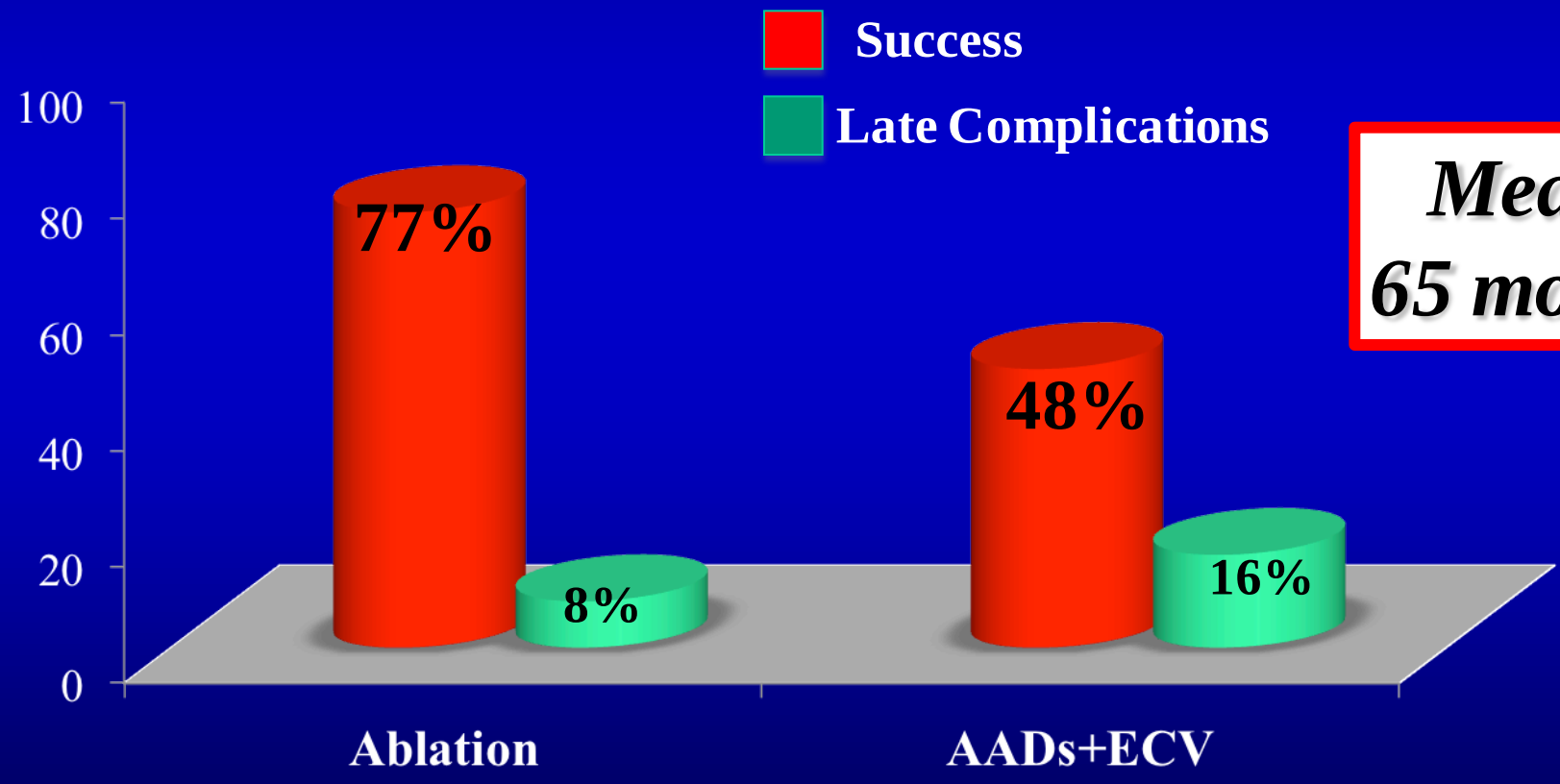
Mean FU
65 mos ± 19

Gaita F. et al. 2012, Submitted

Long -term efficacy and safety of ablation compared to AADs in *elderly patients with AF*

344 pts *age > 70 y*

118 ABLATION (Group A) vs 226 AADs + ECV (Group B)



Mean FU 65 mos ± 19

Gaita F. et al Europace 2012

Safety: Long-term adverse events

Long-term adverse events (> 30 days)	Ablation 118 pts (%)	AADs+ ECV 226 pts (%)	p
Death (CV causes)	2 (1.7)	5 (2)	ns
Stroke/TIA	3 (2.5)	2 (0.8)	ns
Peripheral Embolism	1 (0.8)	1 (0.4)	ns
Myocardial infarction	0	2 (0.8)	ns
Major Bleedings	1 (0.8)	2 (0.8)	ns
Minor Bleedings	1 (0.8)	10 (4)	ns
SSS worsening Pacemaker implant	2 (1.7) 0	15 (8) 5	0.001

Gaita F. et al. Europace 2012

Comparison on QoL (SF-36) at basal and follow up

Ablation

Gaita F. et al. Europace 2012

-Female
-78 y

CHA_2DS_2VASC 3

+ Atrial Fibrillation

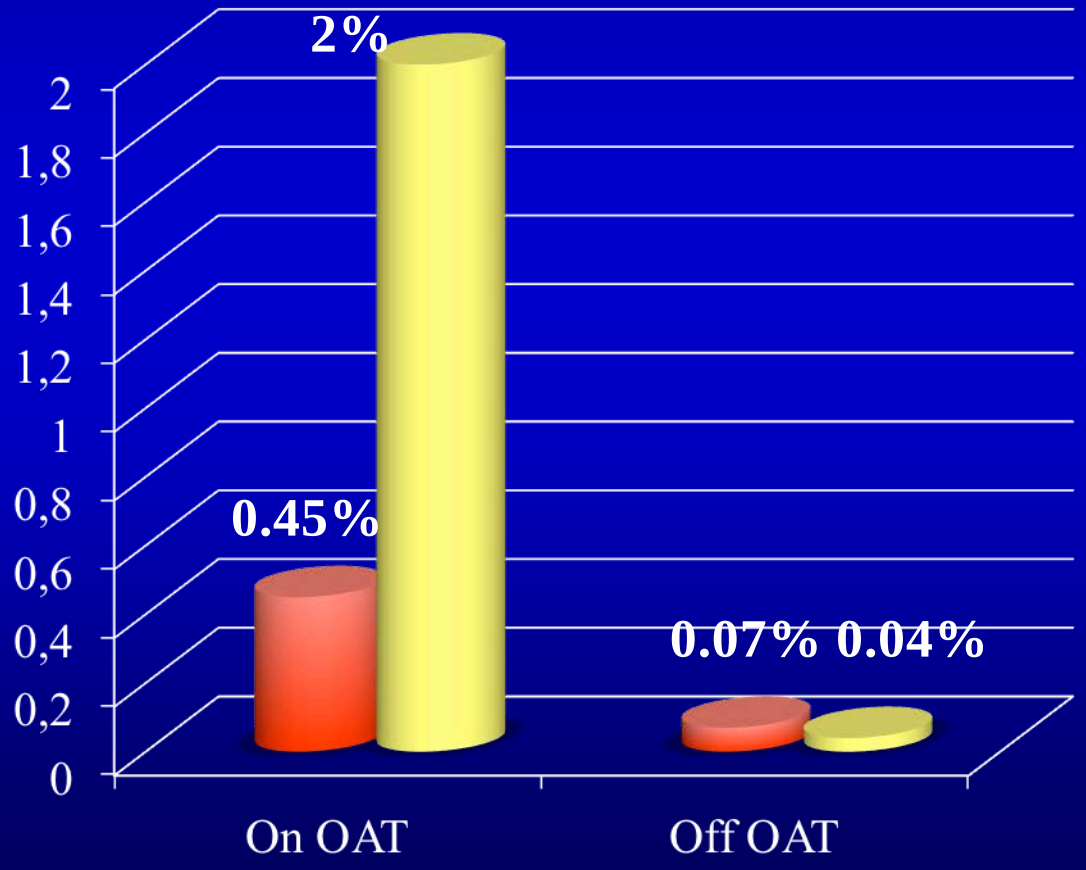
=

Oral Anticoagulation

…If we restore and maintain SR after Afib ablation, what about oral anticoagulation?

The Risk of Thromboembolism and Need for Oral Anticoagulation After Successful Atrial Fibrillation Ablation

3355 pts, OFF-OAT 2692 pts (80%), ON-OAT 663 pts (20%)



Mean FU 28±13 mos

Themistoclakis S. et al. JACC 2010

The principal answers were…

85 yr, marathon runner

Symptomatic Paroxysmal AF and Sinus bradycardia,

CHA_2DS_2VASC 3, HASBLEED 3

AV Node Ablation+

PM+LA appendage closure

Afib Ablation+Loop Recorder

±LA appendage Closure

(in case of recurrences)