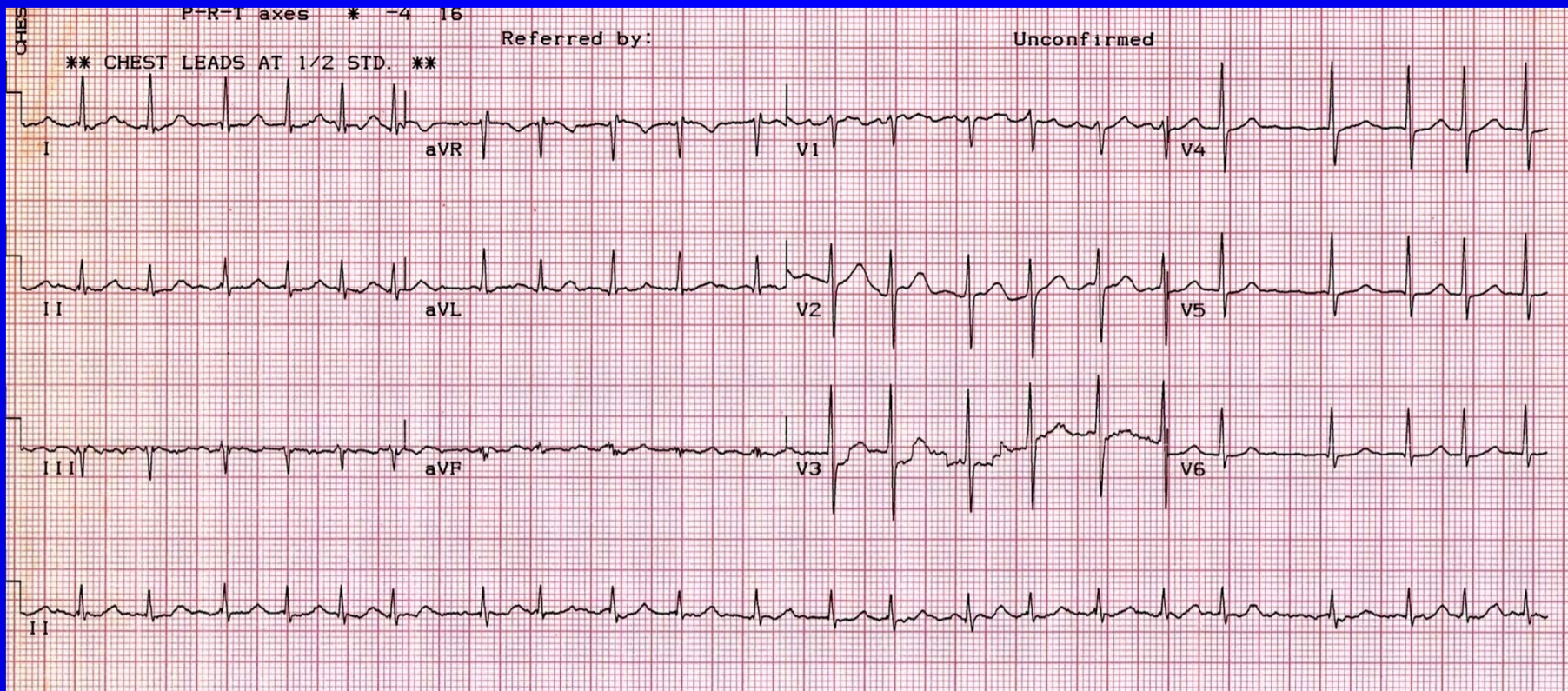


Treatment of Atrial Fibrillation

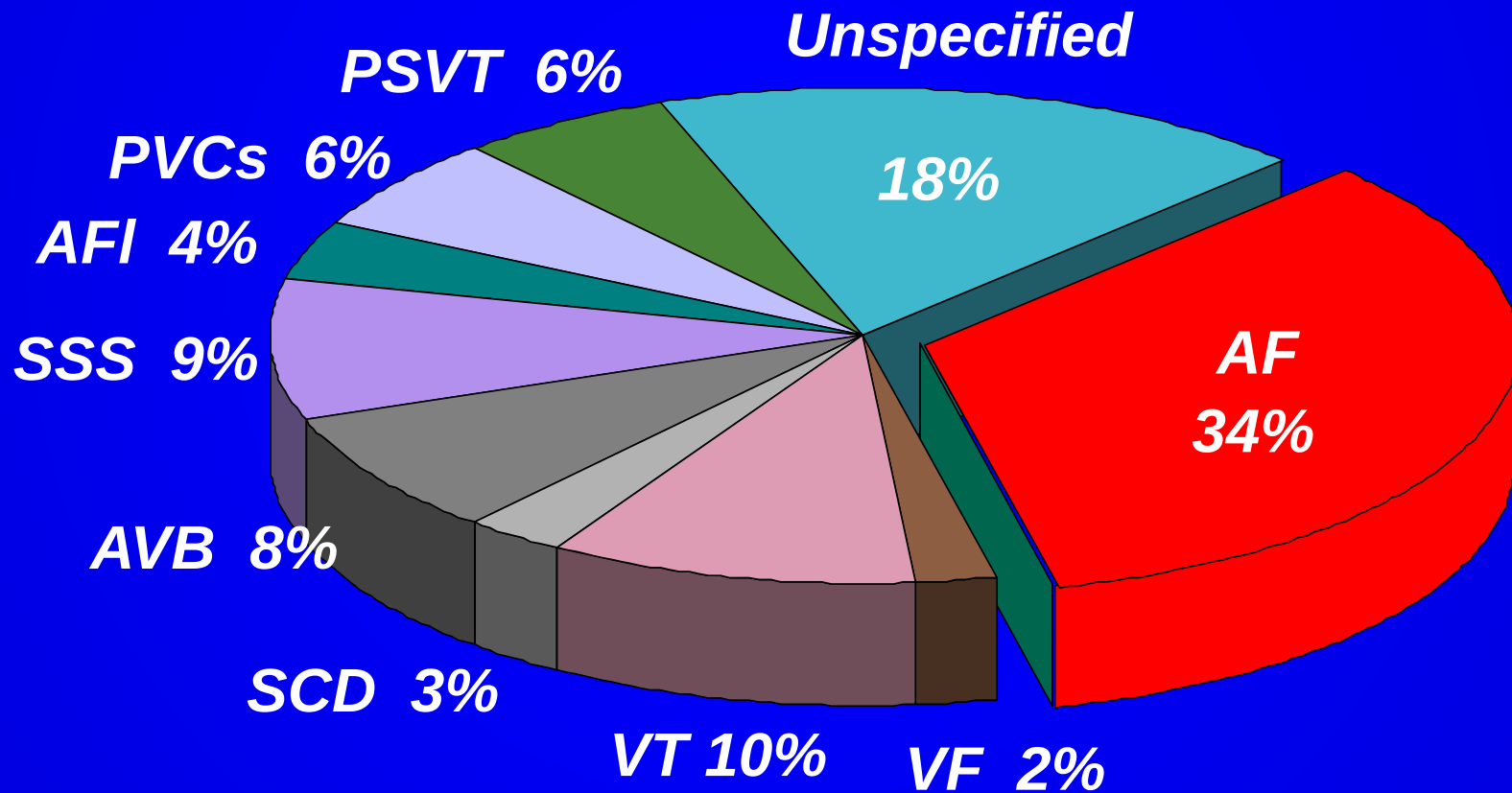


전남대학교병원 순환기내과
조 정 관

증례: 조OO (69세, 남), 심계항진
고혈압으로 5년간 약물 치료 중이었는데
가슴두근거림이 간헐적으로 느껴진다 하여
시행한 심전도이다. 진단은?

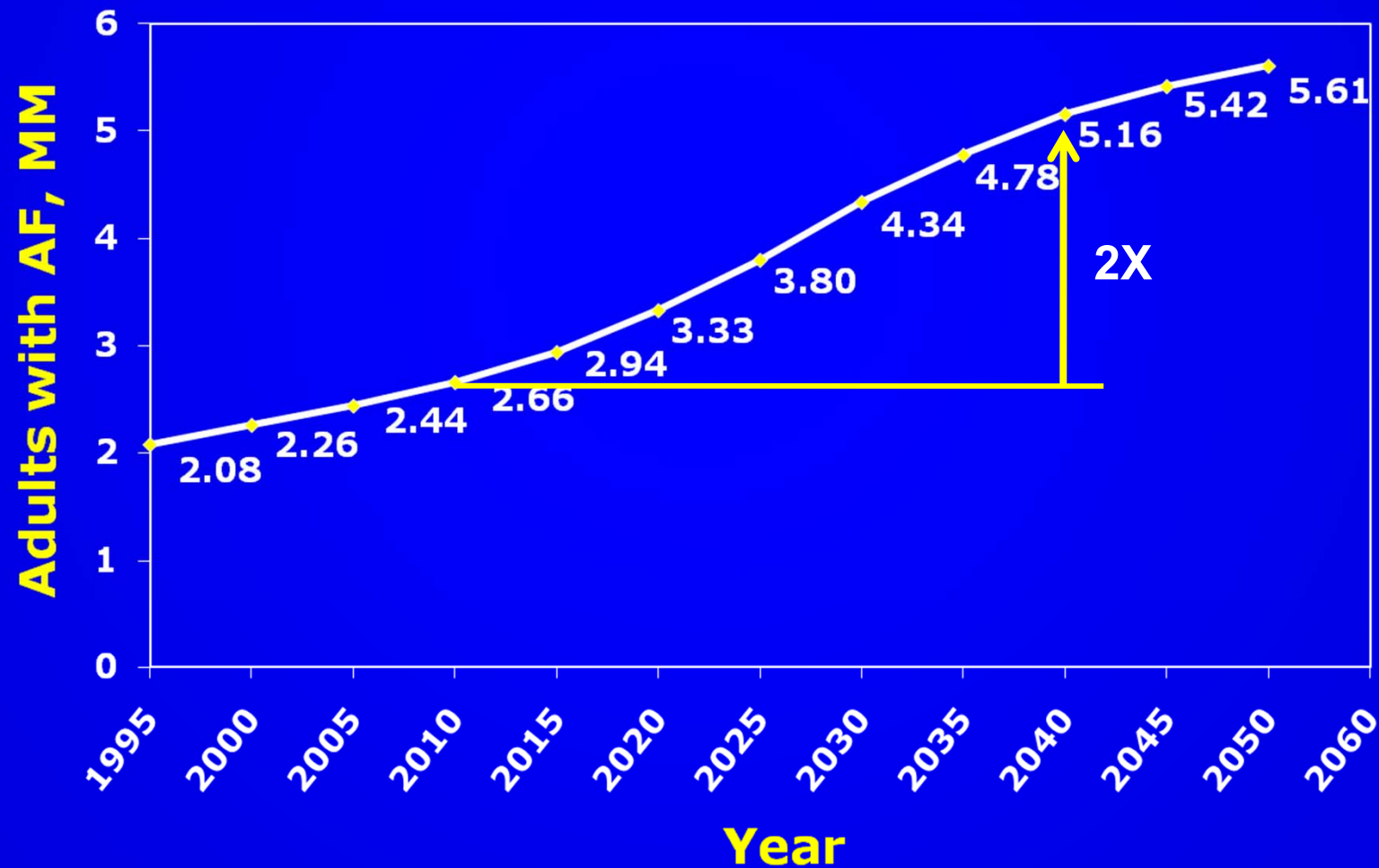


Prevalence of Arrhythmias as a Discharge Diagnosis



1. AF is an endemic disease.

**Projected No. of Adults with AF in the US:
1995 to 2050.**



Why AF is so endemic ?

1. Increase of the risk factors for AF

- (1) aging of the population
- (2) decreased mortality of the CV diseases

2. Low mortality and cure rate of AF

- (1) rarely life-threatening disease
- (2) no available curative therapy

2. AF is not a good friend.

Mortality

- increase up to 2 times (1.5-1.9)

Morbidity

1. Hemodynamic

Cardiac output decrease up to 10-20%.

CHF increase 2-3 times

2. Thromboembolic

Stroke increase 5 times ($\approx 5\%$ /year).

*50% of cardiogenic emboli: NV-AF

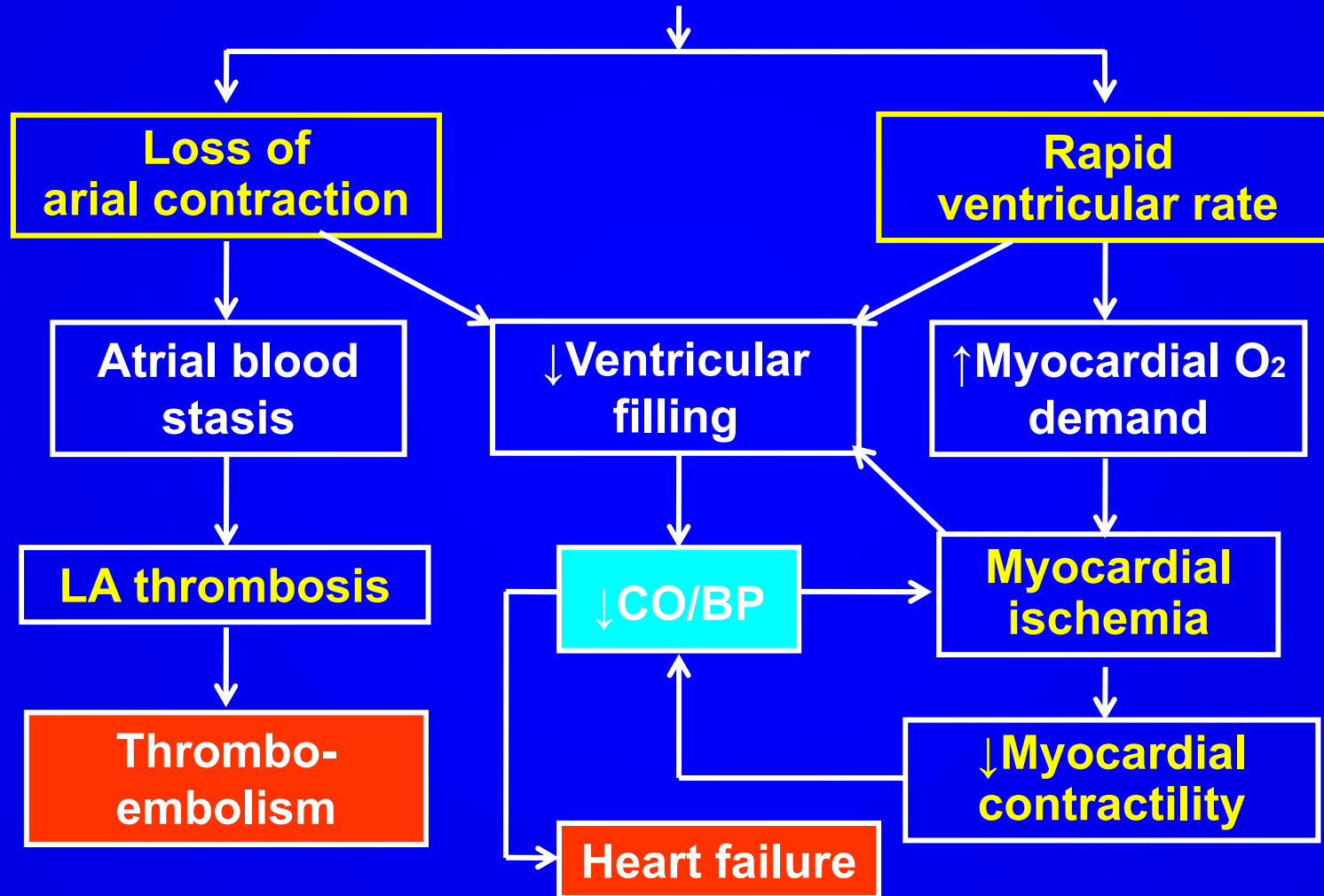
*20-25% of ischemic stroke: NV-AF

3. Neurologic

Dementia increase 2 times.

Mechanism of Complications

Atrial Fibrillation

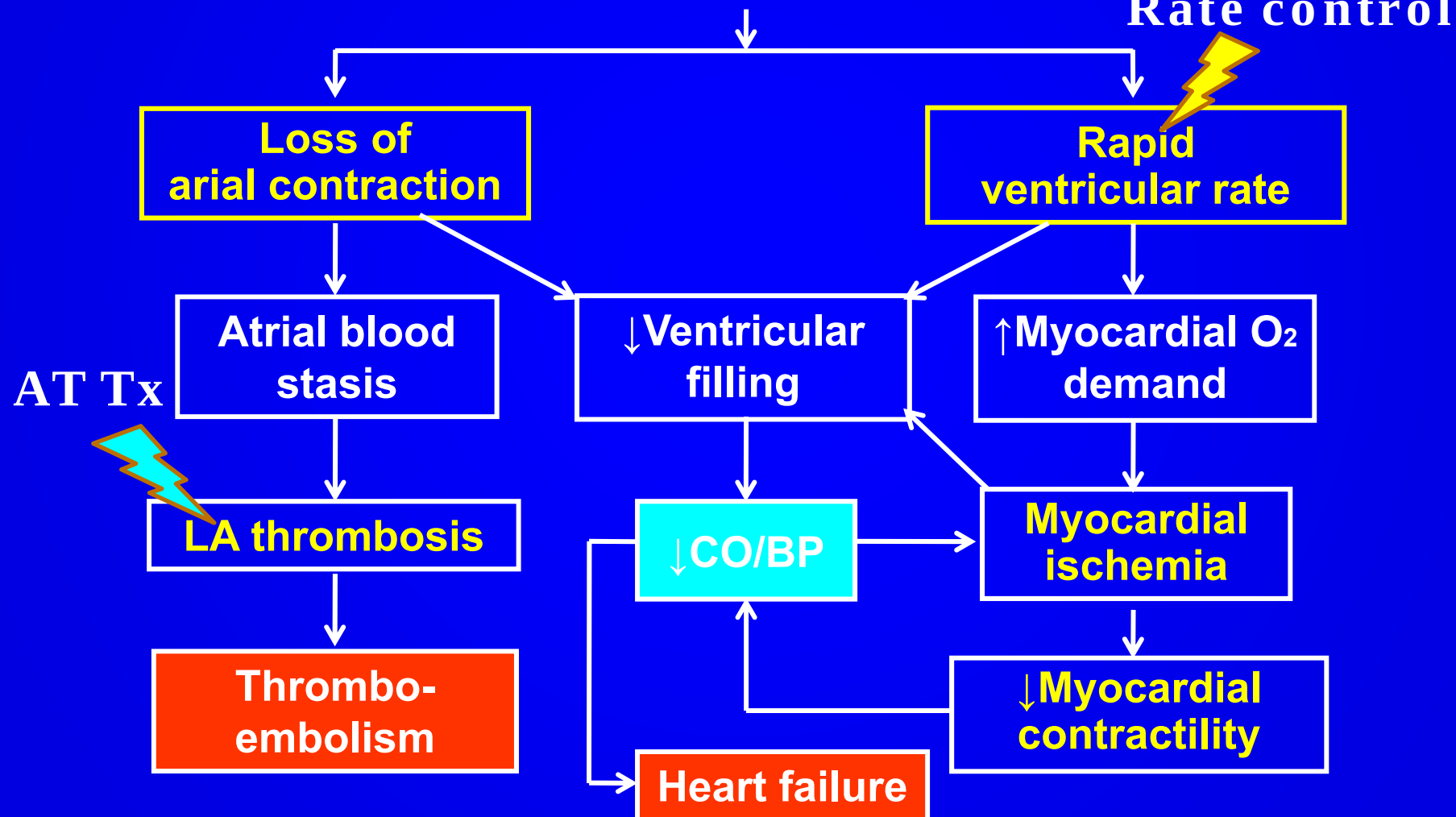


3. Therapeutic Targets

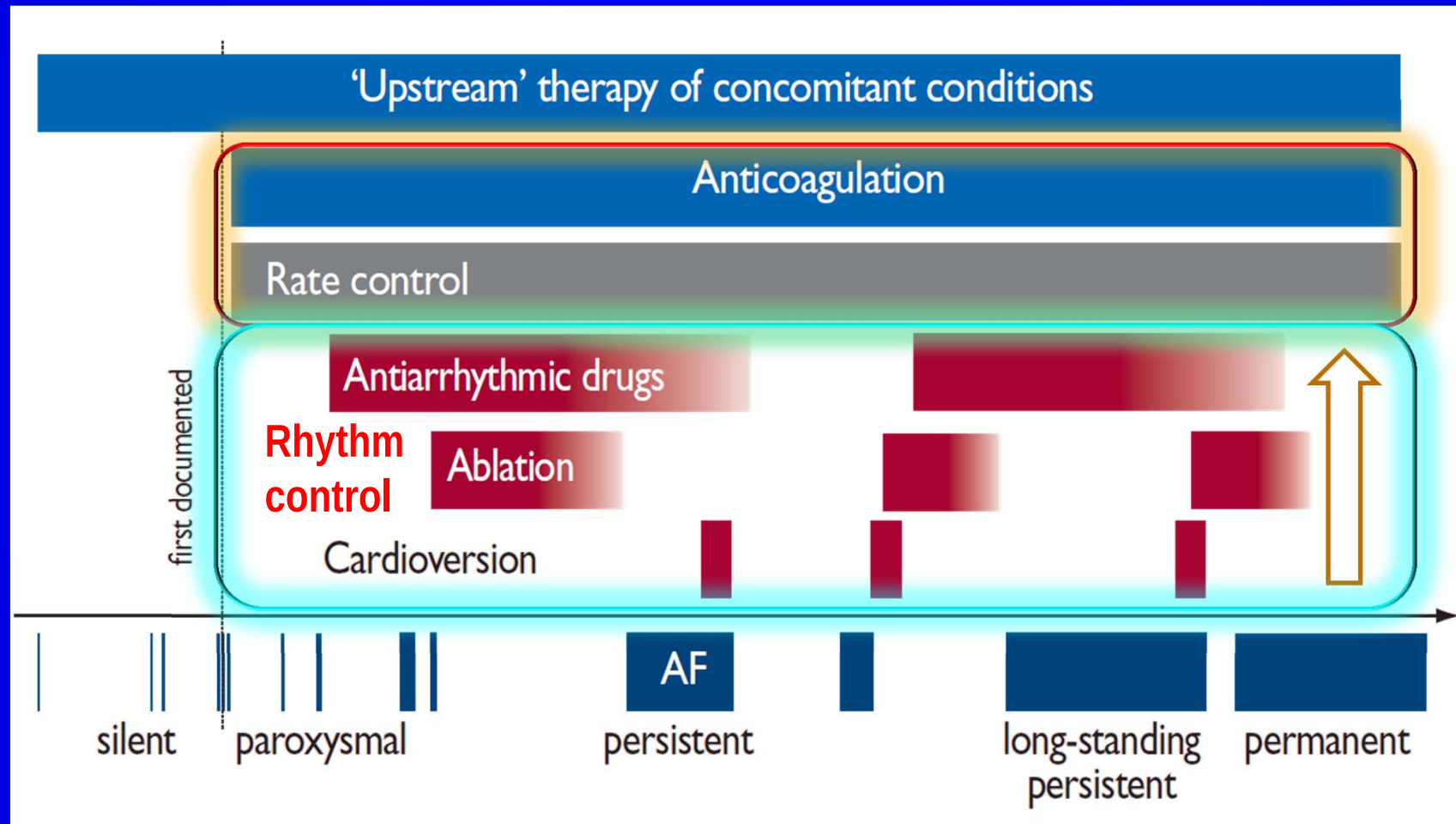
Atrial Fibrillation

Rhythm control

Rate control

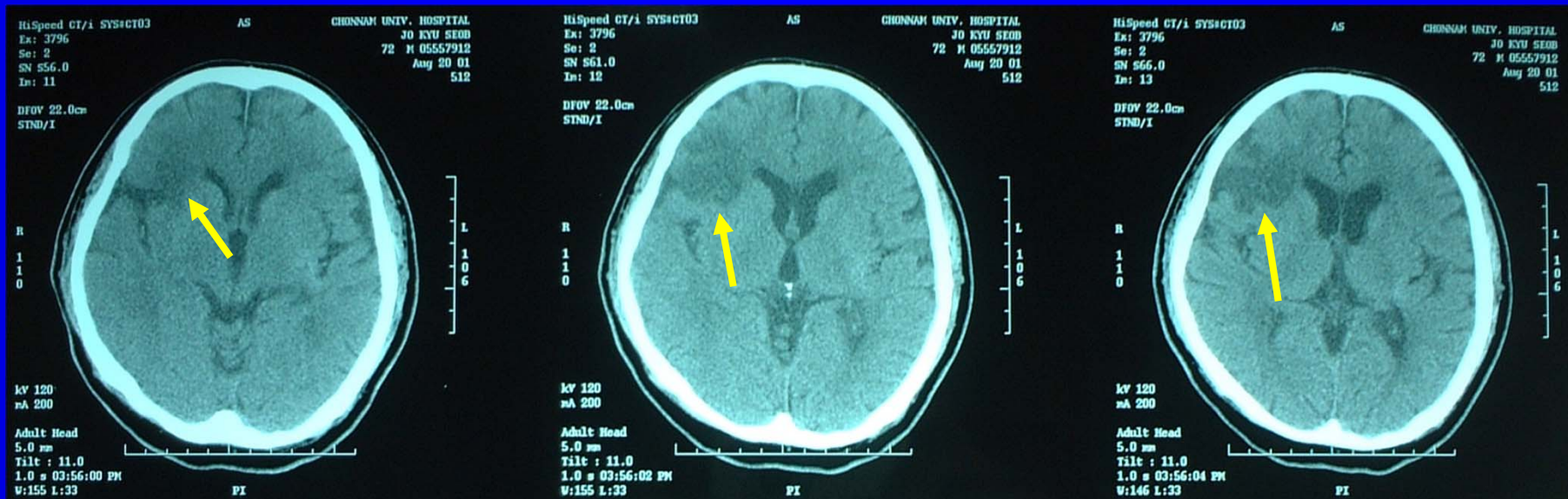


3. Therapeutic Strategy at the Different Stages of AF

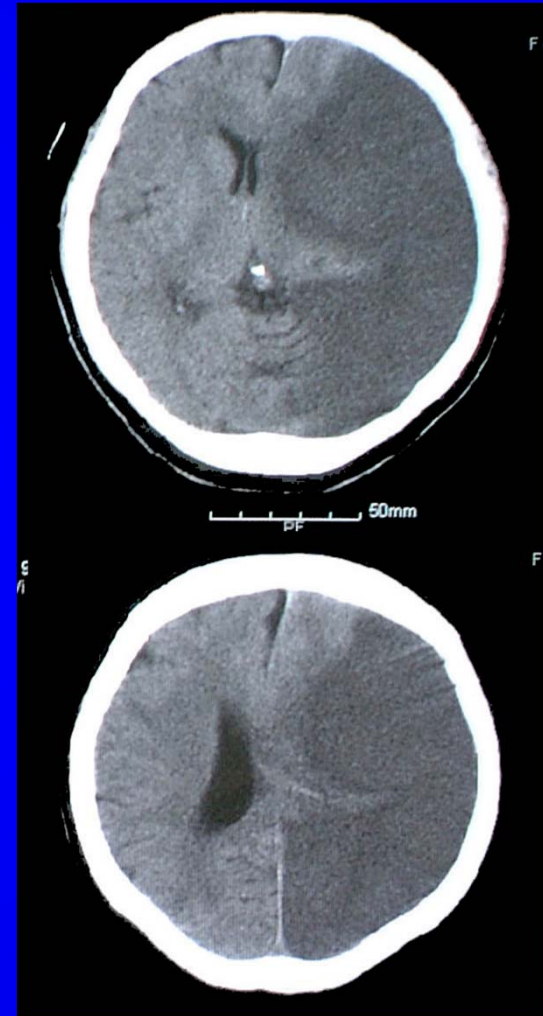
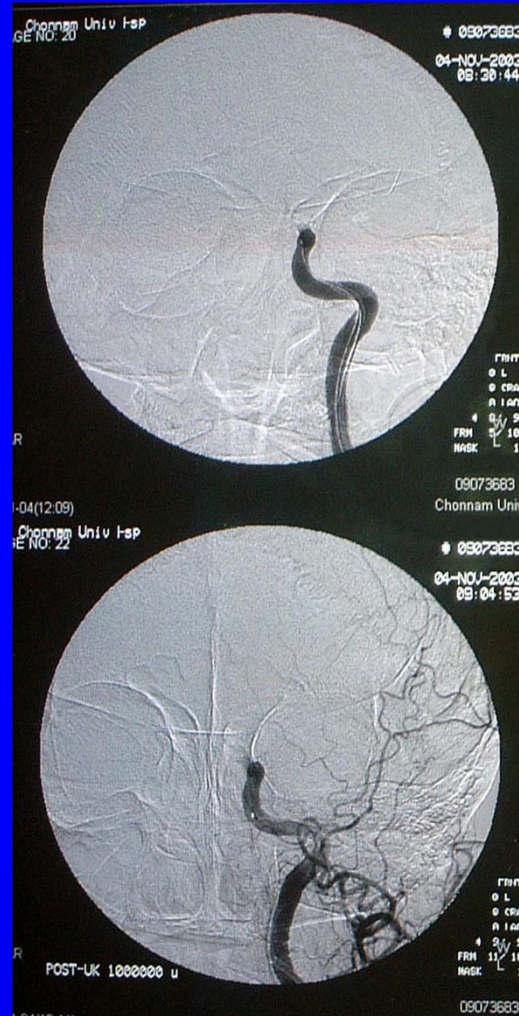
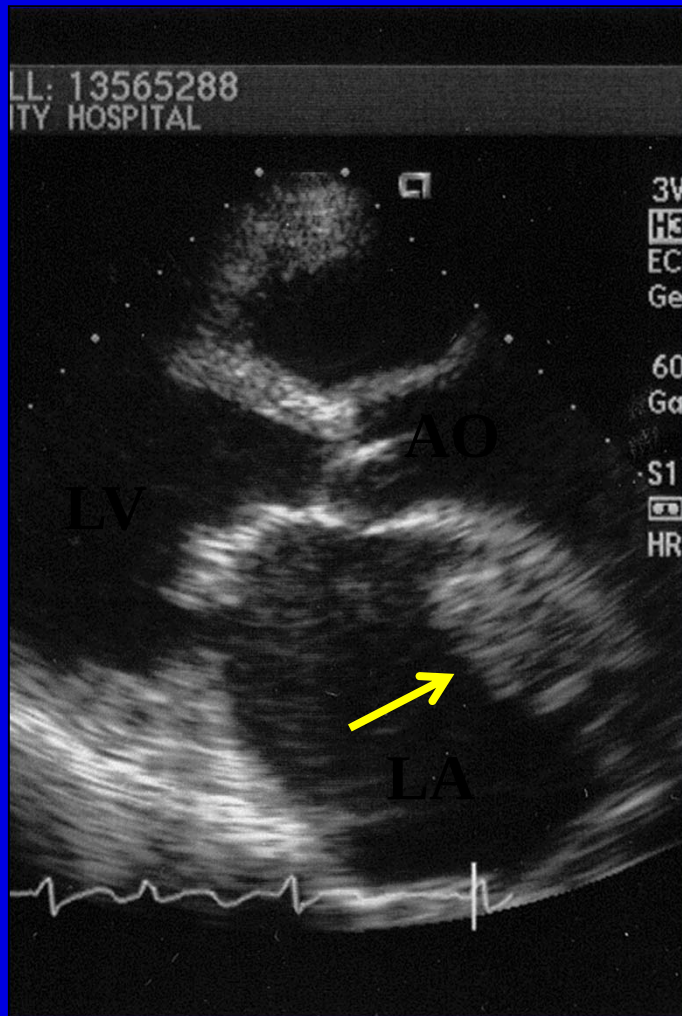


증례: 조OO (70세, 남), 언어장애

Flecainide 100 mg/day, aspirin 100 mg/day
으로 1년간 심방세동을 잘 조절하고 있었는데
저녁에 갑자기 말이 잘 안된다고 병원에 왔다.
뇌시티 소견으로 의심되는 상태는?



Thrombo-embolic stroke in AF



박00 (63세, 여): HT, DM, PAF

4. Stroke in Atrial Fibrillation

- AF increases the risk of stroke **5 fold.**¹
- **1 in every 6** strokes was associated with AF.²
- **1 in every 4** strokes in pts aged > 80 were due to AF
- Ischemic stroke due to AF is typically **more severe.**³
- Stroke risk persists even in **paroxysmal**⁴ and **asymptomatic type.**⁵



1. Wolf et al. Stroke 1991;22:983–988.

2. Fuster V, et al. Circulation. 2006;114:e257–e354.

3. Dulli DA, et al. Neuroepidemiology. 2003;22:118–123.

4. ACTIVE W Substudy JACC 2007;50:2156–2161.

5. Page RL, et al. Circulation. 2003;107:1141–1145.

증례: 조OO (70세, 남), 언어장애

이 환자에서 시행되었어야 할 치료는 ?

- ① 아스피린 용량을 300 mg/day로 증량
- ② Clopidogrel의 병용 투여
- ③ Warfarin으로 INR을 2-3로 유지
- ④ 경동맥조영술을 시행하여 협착 동맥 확장
- ⑤ 심장내 혈전을 찾아 수술로 제거

TE Risk: CHADS₂ Score

(ACC/AHA/ESC 2006)

	Score (points)	Prevalence (%)
CHF	1	32
Hypertension	1	65
Age >75 years	1	28
Diabetes mellitus	1	18
Stroke or TIA history	2	10
High risk	<u>≥3</u>	22
Moderate risk	1-2	33-50
Low risk	0-1	18-51

van Walbeek H, et al. (EuroHeart survey) Eur Heart J 2006 (E-published)

* Nieuwlaet R, et al. (EuroHeart survey) Eur Heart J 2006 (E-published)

Antithrombotic Therapy

(ACC/AHA/ESC 2006)

Risk Category

Recommendation

No risk factors

Aspirin, 81-325 mg qd

CHADS₂ = 0

1 moderate risk factor

Aspirin, 81-325 mg/d or
Warfarin (INR 2.0-3.0)

CHADS₂ = 1

Any high risk factor or
>1 moderate risk factor

Warfarin (INR 2.0-3.0)

CHADS₂ ≥ 2 or MS

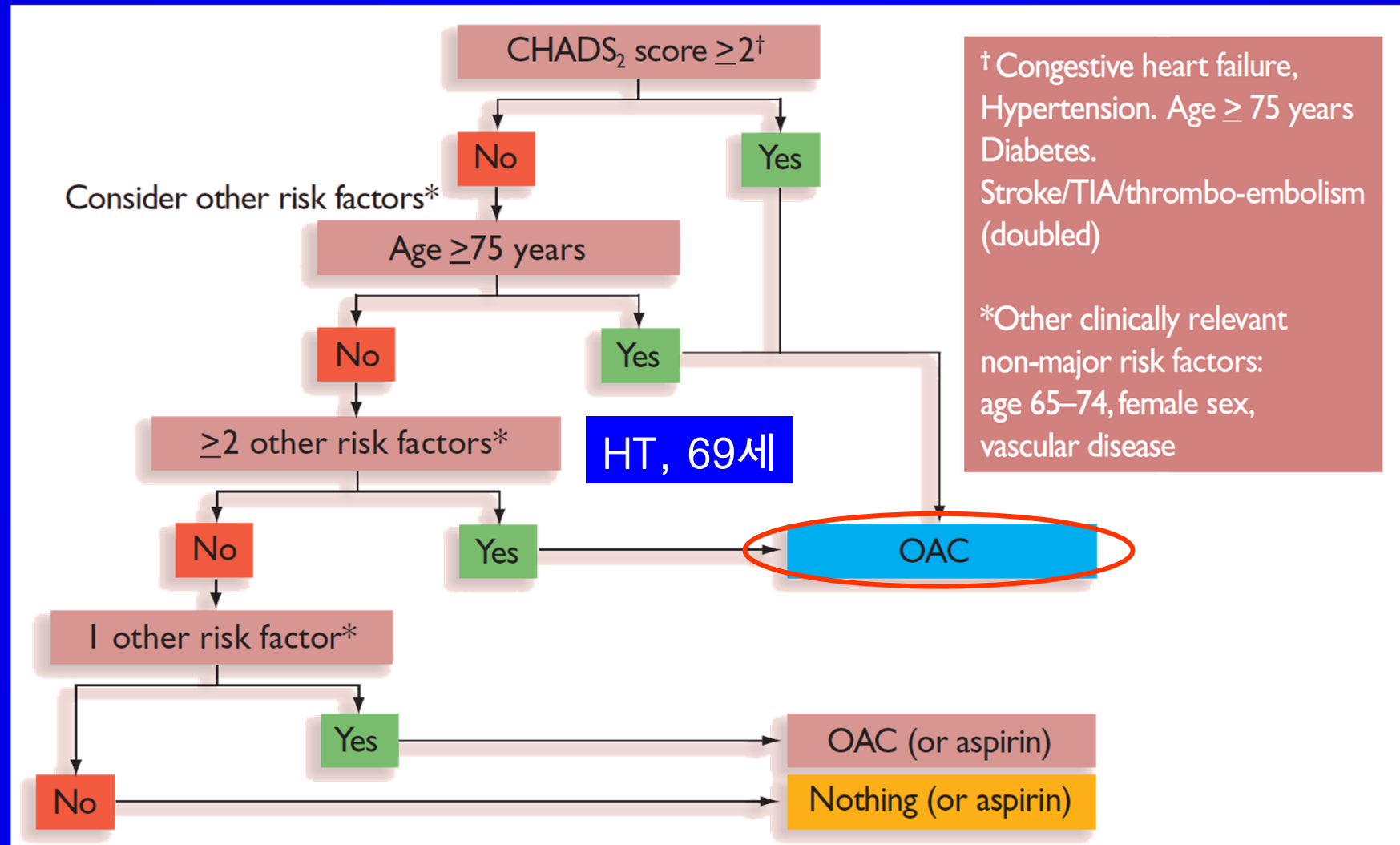
Prosthetic valve

Warfarin (INR 2.5-3.5)

CHA₂DS₂-VASc Score (ESC 2010)

Risk factor	Score
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age ≥75	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease	1
Age 65-74	1
Sex category (female sex)	1
Maximum score	9

New ESC Guideline for AAT (ESC 2010)

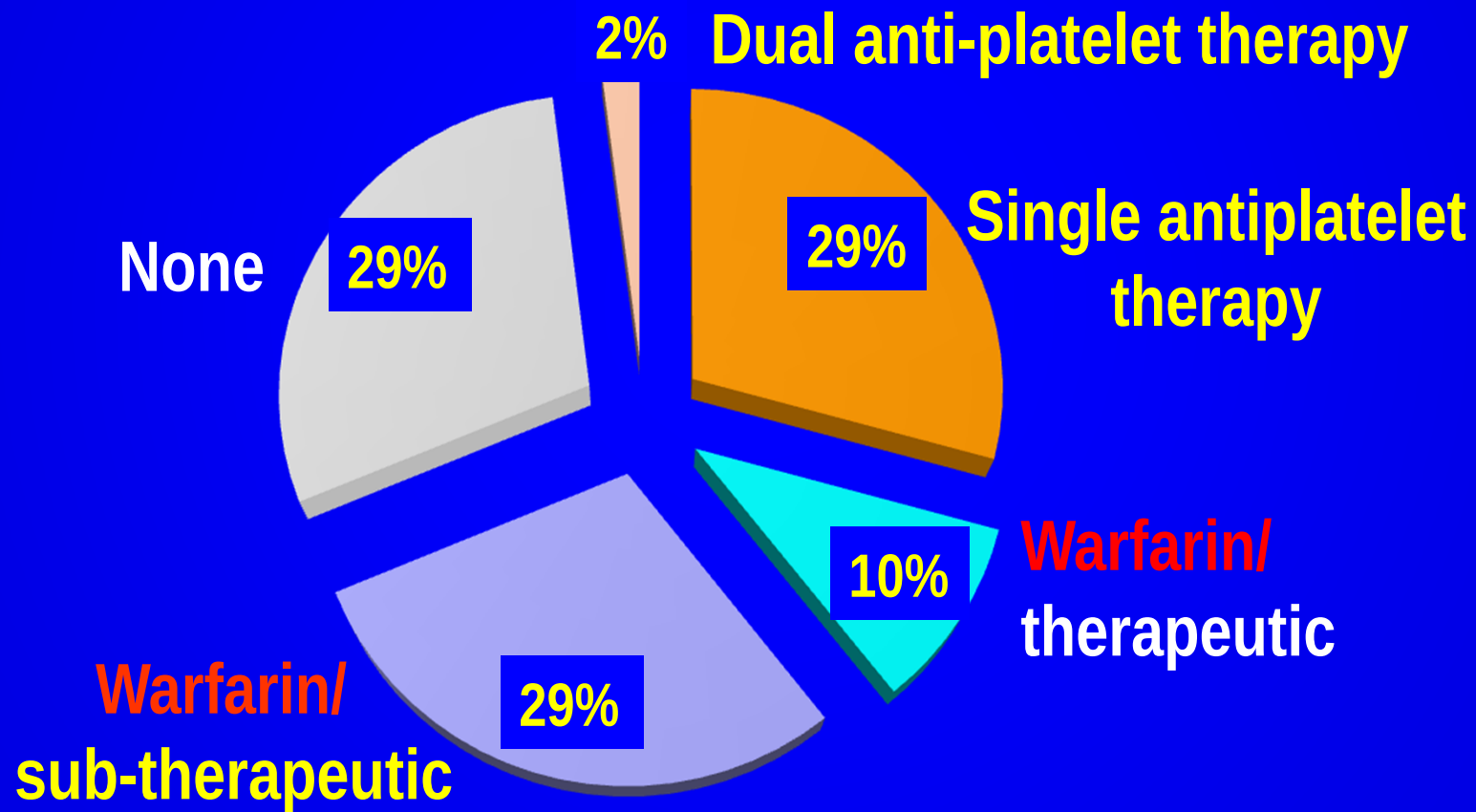


증례: 조OO (70세, 남), 언어장애

이 환자에서 시행되었어야 할 치료는 ?

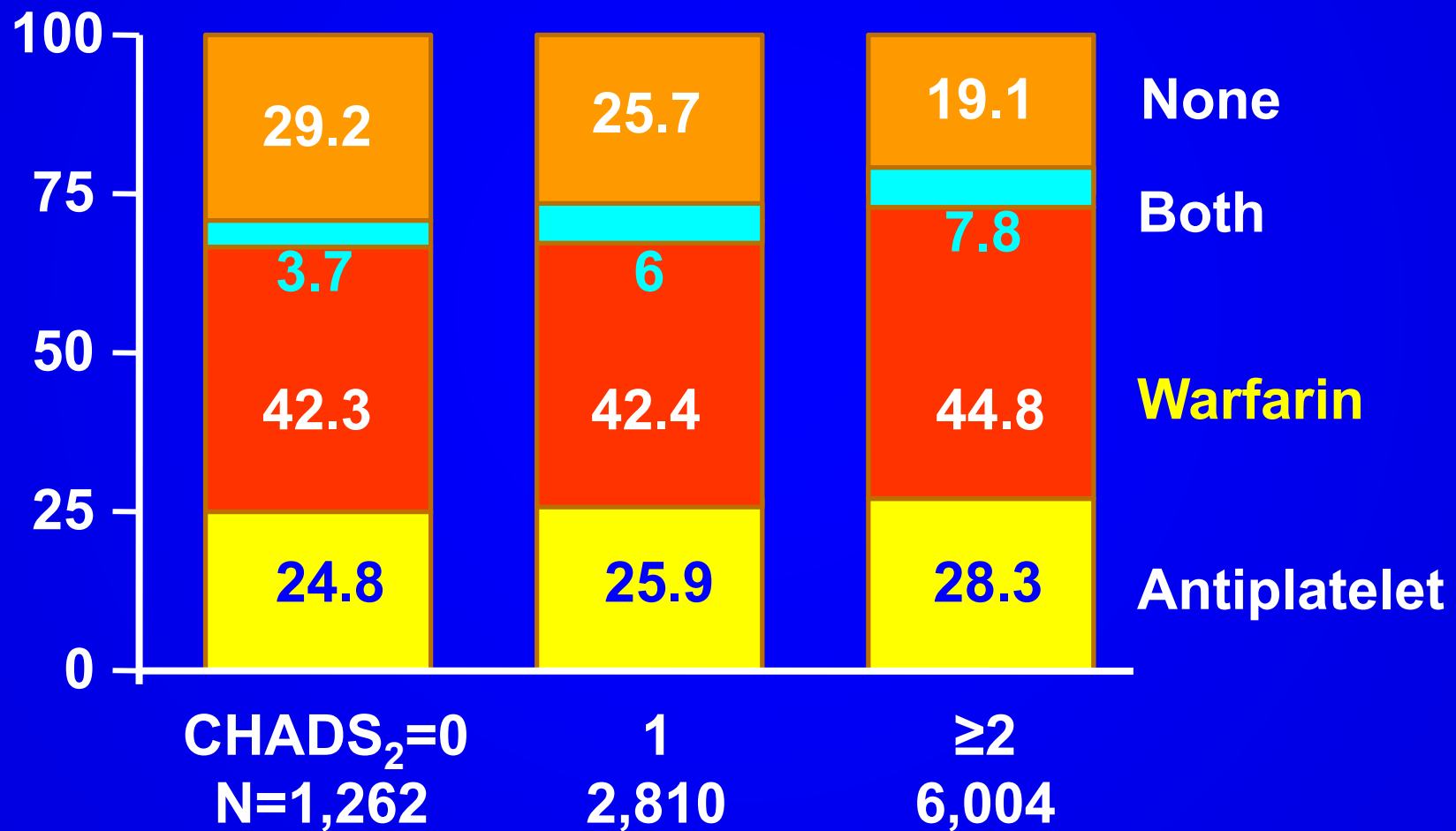
- ① 아스피린 용량을 300 mg/day로 증량
- ② Clopidogrel의 병용 투여
- ③ Warfarin으로 INR을 2-3로 유지
- ④ 경동맥조영술을 시행하여 협착 동맥 확장
- ⑤ 심장내 혈전을 찾아 수술로 제거

Prior ATT in Pts with Known AF Admitted with Stroke

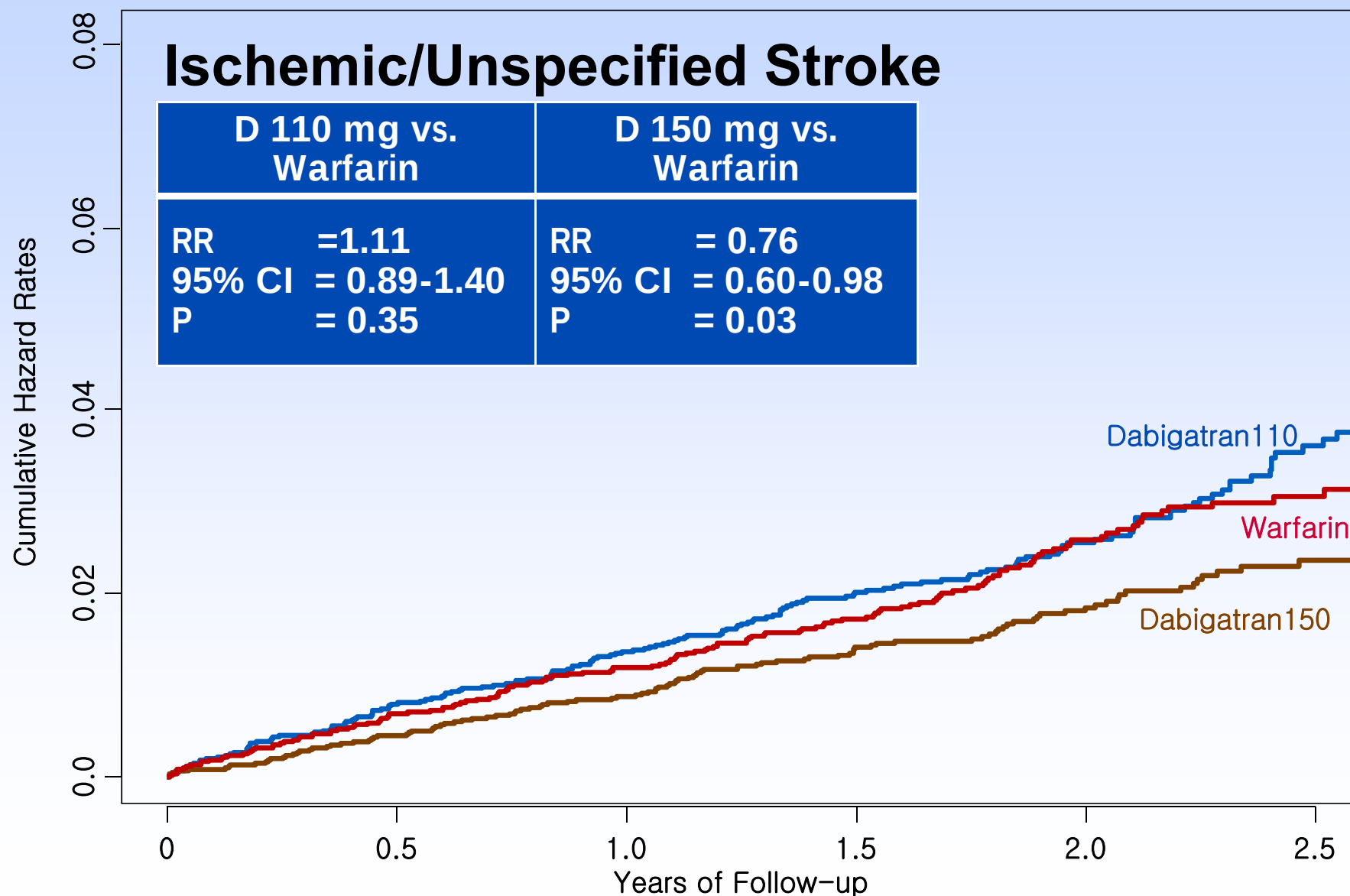


Stroke. 2009;40:235-240.

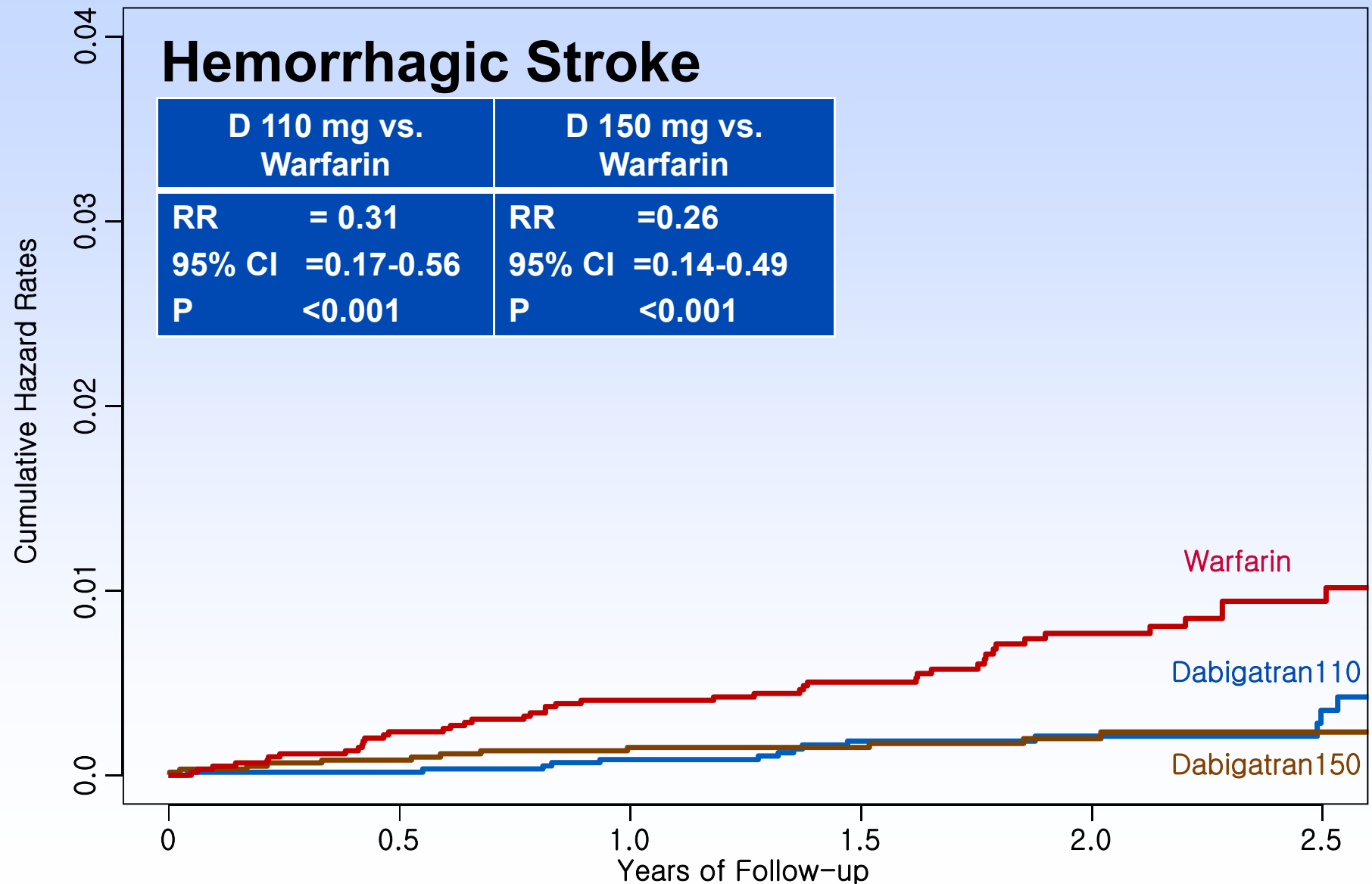
Warfarin use in the real World



Dabigatran: Warfarin Alternative



Dabigatran: Warfarin Alternative



New Guideline for Dabigatran

ACC/AHA/HRS 2011

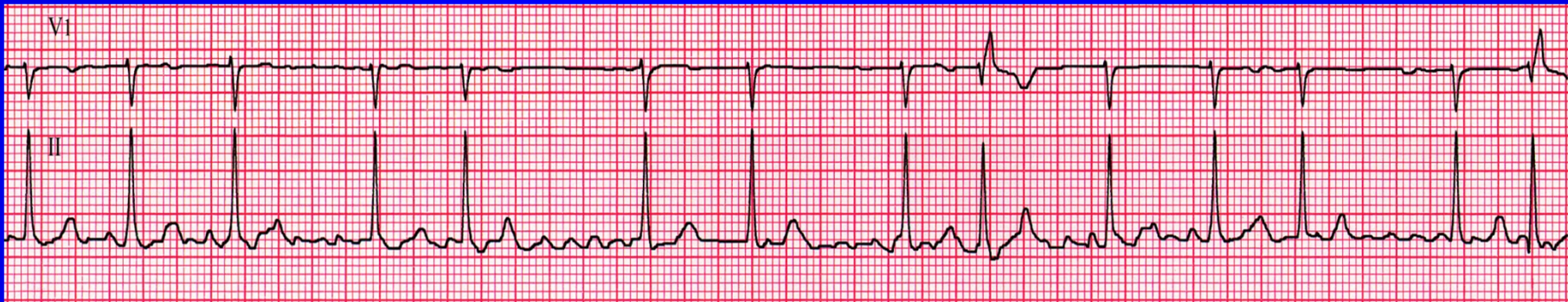
Dabigatran is useful as an alternative to warfarin for the prevention of stroke and thromboembolism in patients with paroxysmal to permanent AF and risk factors for stroke and systemic embolization who do not have a prosthetic heart valve or significant valve disease, severe renal disease (CCr <15 mL/min), or advanced liver disease (impaired basal clotting function).

I

B

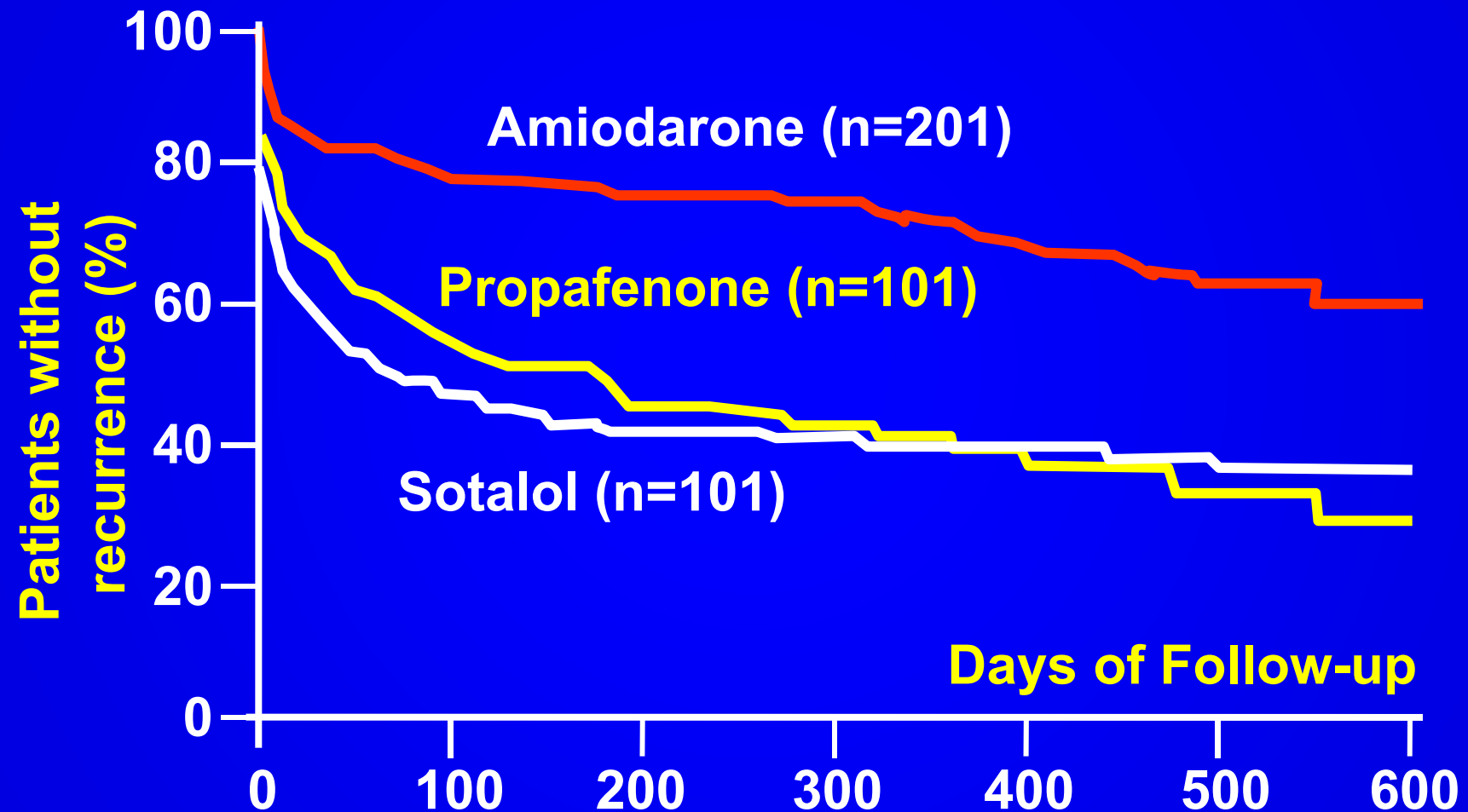
증례: 조OO (72세, 남)

Flecainide를 3년간 복용하고 있었는데 심방세동이 재발하였다. 다음 치료는?



- ① amiodarone으로 교체
- ② dronedarone으로 교체
- ③ 항부정맥제 중단
- ④ 도자절제술

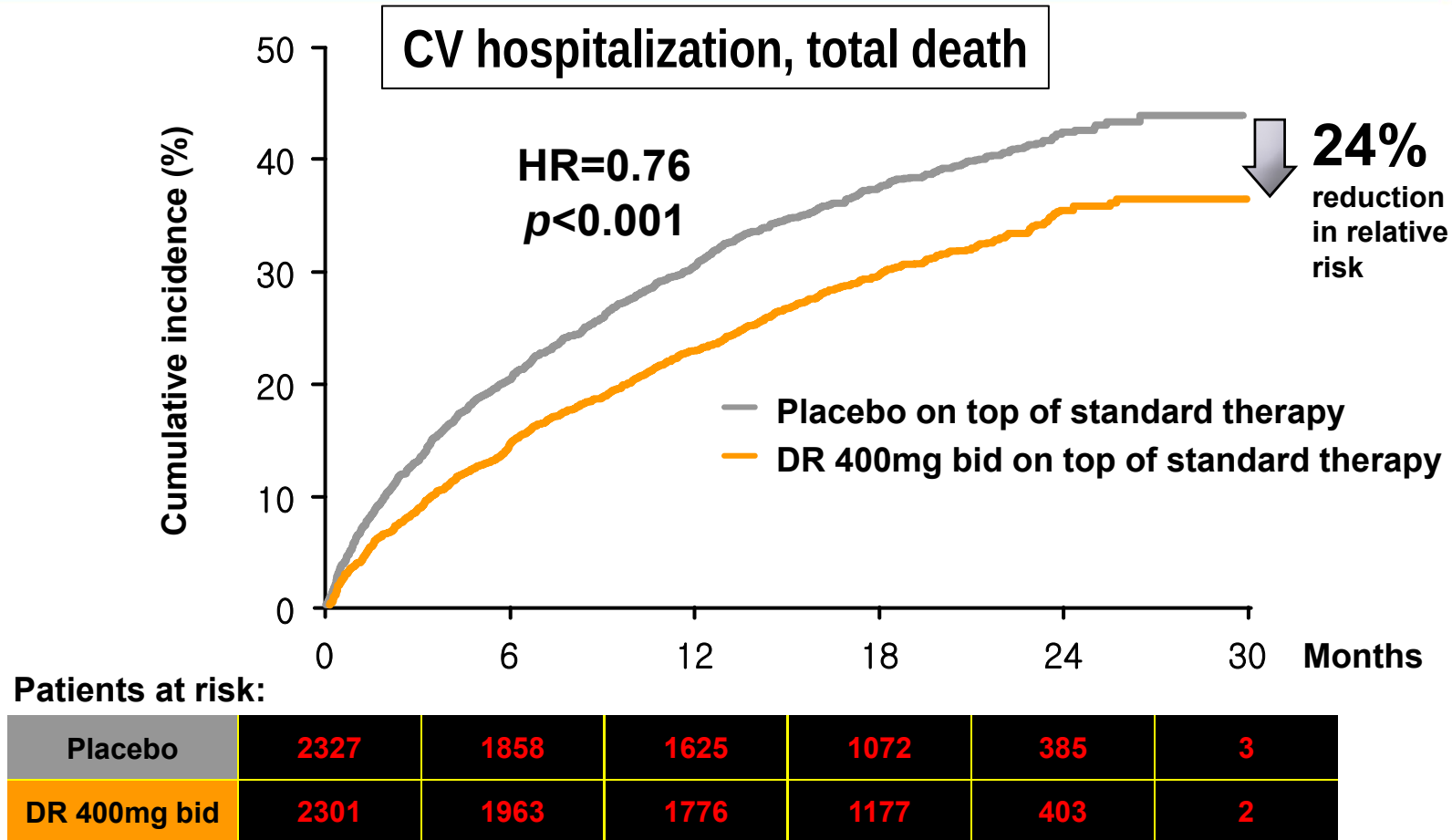
Comparison of AAD's Efficacy



CTAF NEJM 2000;342:913-920.

Dronedarone: New AAD

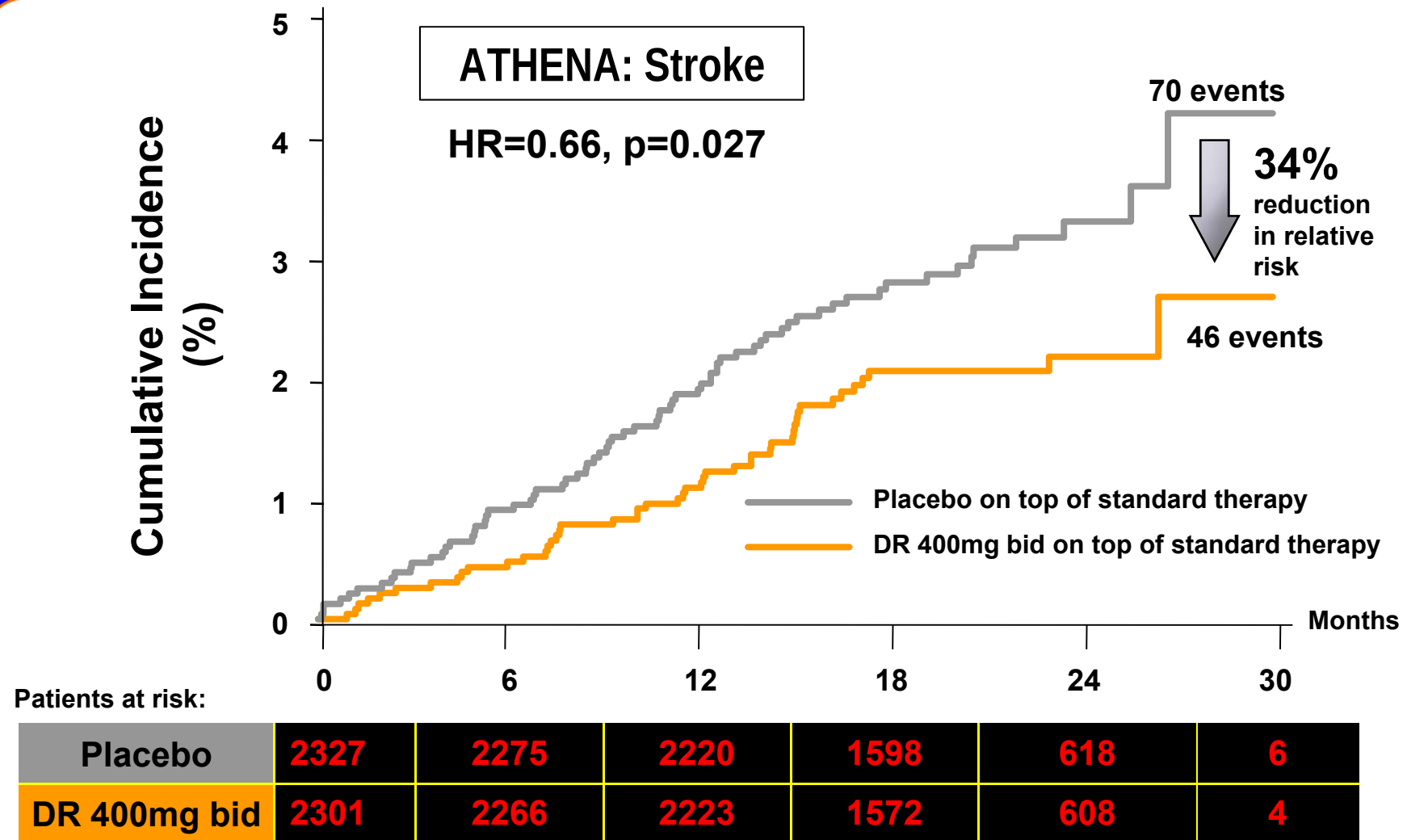
ATHENA: primary outcome



Mean follow-up 21 ± 5 months

Hohnloser SH, et al. *N Engl J Med* 2009;360:668-78.

Dronedarone: New AAD



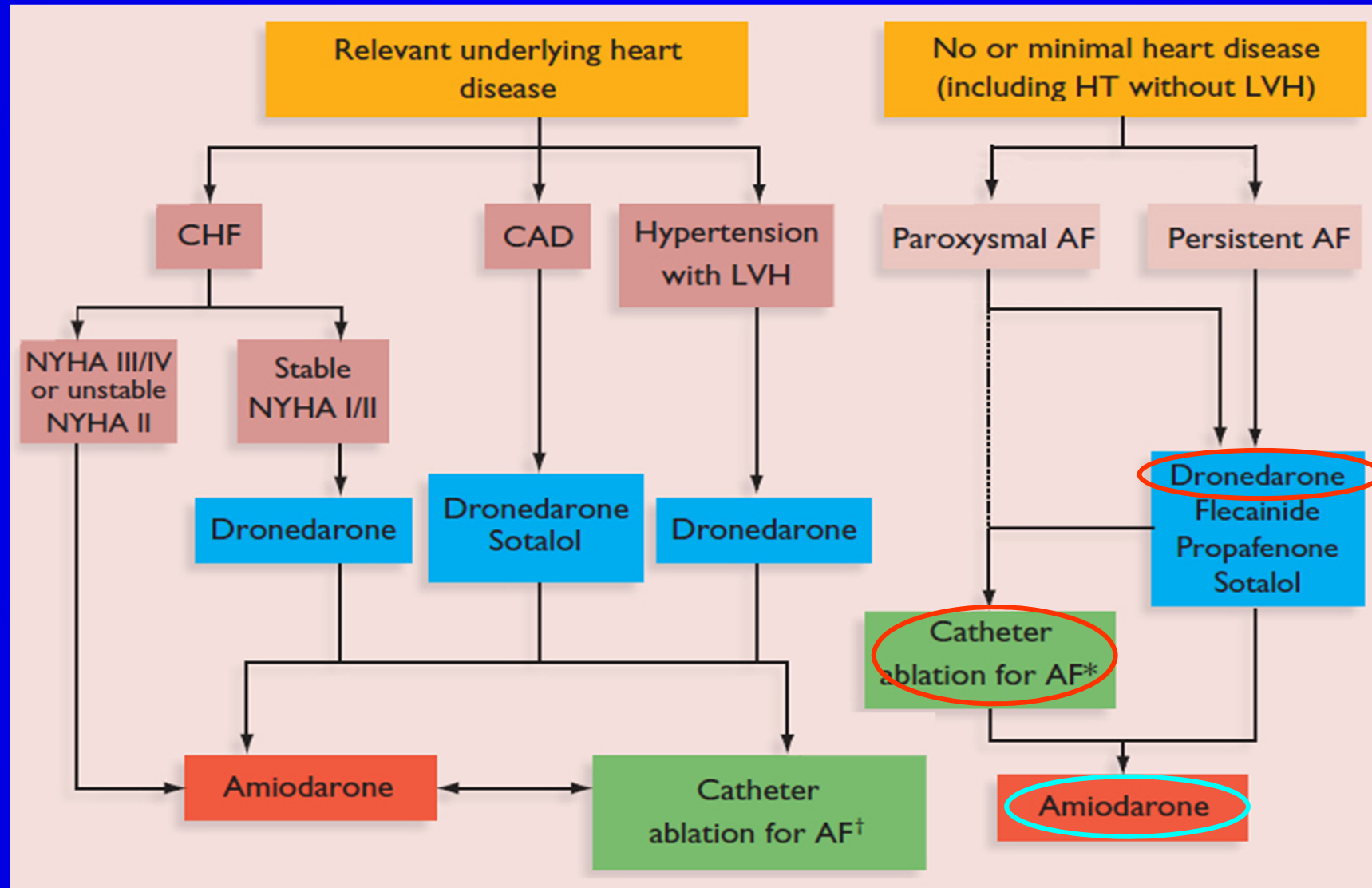
Mean follow-up 21 ± 5 months

Connolly SJ, et al. Circulation. 2009;120:1174-80.

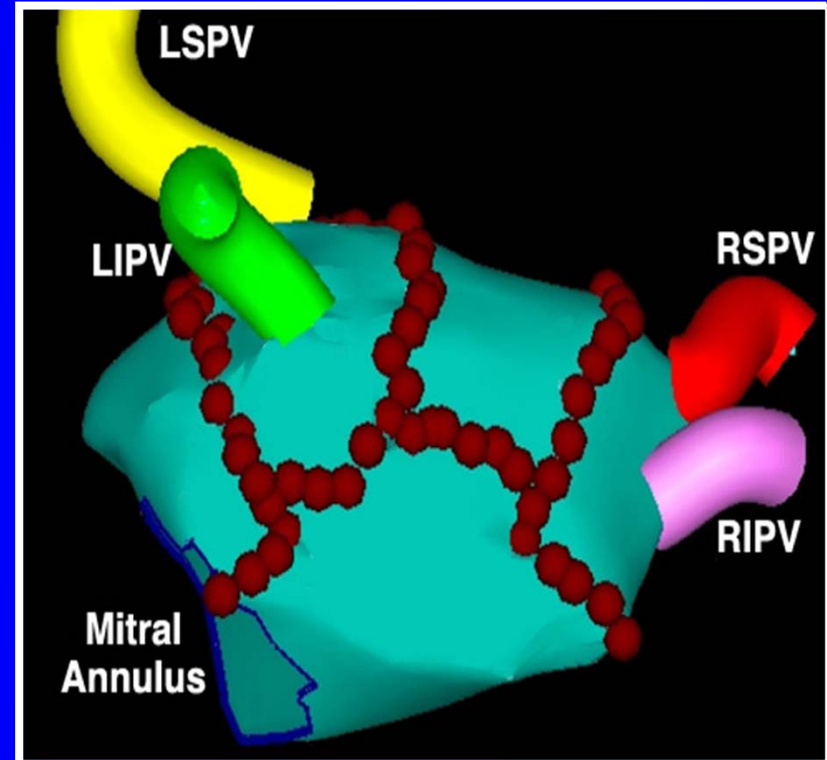
New Guideline for Dronedarone

ESC 2010		
<u>Dronedarone</u> should be considered in order to reduce CV hospitalizations in patients with non-permanent AF and CV risk factors	IIa	B
ACC/AHA/HRS 2011		
<u>Dronedarone</u> is reasonable to decrease the need for hospitalization for CV events in patients with paroxysmal AF or after conversion of persistent AF. Dronedarone can be initiated during outpatient therapy	IIa	B

5. Rhythm Control: ESC 2010

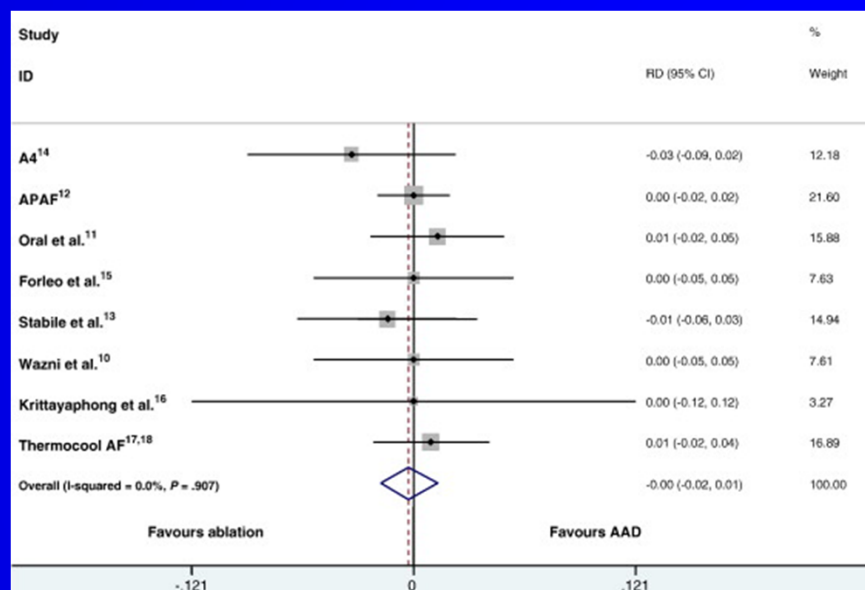


5. What about Catheter Ablation

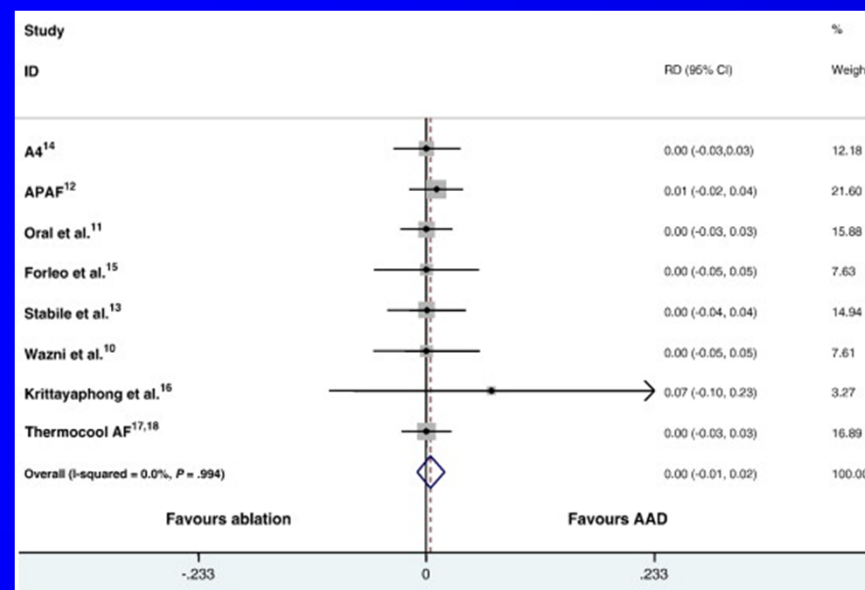


Catheter ablation vs AAD

Meta-analysis of 8 RCT's showed no difference in mortality, stroke, and thromboembolism (TE).



Mortality



Stroke and TE

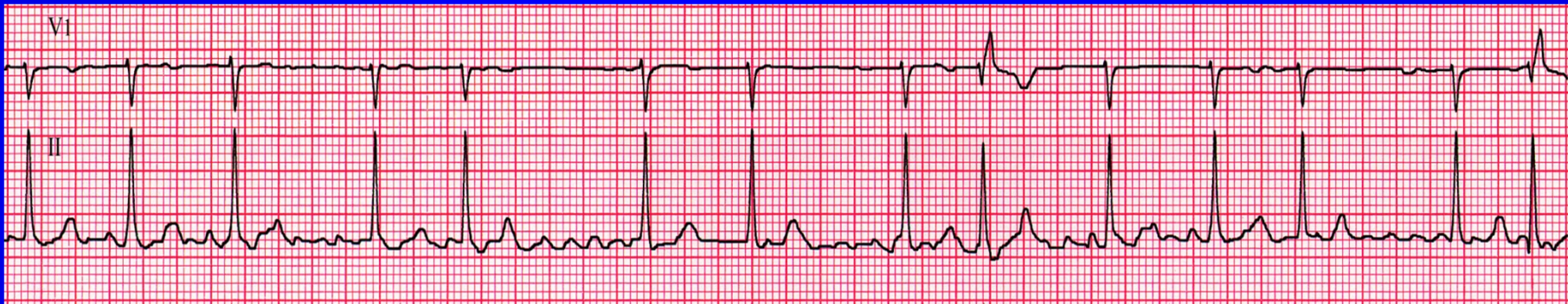
Dagres N, et al. Am Heart J. 2009;158(1):15-20.

New Guidelines for CA

ESC 2010		
CA for paroxysmal AF should be considered in symptomatic patients who have previously failed a trial of AAD medication.	IIa	A
CA of persistent symptomatic AF that is refractory to AAD therapy should be considered a treatment option.	IIa	B
ACC/AHA/HRS 2011		
CA performed in experienced centers is useful in maintaining SR in selected pts with significantly symptomatic, paroxysmal AF who have failed AAD treatment and have normal or mildly reduced LV function, and no severe pulmonary disease.	I	A
CA is reasonable to treat symptomatic persistent AF .	IIa	A

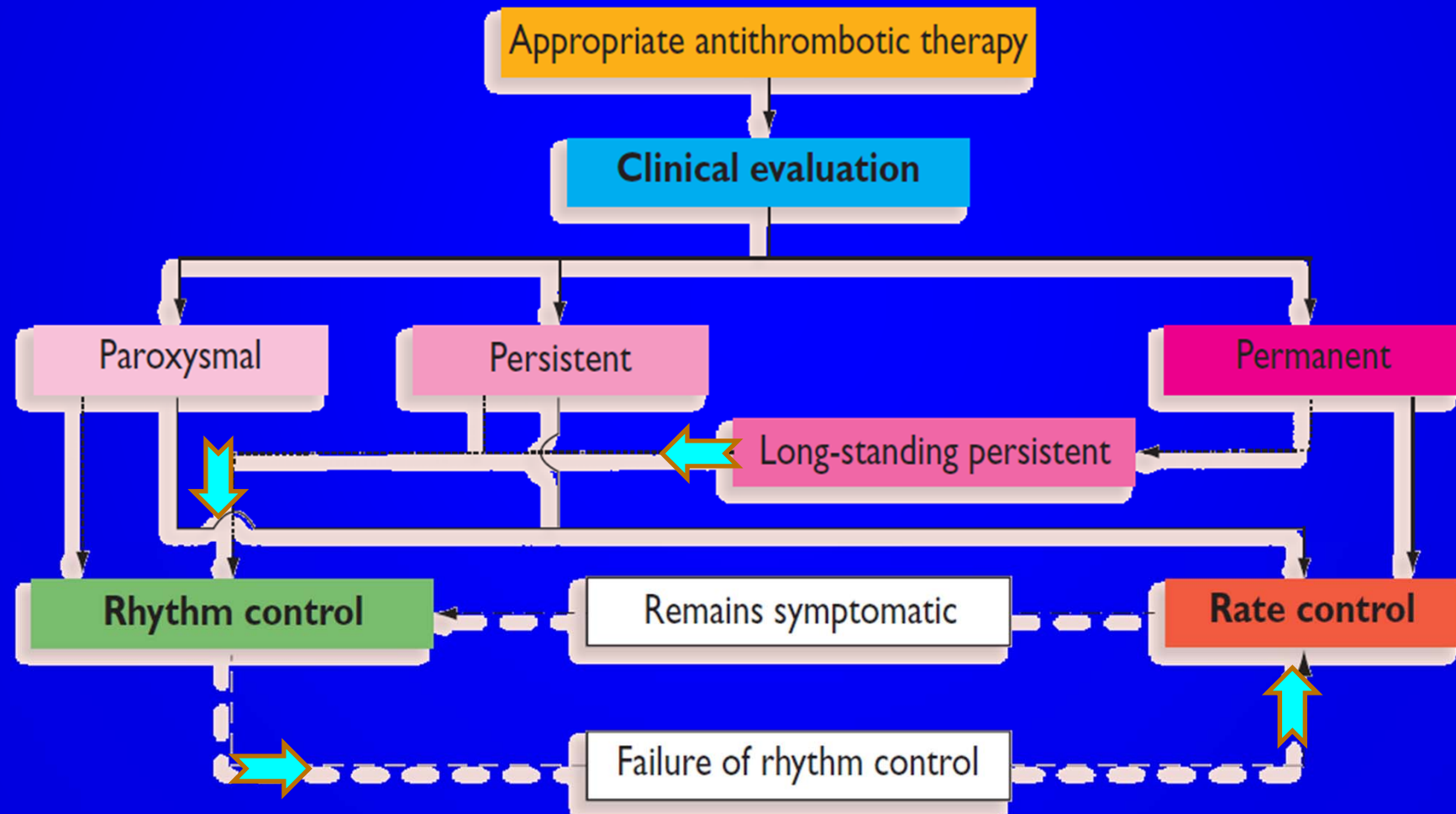
증례: 조OO (72세, 남)

Flecainide를 3년간 복용하고 있었는데 심방세동이 재발하였다. 다음 치료는?



- ① amiodarone으로 교체
- ② dronedarone으로 교체
- ③ 항부정맥제 중단 --> 심박수 조절 전략
- ④ 도자절제술

Rate Control Strategy was chosen for this patient.



Rhythm or Rate Control

Which is better ?

Study	RACE	AFFIRM	AF-CHF
Patient No.	522	4,060	1,376
FU years	2.3	5	3
Subjects characteristics	persistent AF	some paroxysmal	AF, EF≤0.35 NYHA 3-4
Primary end-point	CV mortality, morbidity	total mortality	CV mortality
Rhythm Control	22.6%	23.8%	27%
Rate Control	17.2%	21.3%	25%
P value	0.11	0.08	0.67

RACE. NEJM. 2002;347:1834. AFFIRM. NEJM. 2002;347:1825. AF-CHF. NEJM. 2008;358:2667.

Effects of heart rate on BP



Target heart rate in rate control

ACC/AHA/ESC 2006

- **At rest: 60-80 bpm**
- **During moderate exercise: 90-115 bpm**

*** not evidence-based, difficult to achieve,
higher drug side effects, higher cost**

RACE II

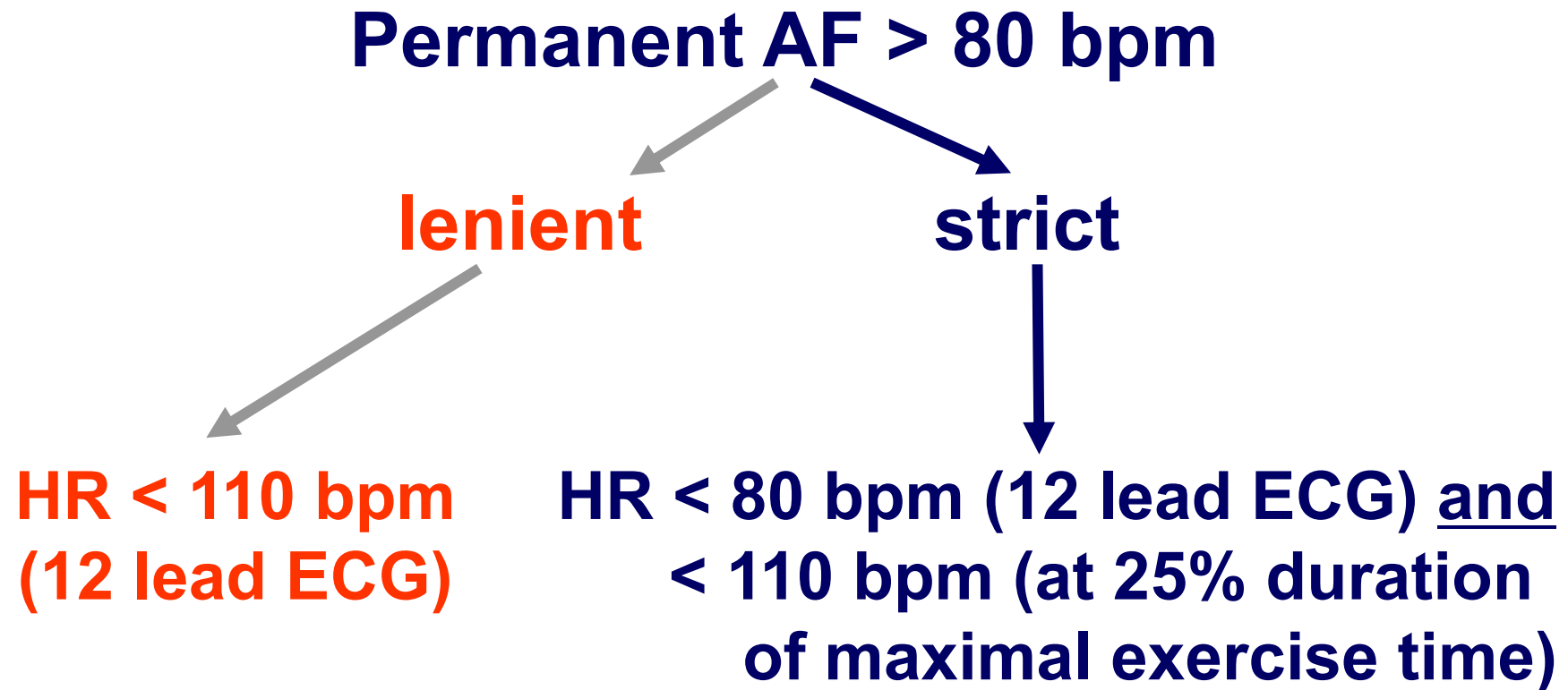
RAte Control Efficacy in Permanent Atrial Fibrillation

A Randomized Comparison of Lenient Rate Control versus Strict Rate Control Concerning Morbidity and Mortality

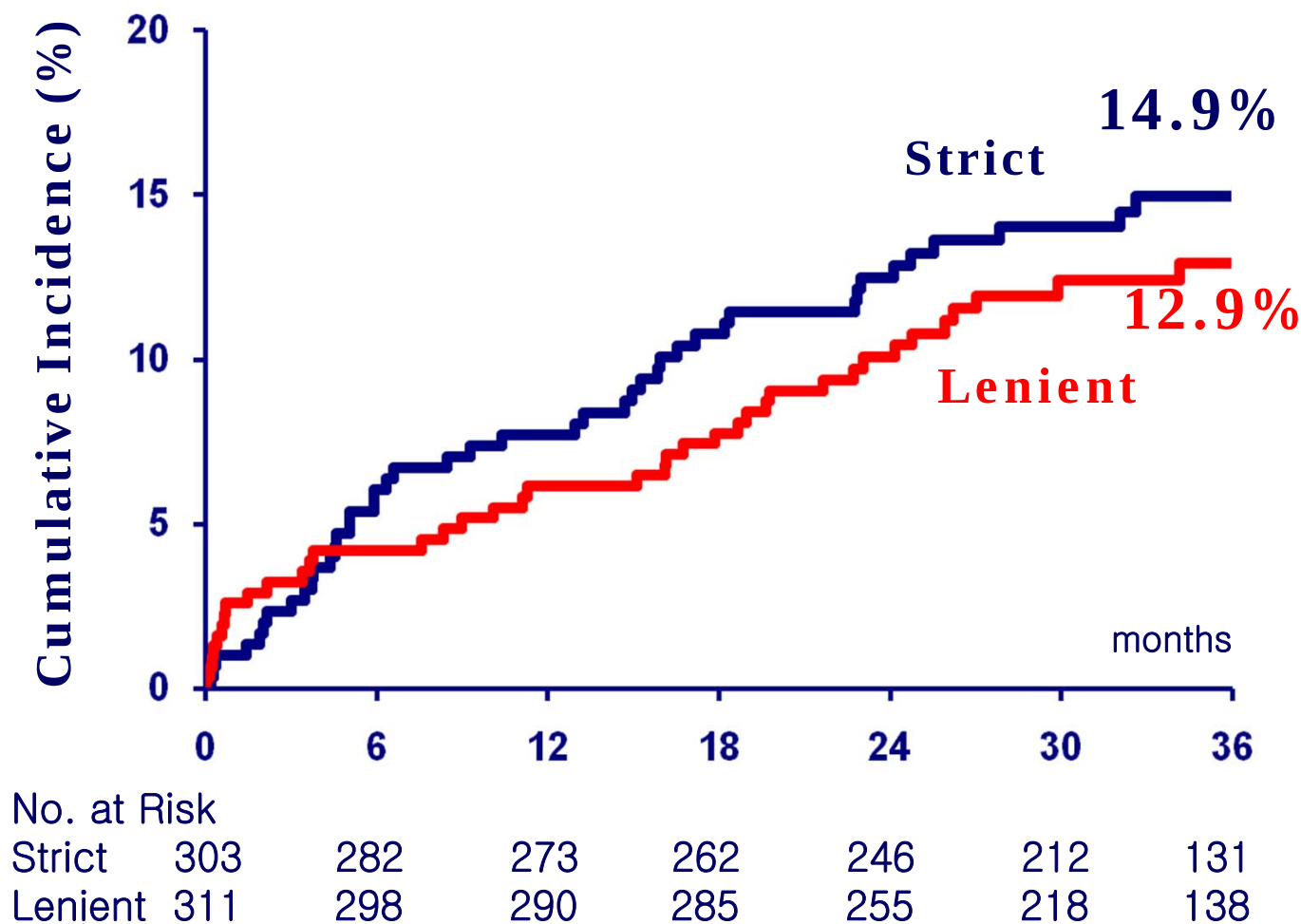
Isabelle C Van Gelder, Hessel F Groenveld, Harry J Crijns, Jan G Tijssen, Hans H Hillege, Ype Tuininga, et al

Van Gelder IC, et al. NEJM. 2010;362(15):1363-73

RACE II: methods



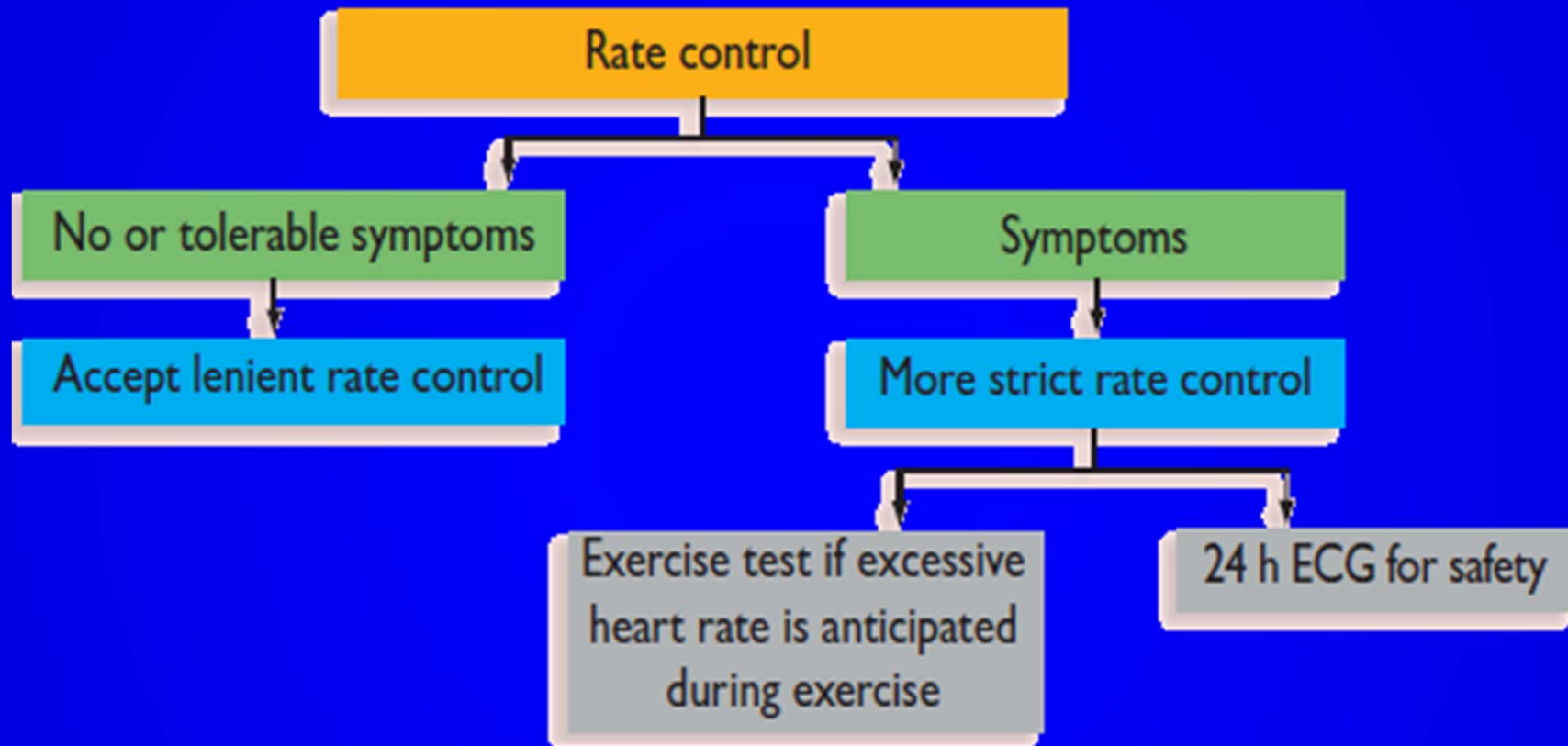
RACE II: primary outcome



RCAE II: Components of primary outcome

	Lenient control n= 311	Strict control n=303
Primary outcome	12.9%	14.9%
CV mortality	2.9%	3.9%
Heart failure	3.8%	4.1%
Stroke	1.6%	3.9%
Embolism	0.3%	0%
Bleeding	5.3%	4.5%
Adverse effects RC drugs	1.1%	0.7%
Pacemaker	0.8%	1.4%
Syncope	1.0%	1.0%
ICD	0%	0.4%

6. Rate control: ESC 2010

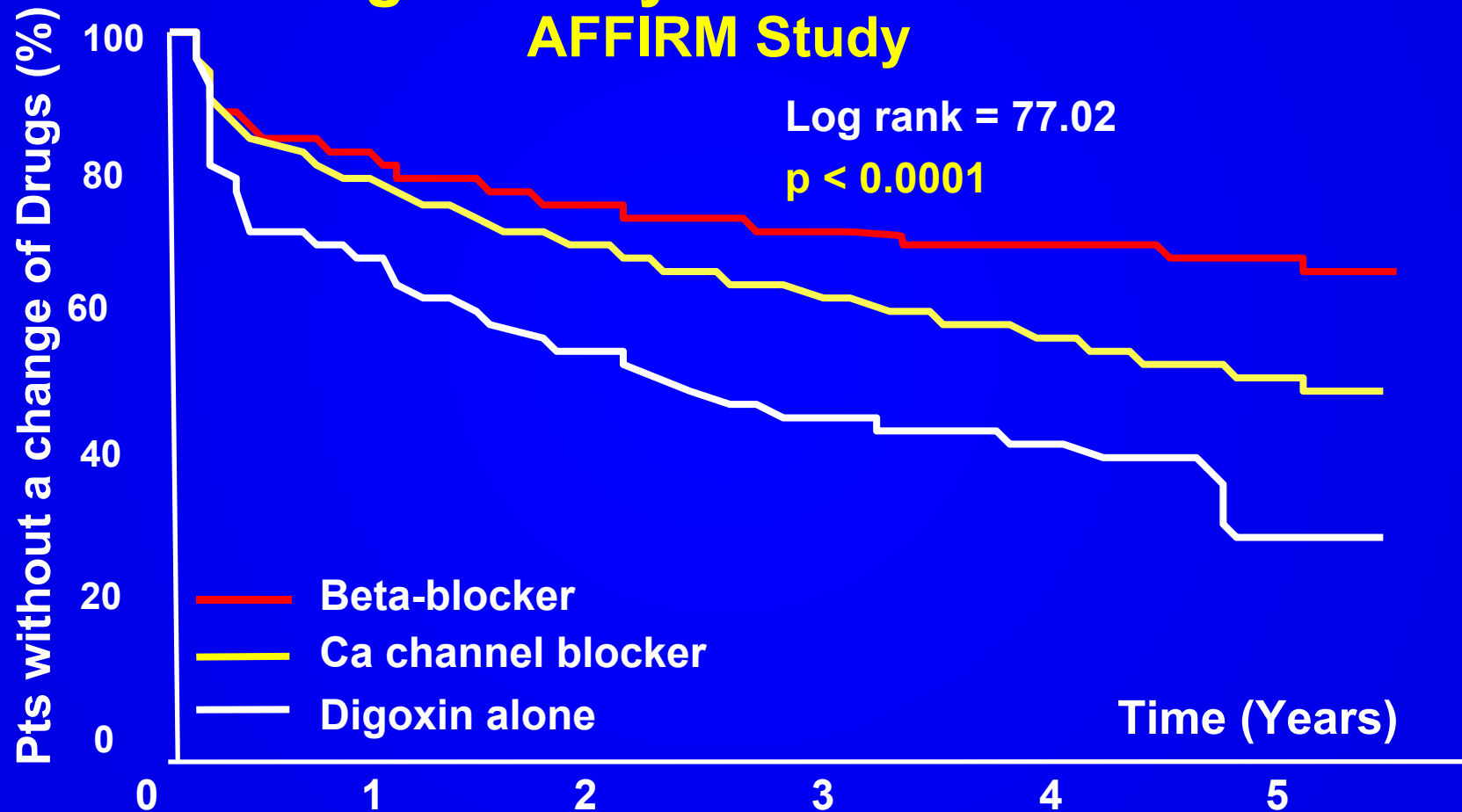


***Lenient control: <110 bpm at rest**

***Strict control: <80 bpm at rest, <110 bpm at 25% duration of maximal exercise time**

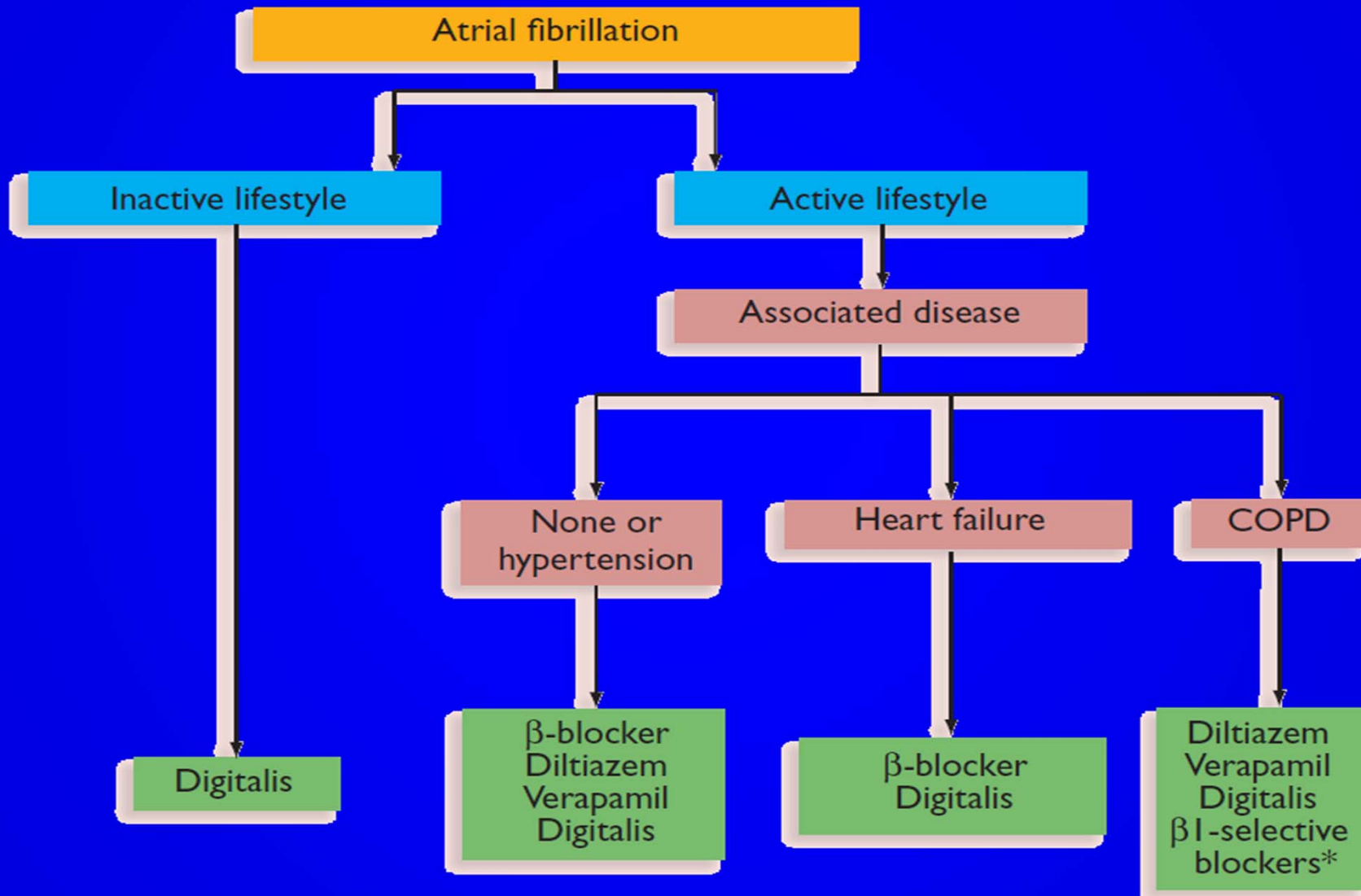
6. How to select the RC drug ?

Drug Efficacy in Rate Control: AFFIRM Study



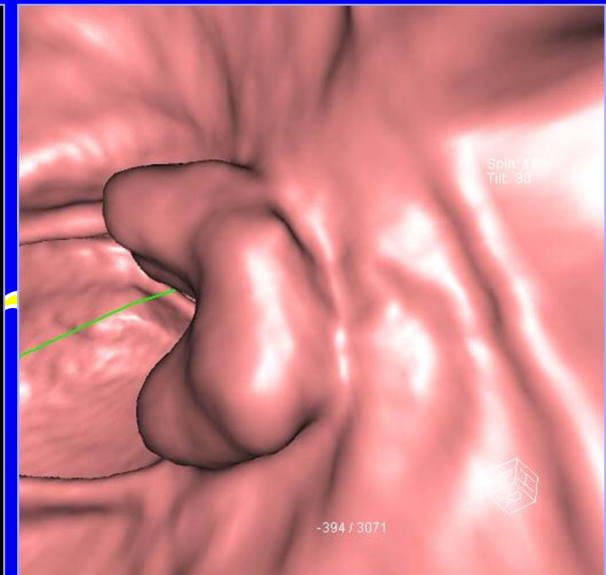
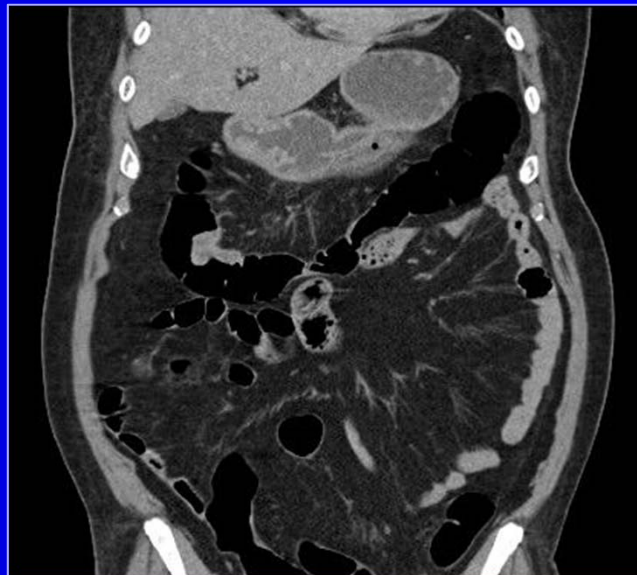
Olshansky et al. JACC 2004;143:1201

6. Choice of RC drug: ESC 2010

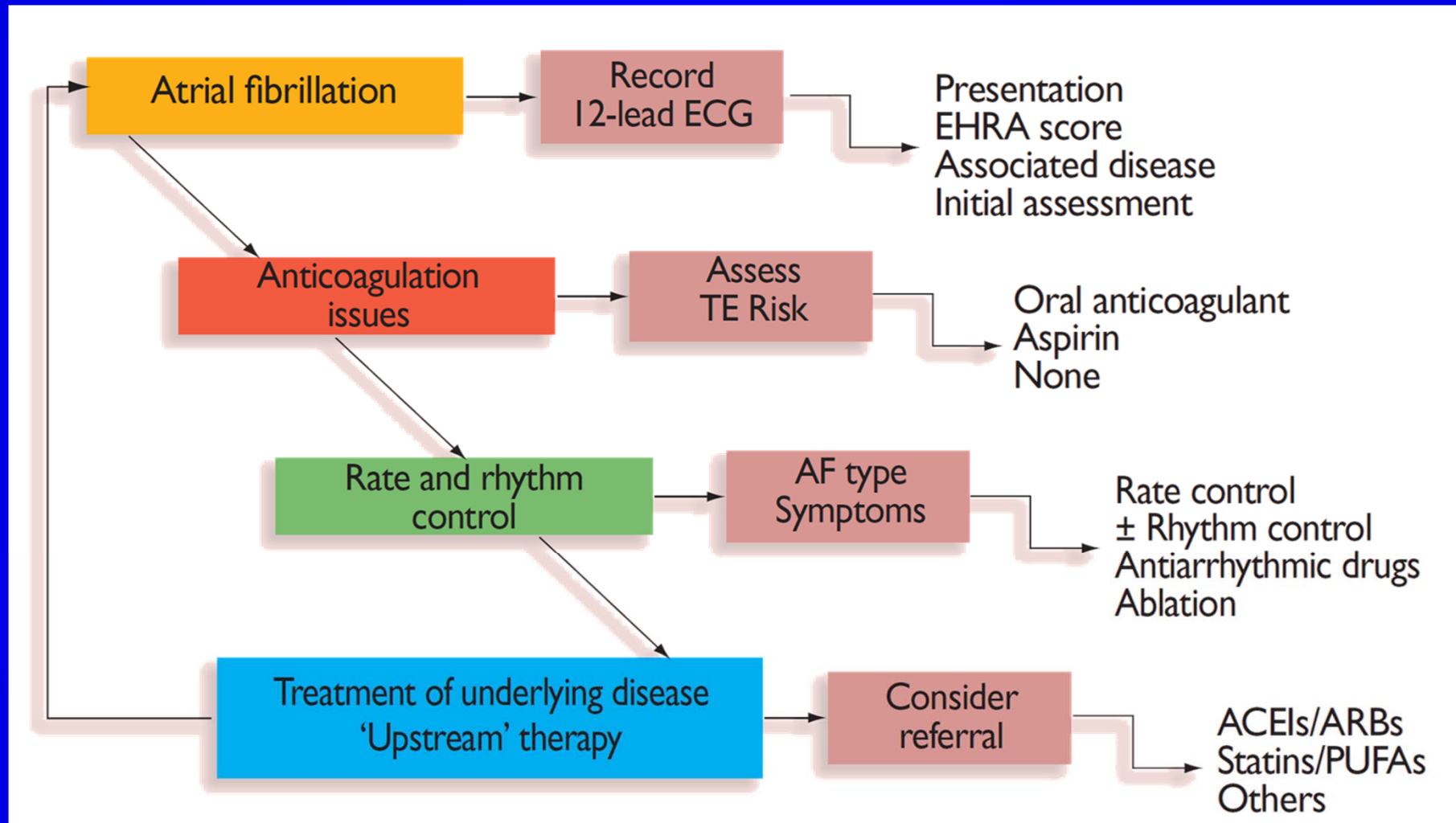


증례: 조OO (82, 남), well-being!

Warfarin과 함께 atenolol, diltiazem으로 치료 받고 있는 중 79세에 대장암이 발견되어 대장 부분절제술을 받았고 잘 회복되어 심방세동을 진단받은 후 13년째, 82세로 동년배와 비슷한 생활을 하고 있다.



Summary: How to treat AF ?



How to treat AF ?

Rhythm
Control

Rate
Control



How to treat AF ?

Rhythm
Control

Rate
Control



If you keep the guide-line,
either way is OK !



**Thank You Very Much
for
Your Attention**