

Angina pectoris with atrial fibrillation : PCI vs. CABG

Woong Chol Kang M.D.

Gil Hospital, Gachon University of Medicine and Science
Incheon, Korea

Optimizing Antithrombotic Strategies in Patients with Atrial fibrillation Undergoing Coronary Artery Stenting

Woong Chol Kang M.D.

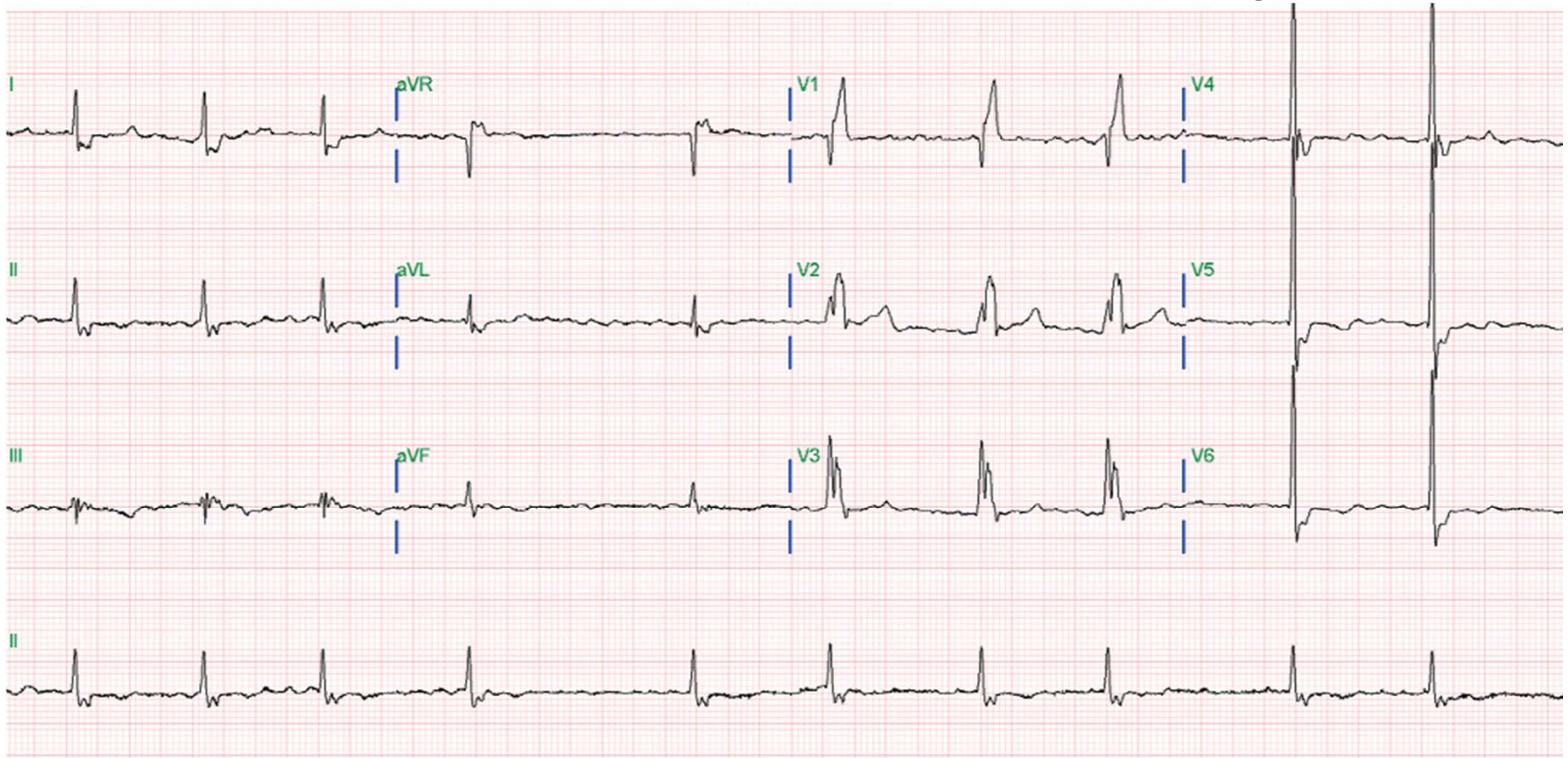
Gil Hospital, Gachon University of Medicine and Science
Incheon, Korea

F/71

- C.C : Chest pain (CCS III)
- Risk Fx : **DM** on medication for 17 yrs
- PHx : **Atrial fibrillation** for 5 years; **TIA** : 3 years ago
- P/Ex : BP 130/80 mmHg, PR 65/min
- Lab : TC/TG/HDL/LDL 216/330/37/113 mg/dL, Glucose (AC) 159 mg/dL, Hb A_{1c} 6.3%, CK-MB 1.73 ng/ml, Tnl 0.23 ng/ml, **PT (INR) 2.2**
- Current Medication : Amaryl-M 2/500 mg, **Warfarin 2.5mg**

Electrocardiography

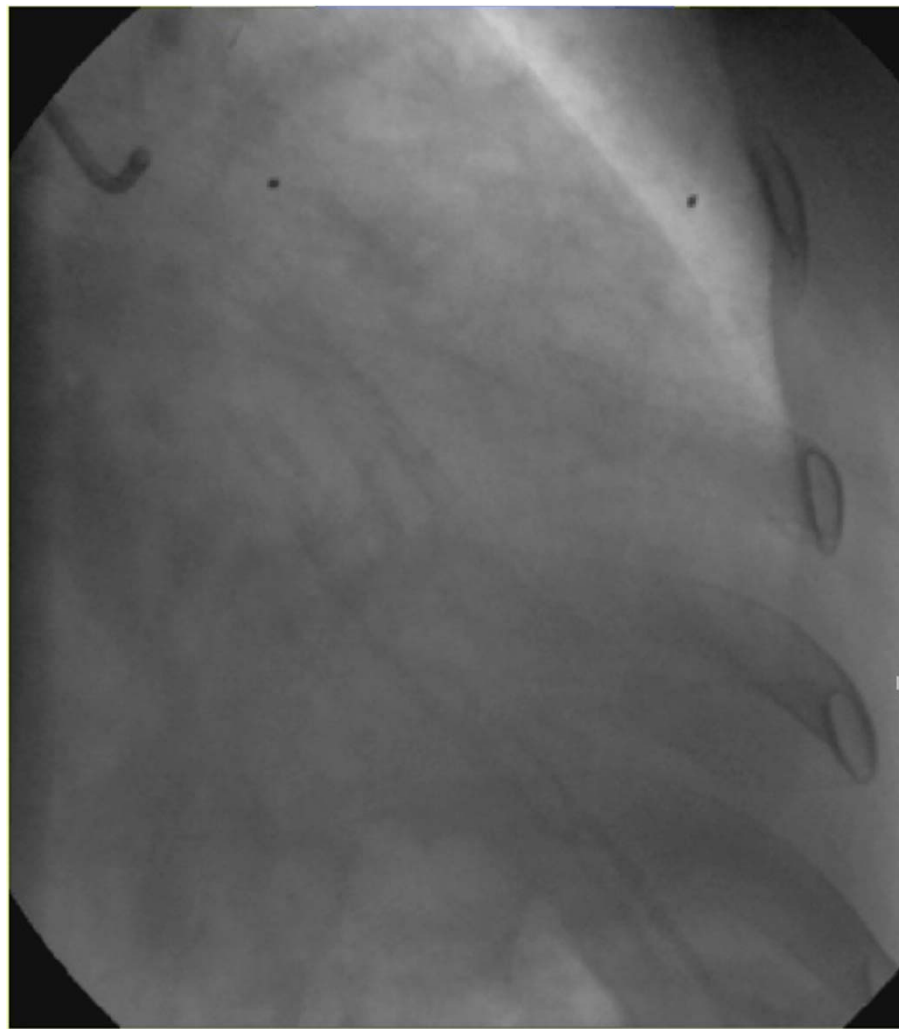
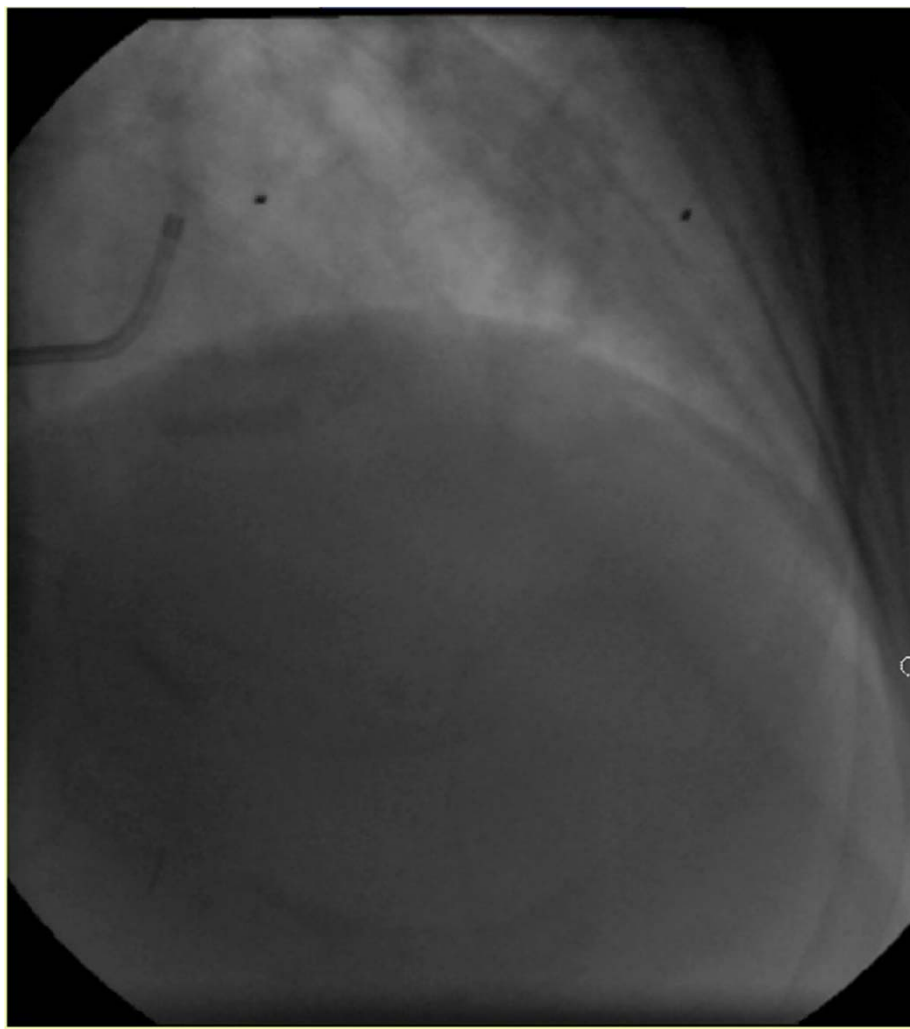
BP 130/80 mmHg, PR 65/min



Echocardiogram

1. Enlarged LV (d=58.8mm) and LA (d=47.8mm)
2. Decreased LV systolic function (**EF; 39%**)
3. **RWMA**: severe hypokinesia of anterior and lateral wall from mid-LV to apex
4. Trivial MR, AR and TR (I)
5. Minimal amount of pericardial effusion
6. No thrombus

Coronary angiography



What treatment is optimal for this Patient ?

- **Intervention**

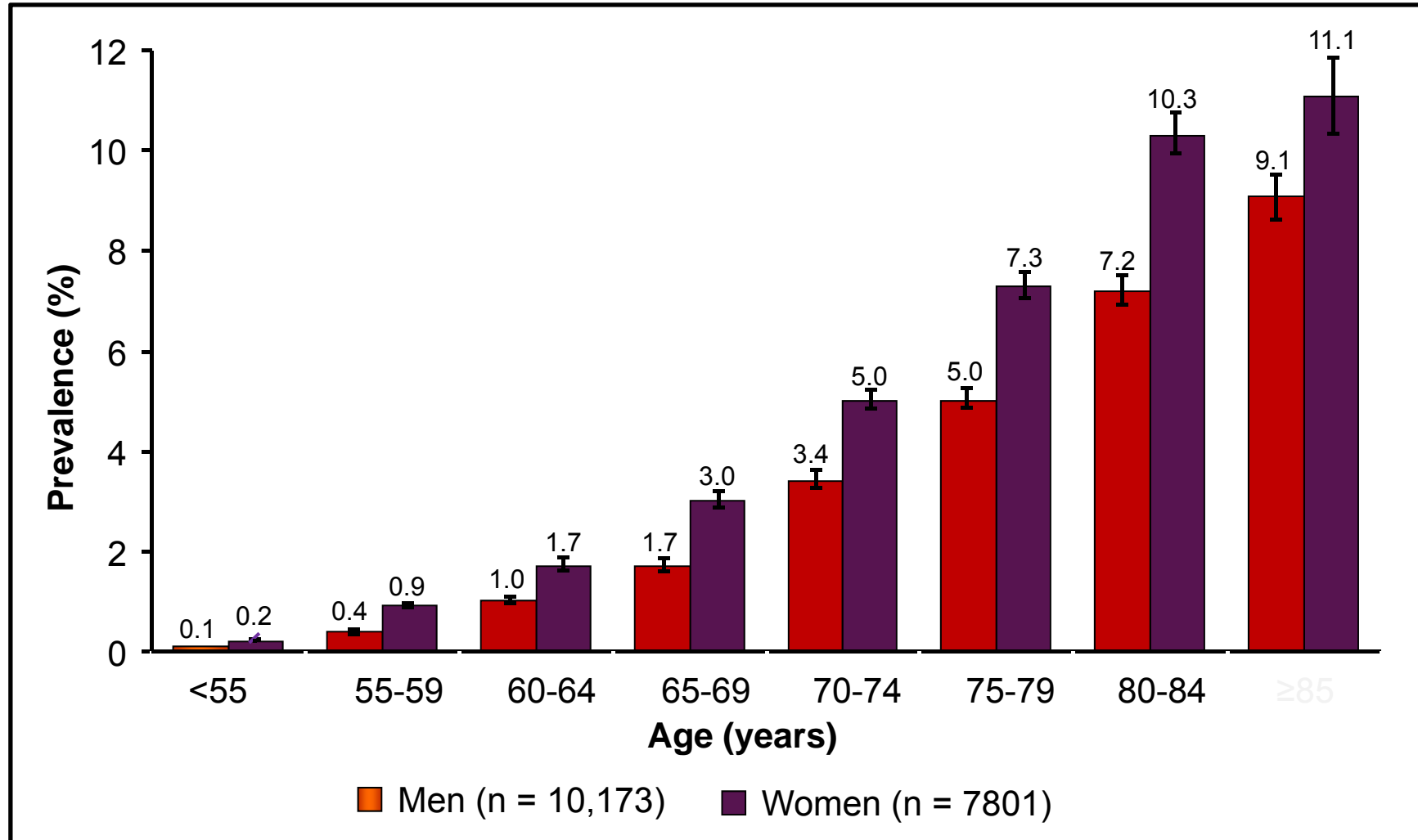
- PCI (DES vs. BMS) vs. CABG

- **Considering factors for decision**

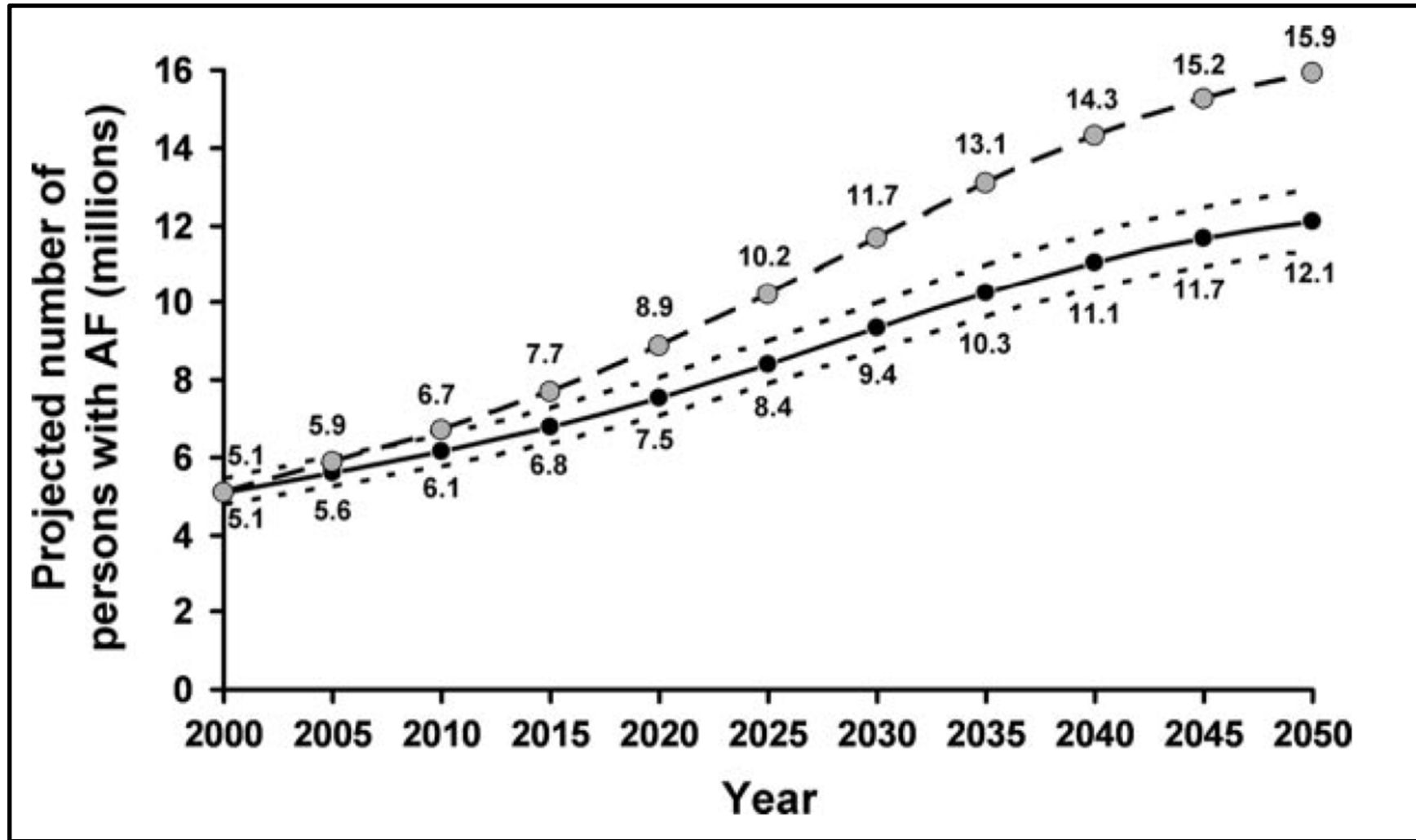
- AF on OAC, low EF, DM, TIA Hx
- Stent thrombosis, Stroke and Bleeding
- Antiplatelet and anticoagulation Tx

Prevalence of AF increases with Age

Anticoagulation and Risk Factors in Atrial Fibrillation (ATRIA) study

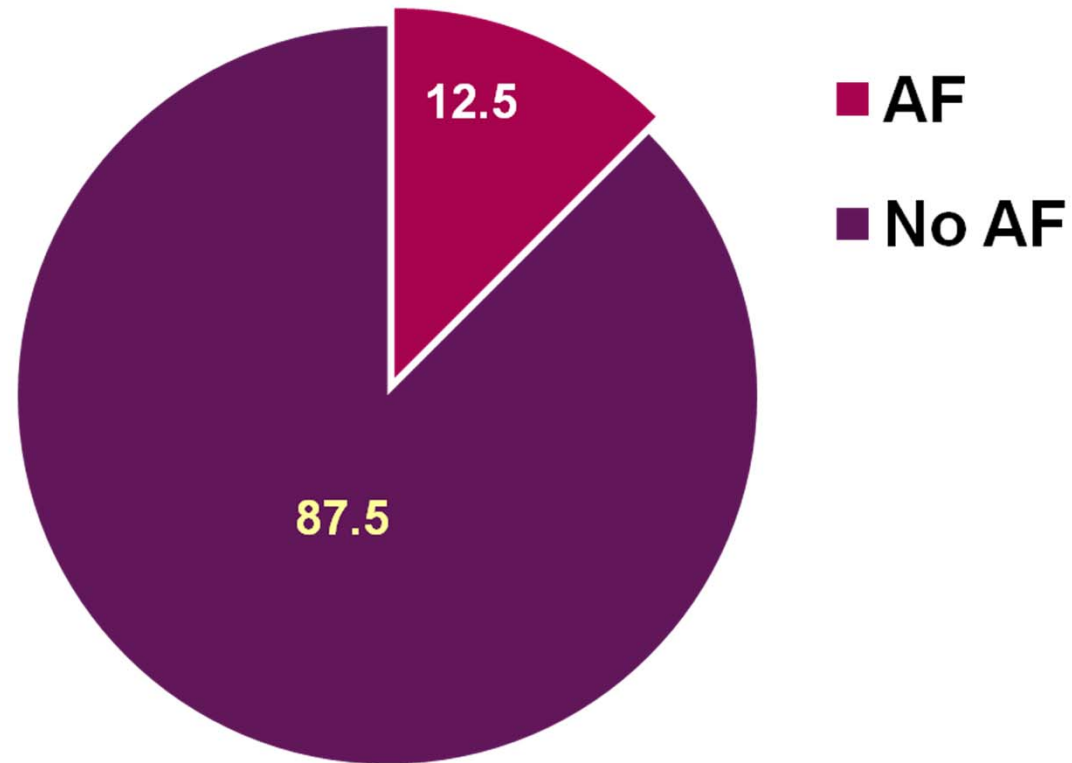


AF prevalence in Increasing Rapidly



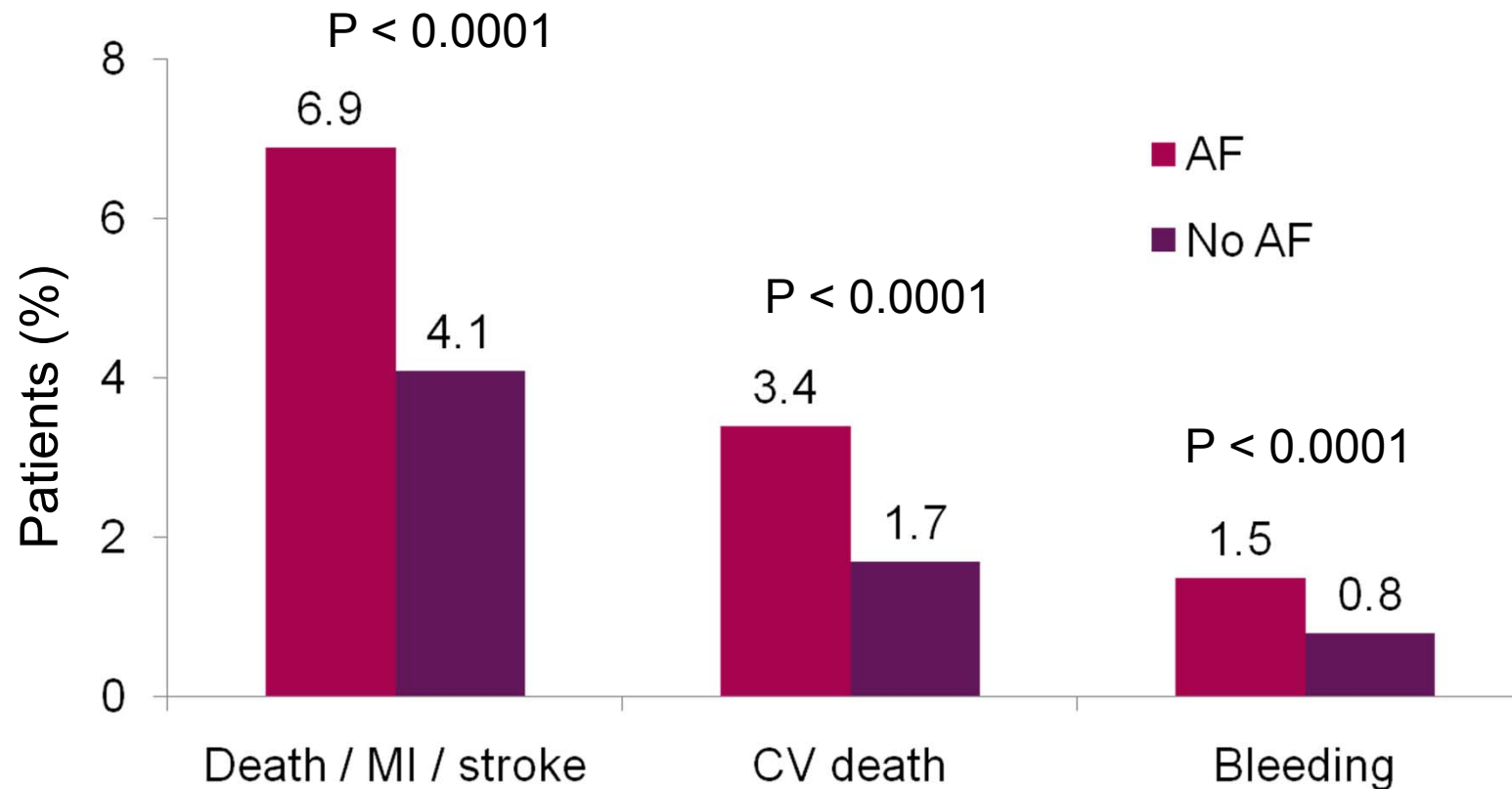
Atrial Fibrillation in CAD: Prevalence in the REACH Registry

37,724 stable outpatients with CAD



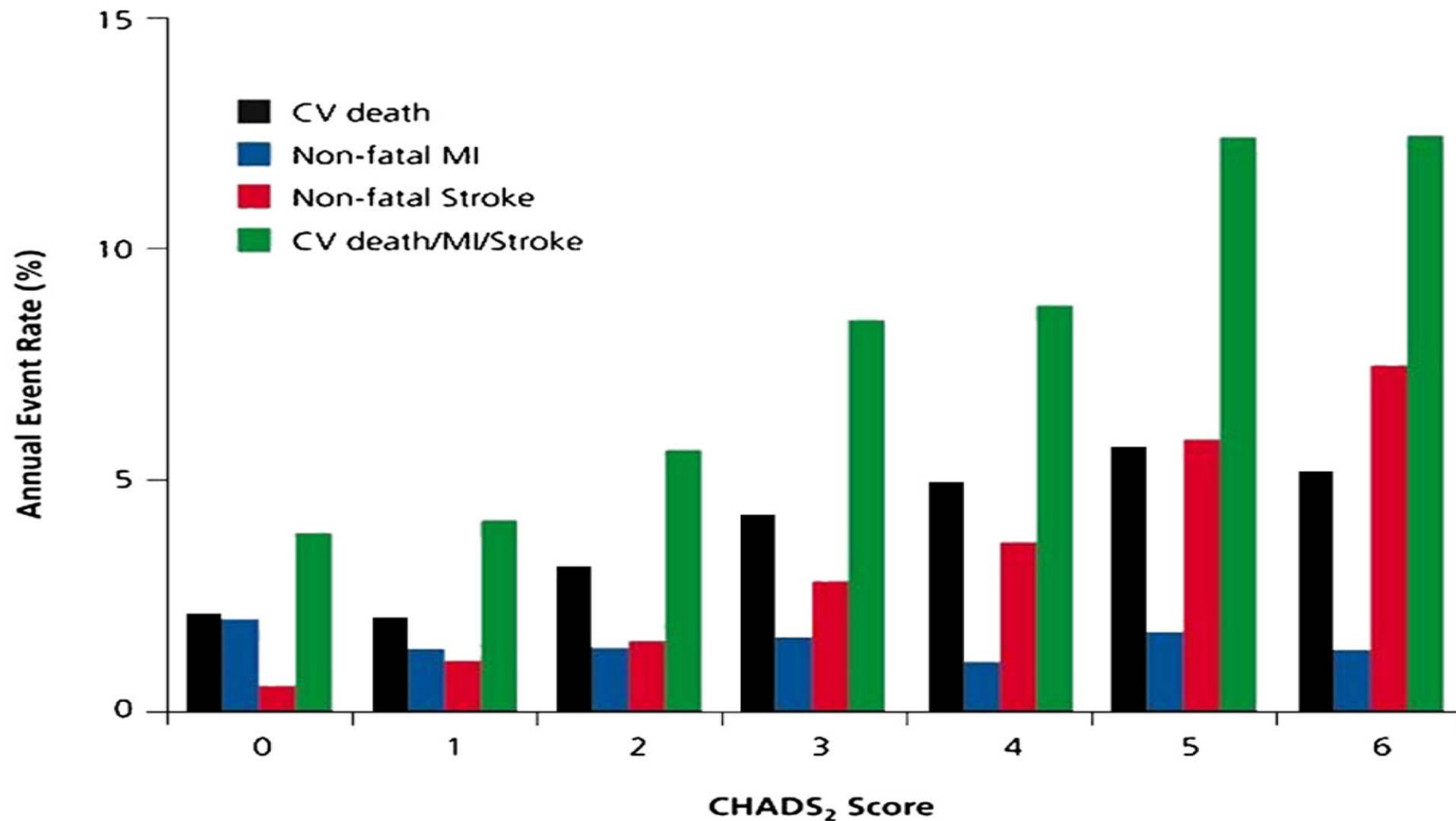
Atrial Fibrillation in CAD :

Incidence of CV death/MI and stroke of patients with vs. without history of AF



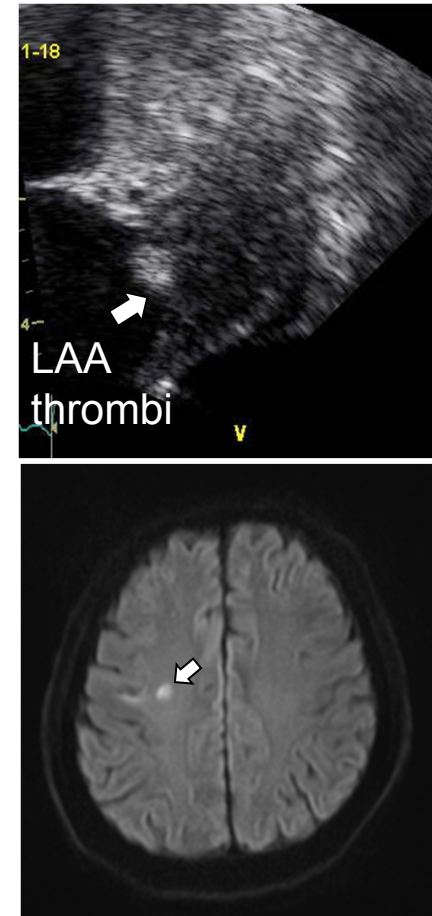
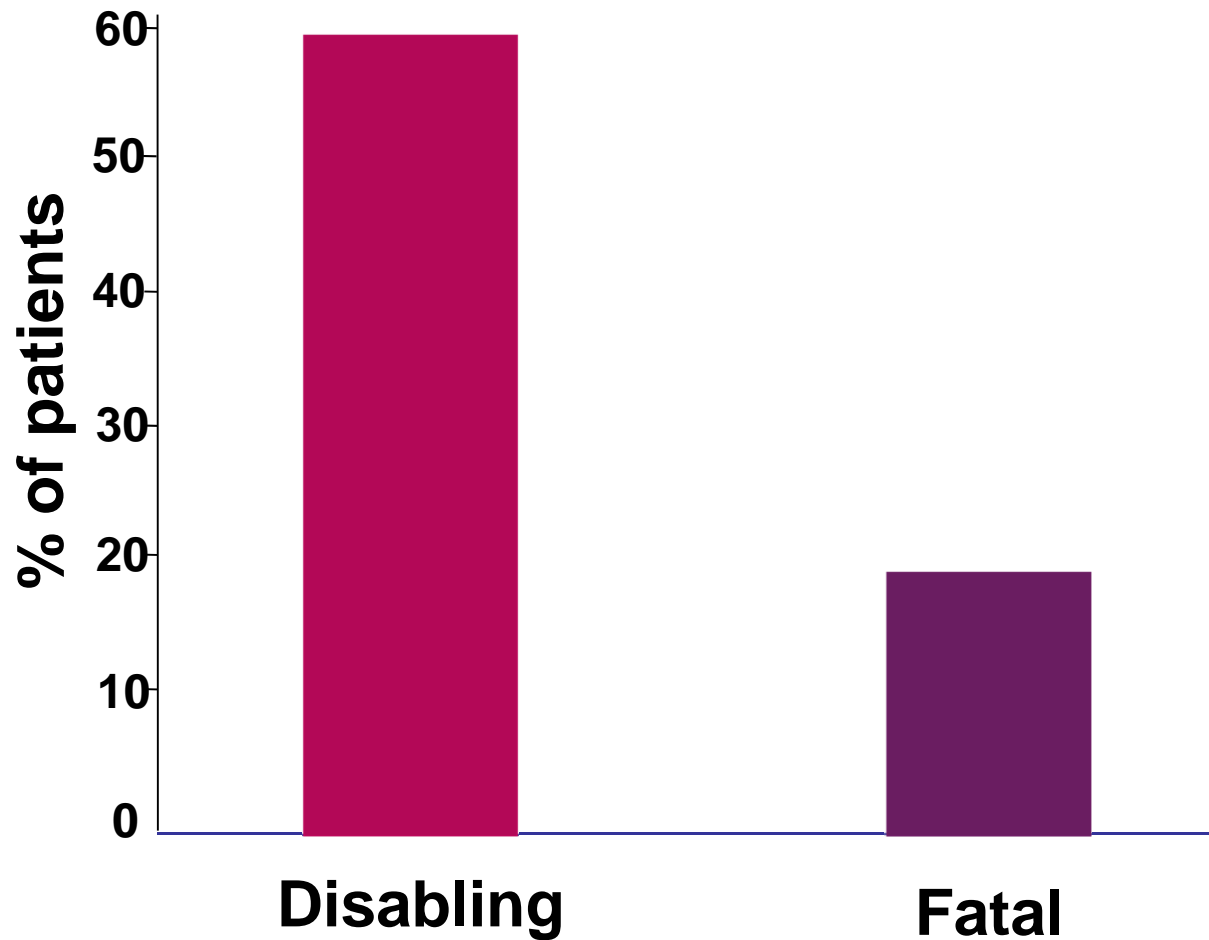
Atrial Fibrillation in CAD :

Annual CV event risk in AF patients with various CHADS₂

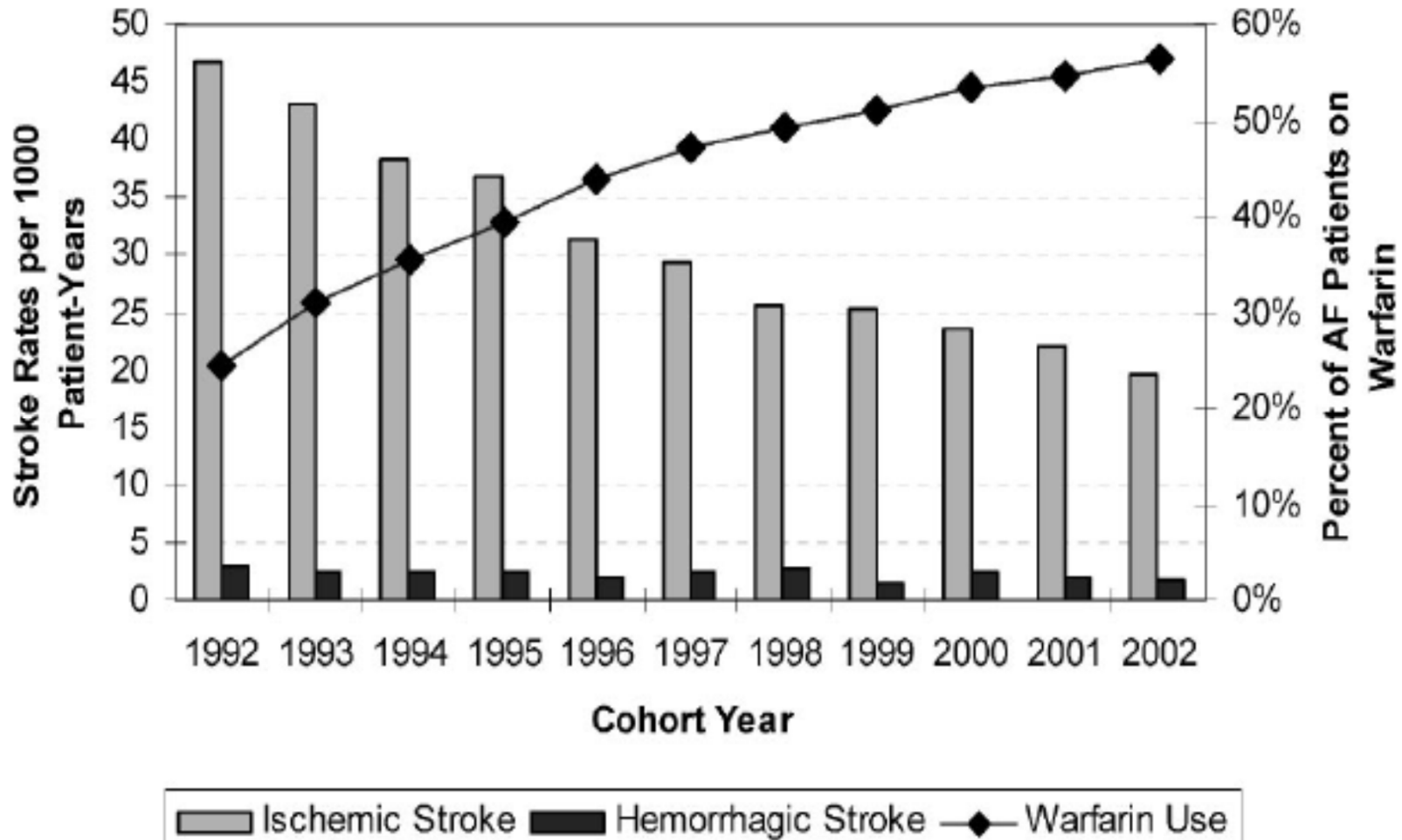


Stroke severity in patients with AF

Effect of first ischemic stroke in patients with AF (n=597)

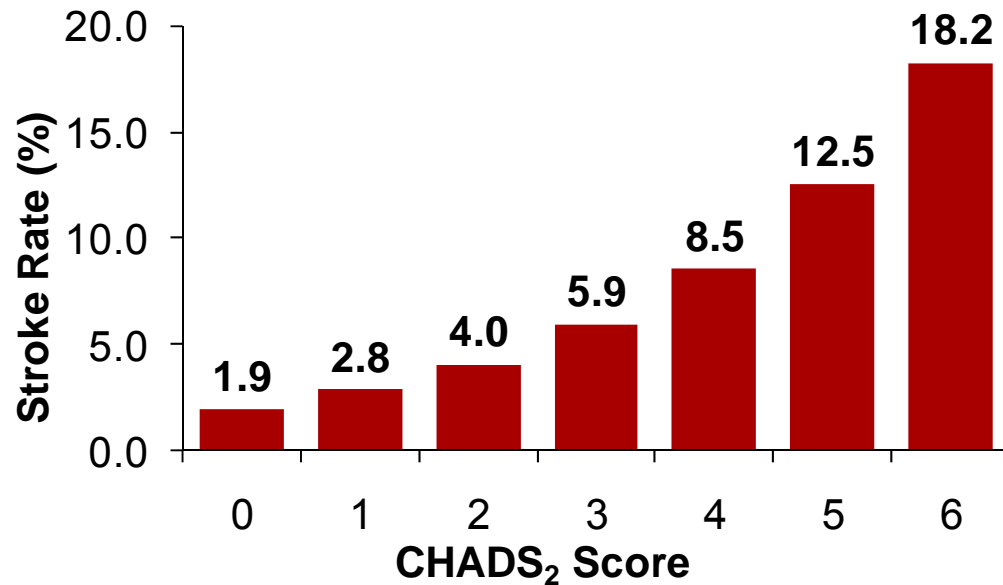


Effects of anticoagulation rates on stroke rates



CHADS₂ Score Defined and Validated to Predict Stroke in Atrial Fibrillation Patients

Risk Factors	Score
C Recent congestive heart failure	1
H Hypertension	1
A Age ≥ 75 years	1
D Diabetes mellitus	1
S₂ History of stroke or transient ischemic attack	2



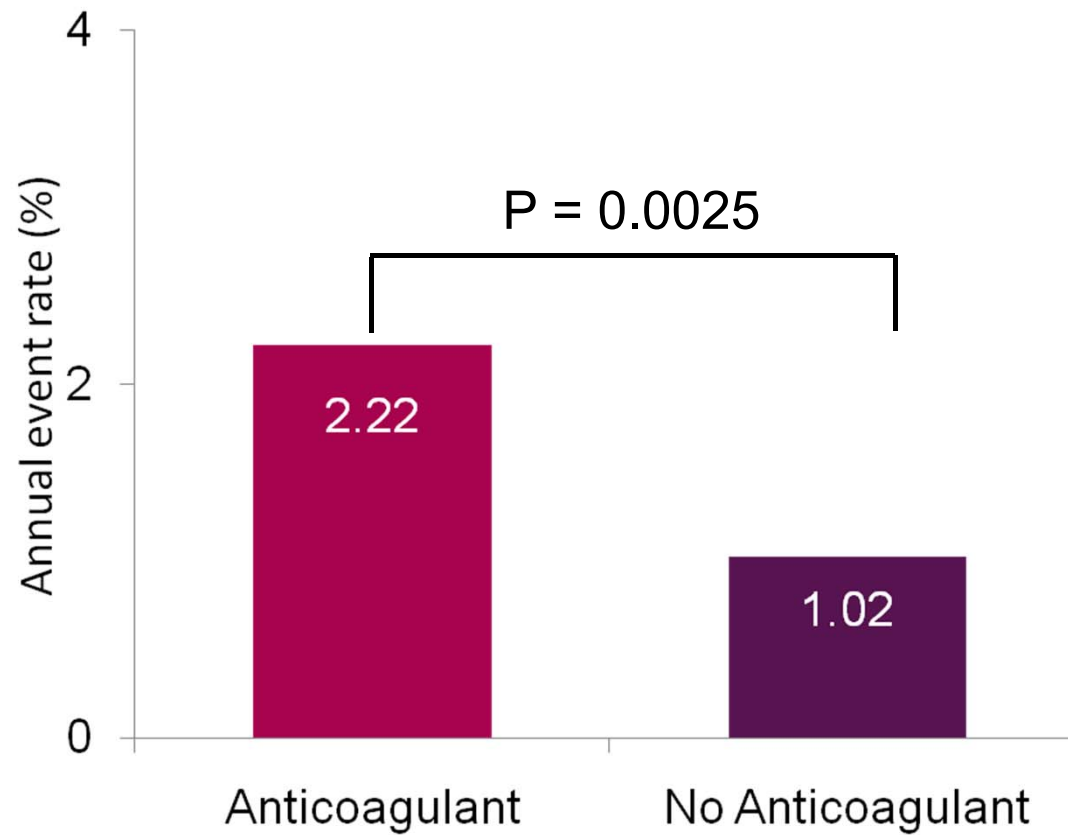
**Score 0 = low risk
ASA only**

**Score 1-2 =
intermediate risk
ASA or warfarin**

**Score 3-6 = high
risk warfarin**

Annual Rate of Serious Bleeding in AF Patients with/without Anticoagulant

4,725 stable CAD outpatients with atrial fibrillation



ICH at left thalamus

Current Issues

- General guidelines are available concerning antithrombotic therapy after PCI—**Dual antiplatelet therapy** significantly reduce the risk of stent thrombosis.
- Approximately **10%** of all patients requiring a PCI have an indication for anticoagulation, most commonly for AF.
- The **optimal nature and duration of the antiplatelet and anticoagulation combination** in AF patients is unknown and poses a serious dilemma since it involves significant risks of **both thrombosis and bleeding**.

Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

- **Dual antiplatelet therapy vs. Warfarin**
- **Dual antiplatelet therapy vs. Aspirin plus Warfarin**
- **Dual antiplatelet therapy vs. Clopidogrel plus Warfarin**
- **Dual antiplatelet therapy vs. Triple therapy**

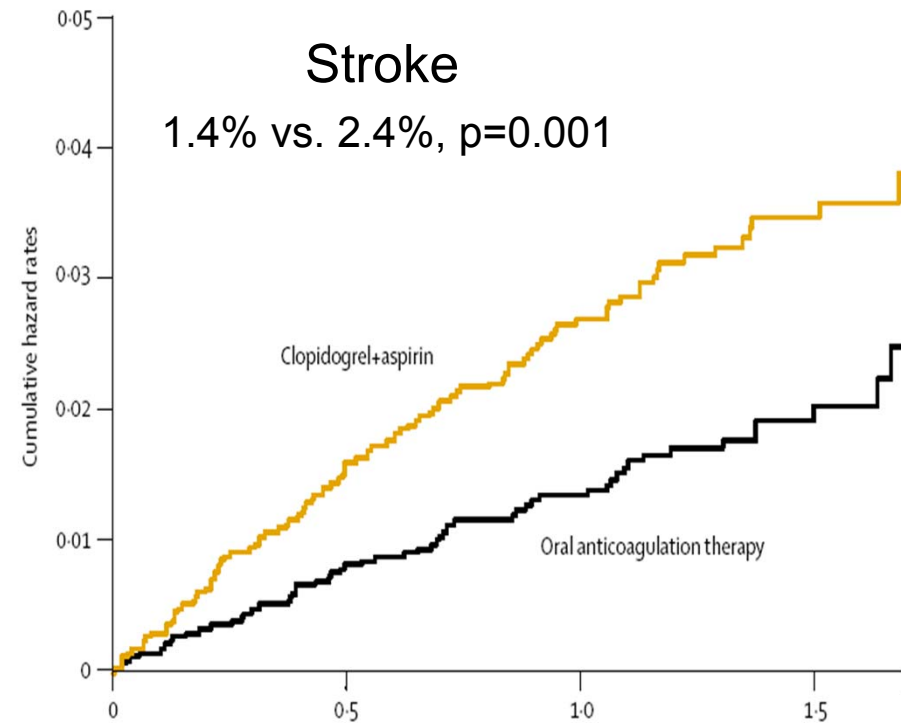
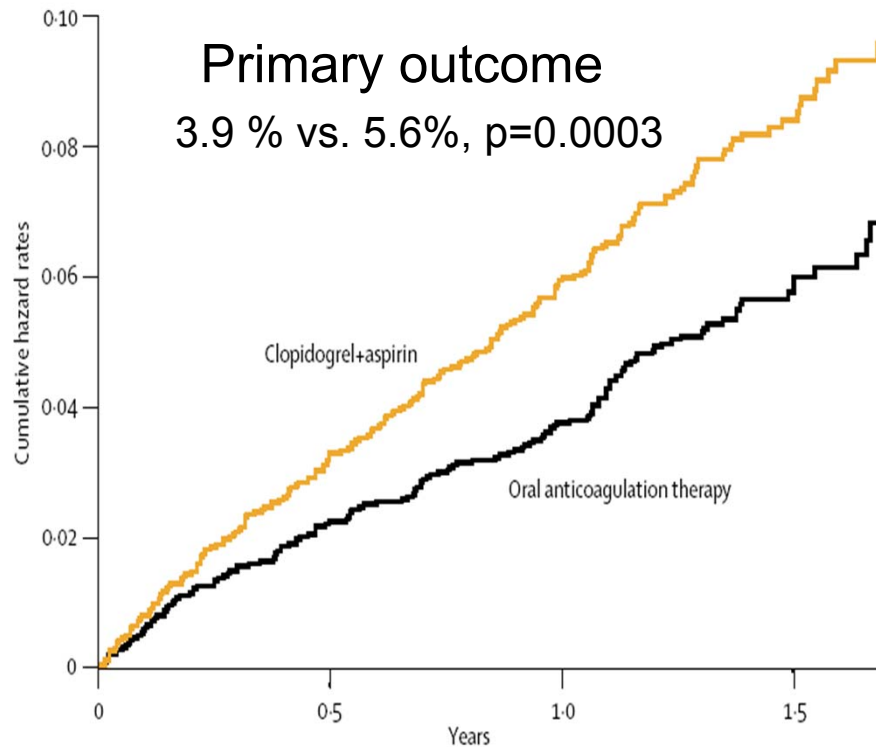
Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

- **Dual antiplatelet therapy vs. Warfarin**
- Dual antiplatelet therapy vs. Aspirin plus Warfarin
- Dual antiplatelet therapy vs. Clopidogrel plus Warfarin
- Dual antiplatelet therapy vs. Triple therapy

ACTIVE-W Trial

Clopidogrel +aspirin vs. warfarin for AF in the AF Clopidogrel Trial with Irbesartan for prevention of Vascular Events (ACTIVE)

Patients who had AF plus one or more risk factor for stroke were randomly allocated to receive clopidogrel (75 mg/day) plus aspirin (n=3335) or warfarin (target INR of 2.0-3.0; n=3371). Primary outcome was first occurrence of stroke, non-CNS systemic embolus, MI, or vascular death.



DAT cannot be recommended as an alternative to OAC in patients with AF who are at moderate-high risk of embolism.

Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

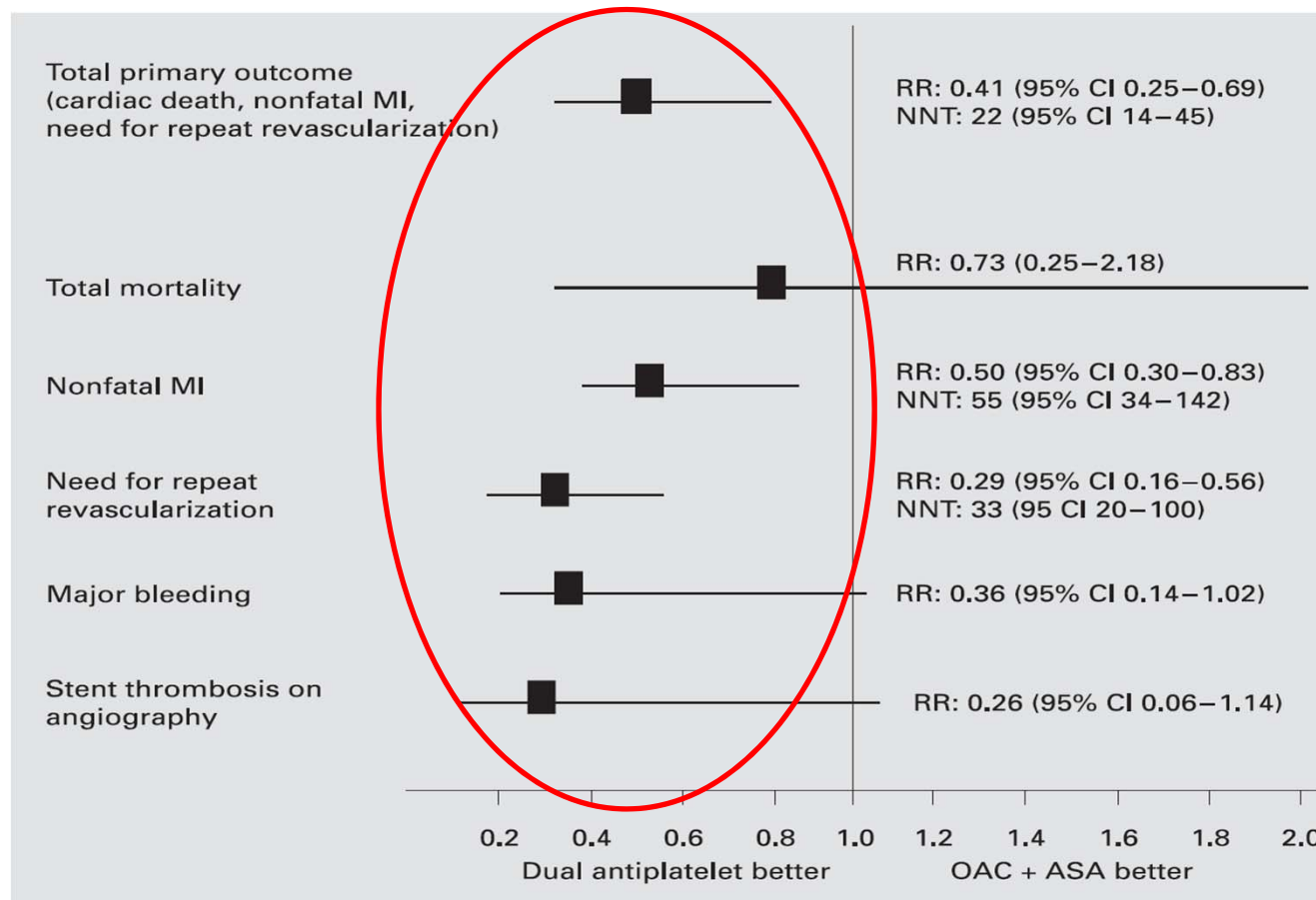
- Dual antiplatelet therapy vs. Warfarin
- **Dual antiplatelet therapy vs. Aspirin plus Warfarin**
- Dual antiplatelet therapy vs. Clopidogrel plus Warfarin
- Dual antiplatelet therapy vs. Triple therapy

In four clinical trials, randomised patients who underwent coronary stenting to either oral Anticoagulation and Aspirin or Dual Antiplatelet

	ISAR	FANTASTIC	STARS	MATTIS
N	257	473	1653	350
Follow-up	30d	6 weeks	30d	30d
Primary endpoint	Death+MI+ CABG+re-PCI	Bleeding	Death+MI+ TVR+stent thrombosis	Death+MI+re-PCI
Primary endpoint: DAT vs aspirin + warfarin	1.6% vs 6.2%, (p=0.01)	13.5% vs 21.0% (p=0.03)	2.7% vs 0.5% (p=0.001)	5.6% vs 11.0% (p=0.07)
Bleeding (DAT vs aspirin + warfarin)	0 vs 6.5% (P<0.0001)	see above	5.5% vs 6.2%	1.7% vs 6.9% (p=0.02)
Stent thrombosis (DAT vs aspirin + warfarin)	0 vs 5.0% (P<0.0001)	2.8% vs 3.9% (p=0.58)	0.5% vs 2.7% (p=0.005)	NA

Circulation 1998;98:1597-603, N Engl J Med 1998;339:1665-71
 N Engl J Med 1996; 334:1084-9, Circulation 1998;98:2126-32

Meta-Analysis of Trials Comparing Oral Anticoagulation and Aspirin vs. Dual Antiplatelet Therapy after Stenting



DAT is superior to the combination of aspirin and warfarin in reducing ischaemic endpoints, stent thrombosis and major bleeding, as judged within 4-6 weeks.

Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

- Dual antiplatelet therapy vs. Warfarin
- Dual antiplatelet therapy vs. Aspirin plus Warfarin
- **Dual antiplatelet therapy vs. Clopidogrel plus Warfarin**
- Dual antiplatelet therapy vs. Triple therapy

Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

- Dual antiplatelet therapy vs. Warfarin
- Dual antiplatelet therapy vs. Aspirin plus Warfarin
- **Dual antiplatelet therapy vs. Clopidogrel plus Warfarin ?**
- Dual antiplatelet therapy vs. Triple therapy

Antithrombotic and Anticoagulation Therapy after Stent implantation in Patient with Atrial fibrillation

- Dual antiplatelet therapy vs. Warfarin
- Dual antiplatelet therapy vs. Aspirin plus Warfarin
- Dual antiplatelet therapy vs. Clopidogrel plus Warfarin
- **Dual antiplatelet therapy vs. Triple therapy**

Safety of triple therapy after coronary stent placement in patients with an indication for anticoagulation

Background Dual antiplatelet therapy with aspirin and clopidogrel has replaced aspirin and systemic anticoagulation with warfarin as the preferred antithrombotic therapy after percutaneous coronary intervention (PCI) with stent placement. However, a number of patients have indications for all 3 drugs. We sought to determine the frequency and type of hemorrhagic complications in patients who undergo systemic anticoagulation with warfarin while receiving aspirin and clopidogrel after a PCI with stent placement.

Methods We performed a retrospective analysis of the Mayo Clinic PCI database and identified 66 consecutive patients who were discharged from hospital after PCI between January 2000 and August 2002 (inclusive) receiving a combination of dual antiplatelet therapy (aspirin and clopidogrel) and systemic anticoagulation (warfarin) to determine the incidence of bleeding and other clinical events during the treatment period.

Results Six patients (9.2%; 95% CI, 3.5–19.0) reported a bleeding event; 2 patients required a blood transfusion. No patient died or sustained a myocardial infarction or stent thrombosis.

Conclusions The risk of bleeding may be increased in patients treated with aspirin, a thienopyridine, and warfarin early after PCI with stent placement. (Am Heart J 2004;147:463–7.)

Triple therapy for Acute Coronary Syndromes

To determine the incidence, complications, and outcomes of TT. We analyzed Israeli surveys of ACS from 2000 to 2004. In these surveys, **5,706** (96%) were discharged alive from hospital. Post-ACS TT and DT were **76** patients (1.3%) and **2,661** patients (46.7%), respectively.

	DT (n = 2,661)		TT (n = 76)		p
	n	%	n	%	
<i>Mechanical complications</i>					
Free wall rupture	2	0.1	0	0.0	0.81
Tamponade	2	0.1	0	0.0	0.81
VSD	1	0.0	0	0.0	0.86
Acute severe MR	27	1.0	3	3.9	0.02
<i>Tachyarrhythmias</i>					
PAF	102	3.8	10	13.2	<0.0001
Sustained VT	40	1.5	5	6.6	0.0006
Primary VF	67	2.5	4	5.3	0.14
Secondary VF	9	0.3	2	2.6	0.002
<i>Others</i>					
CHF	228	8.6	13	17.1	0.009
Pulmonary edema	133	5.0	8	10.5	0.03
Cardiogenic shock	36	1.4	7	9.2	<0.0001
Re-MI	45	1.7	5	6.6	0.002
Re-ischemia	206	7.7	9	11.8	0.19
Stroke	12	0.5	1	1.3	0.28
TIA	3	0.1	0	0.0	0.77
Renal failure	133	5.0	5	6.6	0.53
Thrombocytopenia	17	0.6	1	1.3	0.47
Major bleeding	16	0.6	2	2.6	0.03

- Upon adjustment for different confounders, the 30-day and 6-month mortality rates were not significantly different, with an odds ratio of 0.44 (0.14–1.90) and 0.63 (0.26–1.78), respectively, for DT vs. TT.
- TAT is associated with a higher risk of bleeding than DAT but the risk is acceptable and is not associated with increased mortality.

Evaluation of Safety of Triple therapy for Patients Treated with Coronary Stents for AMI

We performed a retrospective analysis comparing patients who underwent successful coronary stenting for acute MI and were discharged on either **warfarin and combination platelet therapy** for clinical indications or **combination antiplatelet therapy alone**.

Six-Month and 12-Month Outcomes

	Warfarin/AP (N = 40)	Antiplatelet Group (N = 42)	P Value
Six-month outcomes			
Reinfarction	21%	7%	0.16
Death	0%	0%	
CVA	0%	7%	0.21
GI bleeding	9%	0%	0.24
Transfusion	12.5%	3.5%	0.36
Cumulative 12-month outcomes			
Reinfarction	29%	9%	0.15
Death	3%	0%	0.48
CVA	0%	7%	0.21
GI bleeding	15%	0%	0.12
Tranfusion	21%	3.5%	0.028

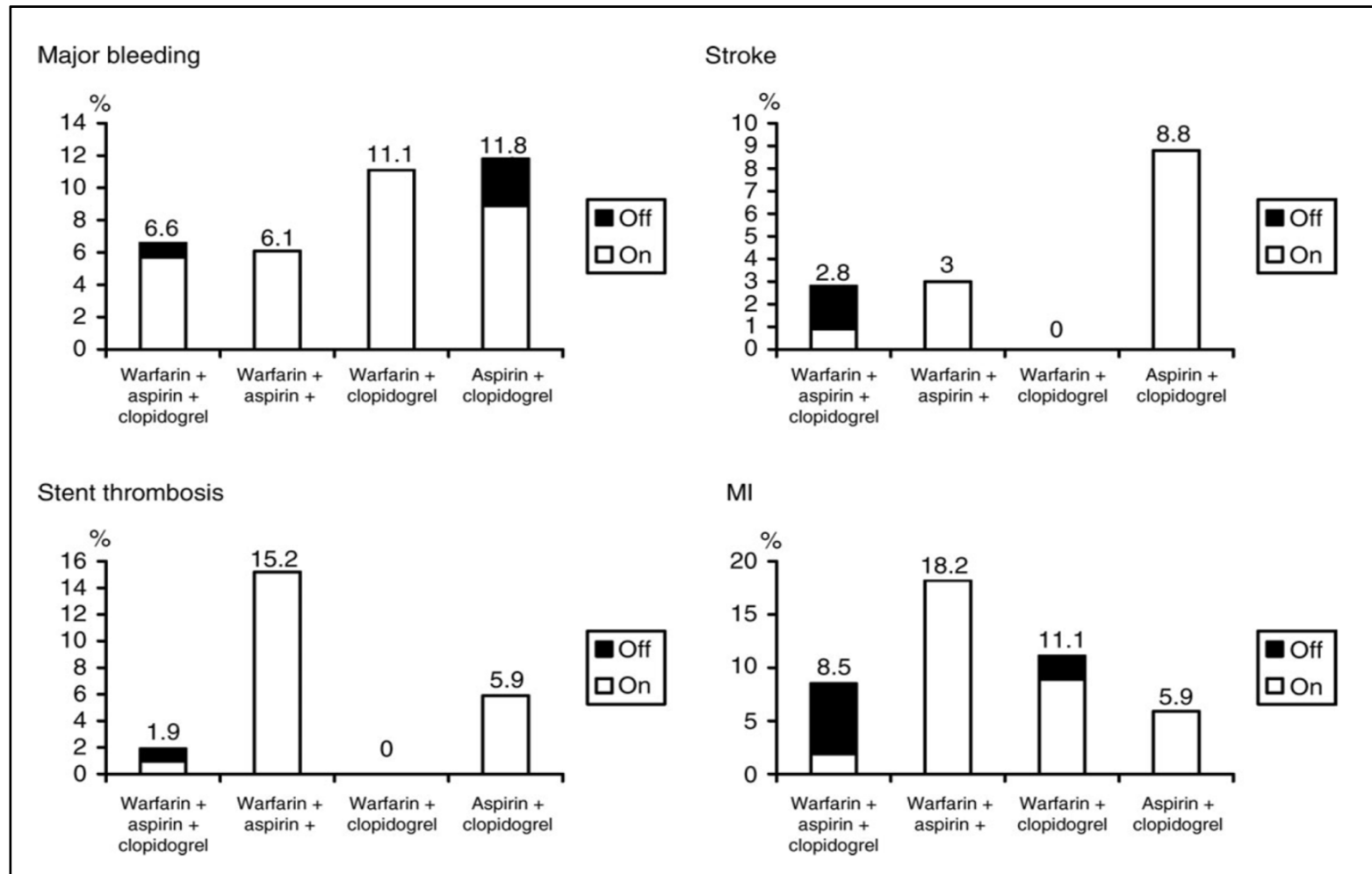
Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting

We analyzed retrospectively all consecutive patients on warfarin therapy (**n=219**) who underwent PCI in six hospitals. PE was defined as the occurrence of death, MI, TVR, or stent thrombosis at 12 months.

Antithrombotic regimens adopted in stented patients after PCI

	Warfarin patients (<i>n</i> = 219)
Aspirin + clopidogrel, <i>n</i> (%)	34 (15.5)
Warfarin + aspirin + clopidogrel, <i>n</i> (%)	106 (48.4)
Warfarin + aspirin, <i>n</i> (%)	33 (15.1)
Warfarin + clopidogrel, <i>n</i> (%)	45 (20.5)
Warfarin monotherapy, <i>n</i> (%)	1 (0.5)
Clopidogrel monotherapy, <i>n</i> (%)	0 (0)
Aspirin monotherapy, <i>n</i> (%)	0 (0)

Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting : Complications during 12-month follow-up with various drug regimens adopted after stenting in warfarin group

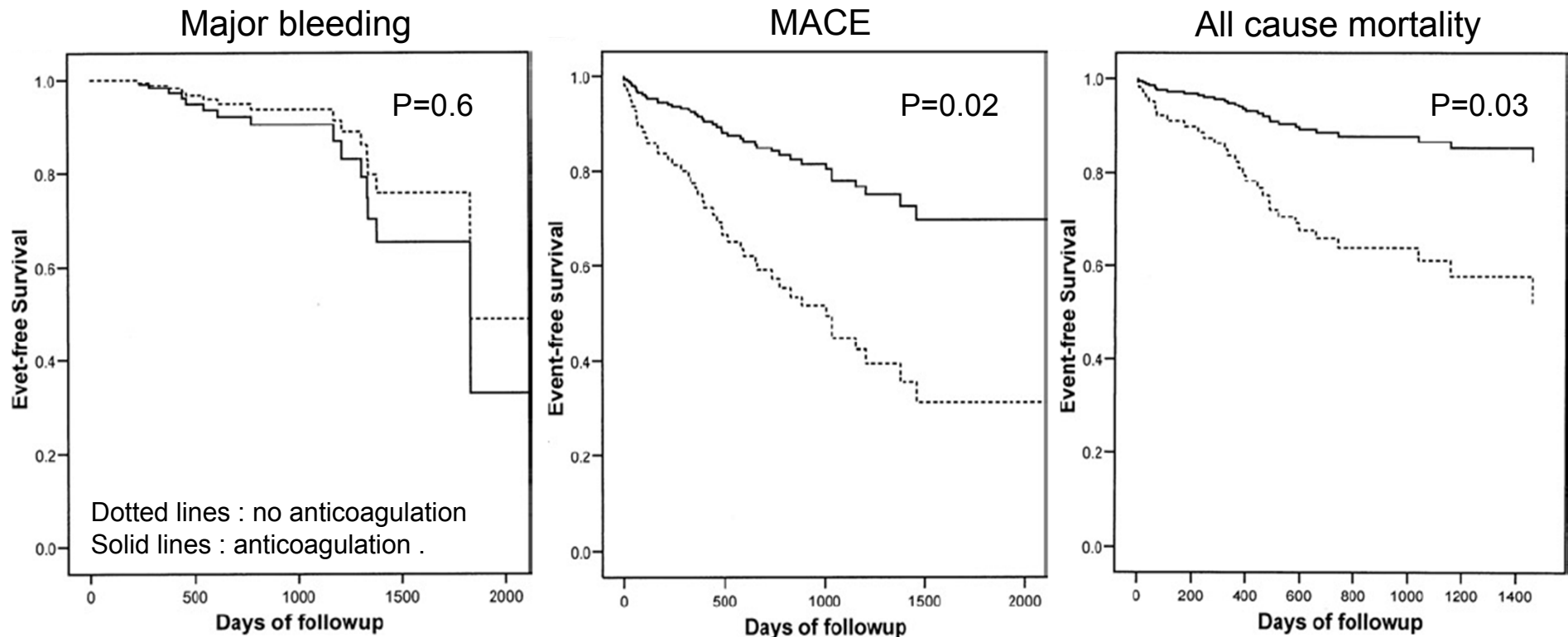


Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting

- AF patients who have an indication for OAC are a much **higher risk** group than those who do not: Mortality at 12 months was 8.7 vs. 1.8%,(p=0.003).
- Major bleeding occurs in 6-12% of patients and does not seem to be increased by TAT as compared to other combinations.
- The risk of **stroke** is markedly elevated in the absence of **warfarin**.
- The risk of **ST and MI** is markedly elevated in the absence of **clopidogrel**.
- The combination of clopidogrel plus warfarin compares reasonably well with either aspirin plus clopidogrel or warfarin plus aspirin.

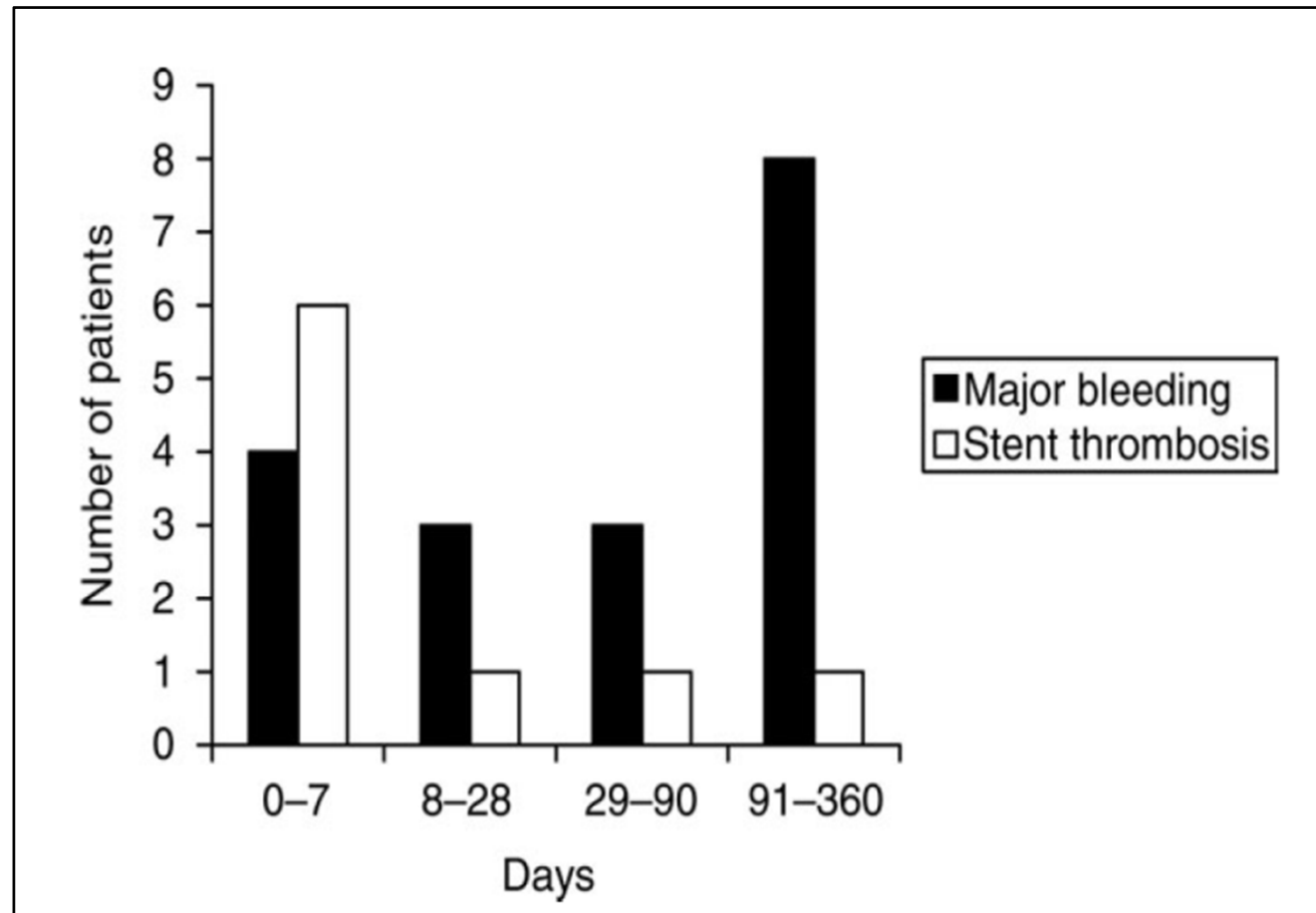
Anticoagulant and Antiplatelet Therapy Use in 426 Patients With AF Undergoing PCI and Stent Implantation

We reviewed **426** patients with AF undergoing PCI with stenting. Of the drugs prescribed at discharge, **aspirin plus clopidogrel** were used in **174** patients (40.8%), whereas **213** patients (50%) were discharged with **triple therapy** (coumadins, aspirin, and clopidogrel). Clinical follow-up was performed, and all bleeding episodes, thromboembolism, and MACE were recorded.



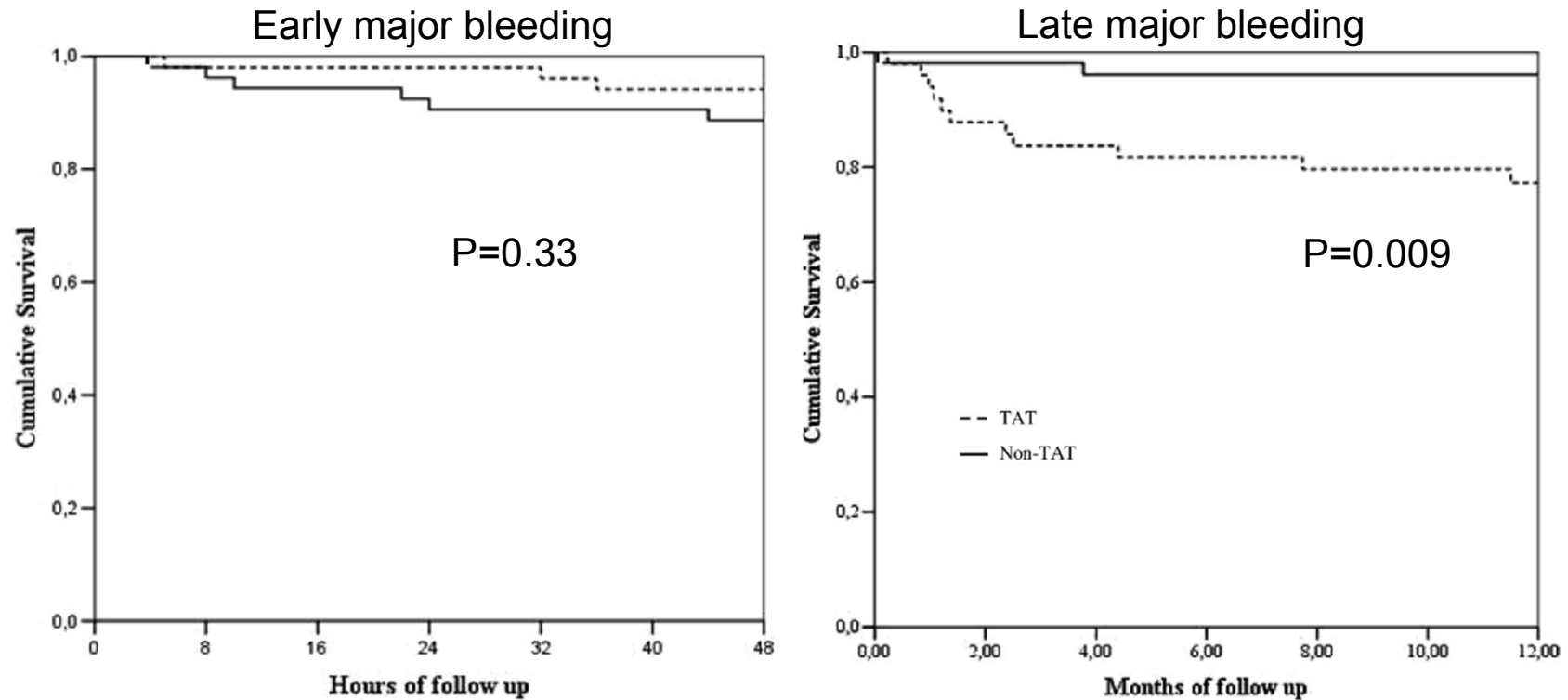
Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting :

Timing of major bleeding events and stent thrombosis during follow-up



Increased Major Bleeding Complications Related to Triple Antithrombotic Therapy Usage in Patients With AF Undergoing PCI with Stent

We studied consecutive AF patients with indication for OAC who underwent PCI-S. We compared patients that received triple antithrombotic therapy (TT) [aspirin, clopidogrel, and coumadin] against other regimes (non-TT) after PCI-S. The primary end point was defined as the occurrence of major bleeding complications that were termed as **early major bleeding (EMB)** [< 48 h] or **late major bleeding (LMB)** [> 48 h].



Minimizing the risk of bleeding

Systematic review of published data on anticoagulated AF patients with ACS and/or undergoing PCI/stenting

- ‘Triple therapy’ using an oral anticoagulant and dual platelet inhibition (most often aspirin and clopidogrel, in the earlier studies also aspirin plus ticlopidine)
- OAC when compared with non-anticoagulated patients
- Use of a GPIIb/IIIa inhibitor
- Left main or three-vessel disease
- Older age (e.g. >75 years)
- Female gender
- Smoking
- Chronic kidney disease
- A high INR value (>2.6).

Clinical characteristics comprising the HAS-BLED bleeding risk score

Letter	Clinical characteristic ^a	Points awarded
H	Hypertension	1
A	Abnormal renal and liver function (1 point each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INRs	1
E	Elderly (e.g. age >65 years)	1
D	Drugs or alcohol (1 point each)	1 or 2
		Maximum 9 points

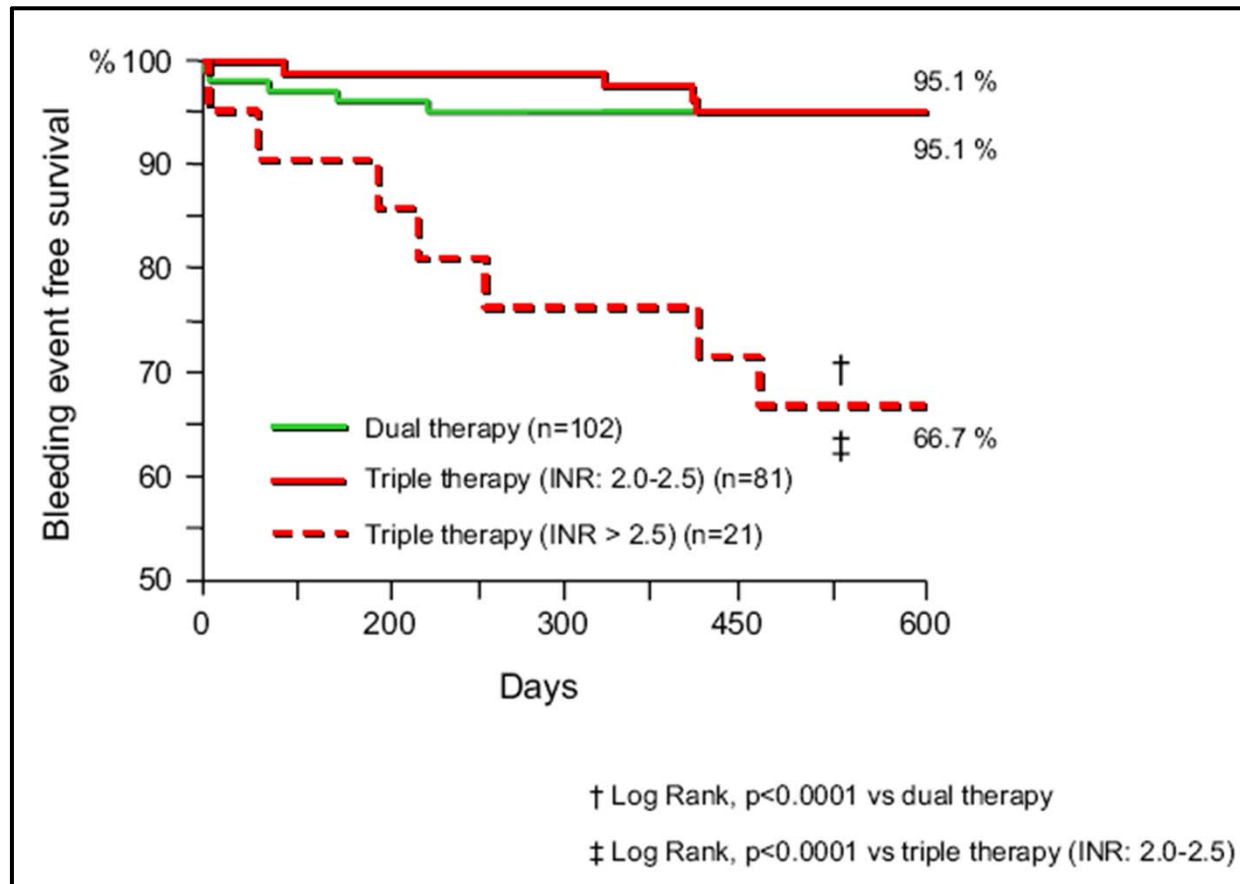
A HAS-BLED score of ≥ 3 indicates 'high risk', and some caution and regular review of the patient is needed following the initiation of antithrombotic therapy, whether with VKA or aspirin.

What to do in patients who need stenting at high risk of bleeding

- Use radial access than femoral one
 - Elimination of the risk of puncture site bleeding
 - Minimize discontinuation of anticoagulation
- BMS rather than DES
 - Medium- to long-term triple therapy should be avoided.
 - DES : long lesions, small vessels, diabetes
- When OAC is given in combination with clopidogrel and aspirin, the dose intensity must be carefully regulated, with a target INR of 2.0–2.5.

Long-Term Outcomes in Patients Undergoing Coronary Stenting on Dual Antiplatelet Tx

Requiring OAC : Cumulative event-free survival from overall bleeding in patients who were on dual therapy, on triple therapy within targeted INR values and those who were not



Recommendations

Recommended antithrombotic strategies following PCI in patients with AF at moderate-to-high thrombo-embolic risk

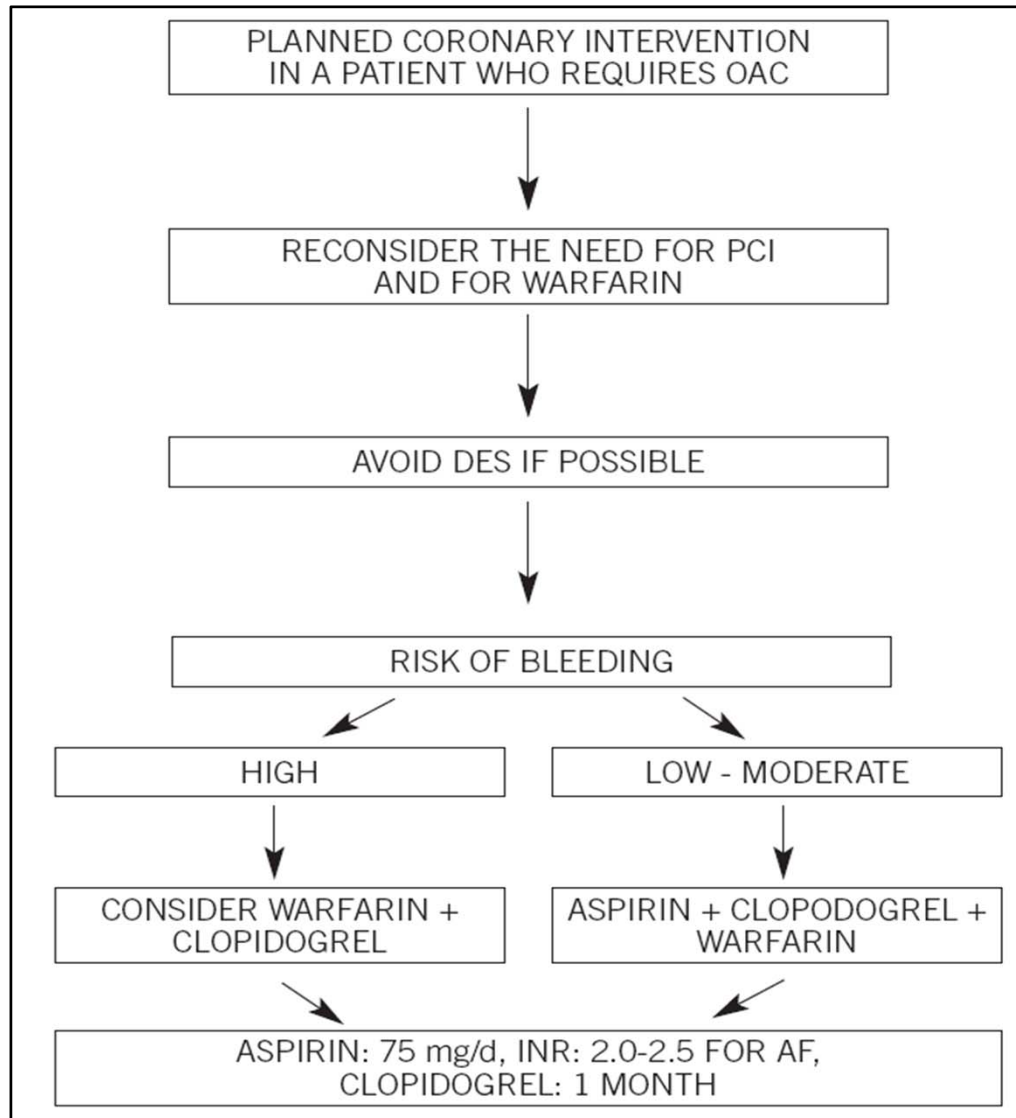
Haemorrhagic risk	Clinical setting	Stent implanted	Anticoagulation regimen
Low or intermediate (e.g. HAS-BLED score 0–2)	Elective	Bare-metal	<u>1 month</u> : triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day <u>Up to 12th month</u> : combination of VKA (INR 2.0–2.5) + clopidogrel 75 mg/day ^b (or aspirin 100 mg/day) <u>Lifelong</u> : VKA (INR 2.0–3.0) alone
	Elective	Drug-eluting	<u>3 (-olimus^a group) to 6 (paclitaxel) months</u> : triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day <u>Up to 12th month</u> : combination of VKA (INR 2.0–2.5) + clopidogrel 75 mg/day ^b (or aspirin 100 mg/day) <u>Lifelong</u> : VKA (INR 2.0–3.0) alone
	ACS	Bare-metal/ drug-eluting	<u>6 months</u> : triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day <u>Up to 12th month</u> : combination of VKA (INR 2.0–2.5) + clopidogrel 75 mg/day ^b (or aspirin 100 mg/day) <u>Lifelong</u> : VKA (INR 2.0–3.0) alone
High (e.g. HAS-BLED score ≥3)	Elective	Bare-metal ^c	<u>2–4 weeks</u> : triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day <u>Lifelong</u> : VKA (INR 2.0–3.0) alone
	ACS	Bare-metal ^c	<u>4 weeks</u> : triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day <u>Up to 12th month</u> : combination of VKA (INR 2.0–2.5) + clopidogrel 75 mg/day ^b (or aspirin 100 mg/day) <u>Lifelong</u> : VKA (INR 2.0–3.0) alone

Conclusions

- Dual antiplatelet therapy is standard treatment following coronary stent implantation.
- An important minority of patients also require chronic anticoagulation, most commonly for atrial fibrillation.
- There are no prospective trials to guide the selection of therapy in this situation.
- In patients whom both coronary stenting and anticoagulation are considered necessary after careful consideration, DES should be avoided as much as possible.
- Triple therapy with aspirin, clopidogrel and warfarin for one month, followed by the combination of aspirin/warfarin or clopidogrel/warfarin for life is the most reasonable approach.
- Randomized prospective trials are needed to actually prove the benefit or to improve the current strategy.

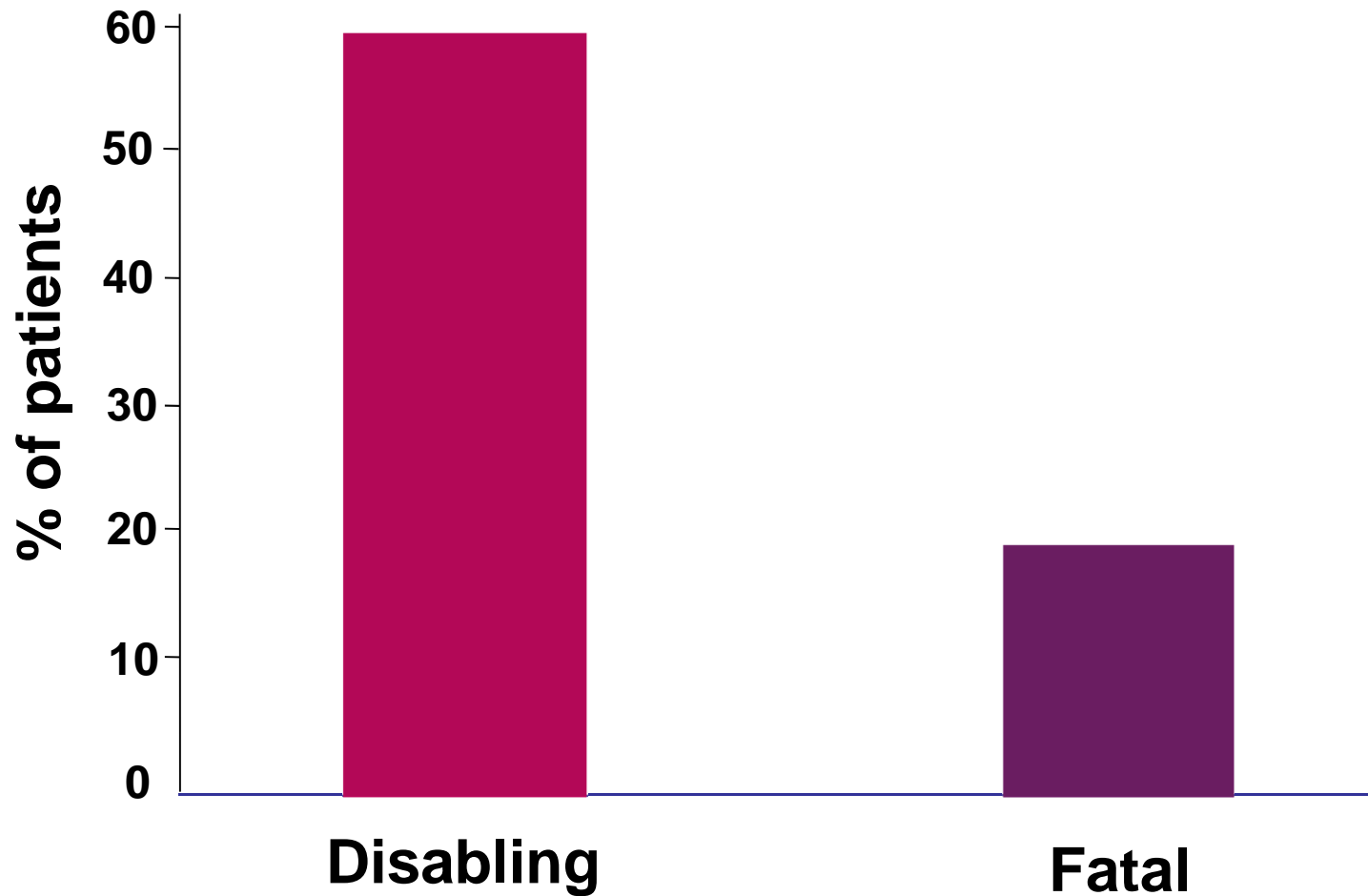
Thank you for attention !

A algorithm for the management of patients who have required coronary stenting and have an indication for OAC



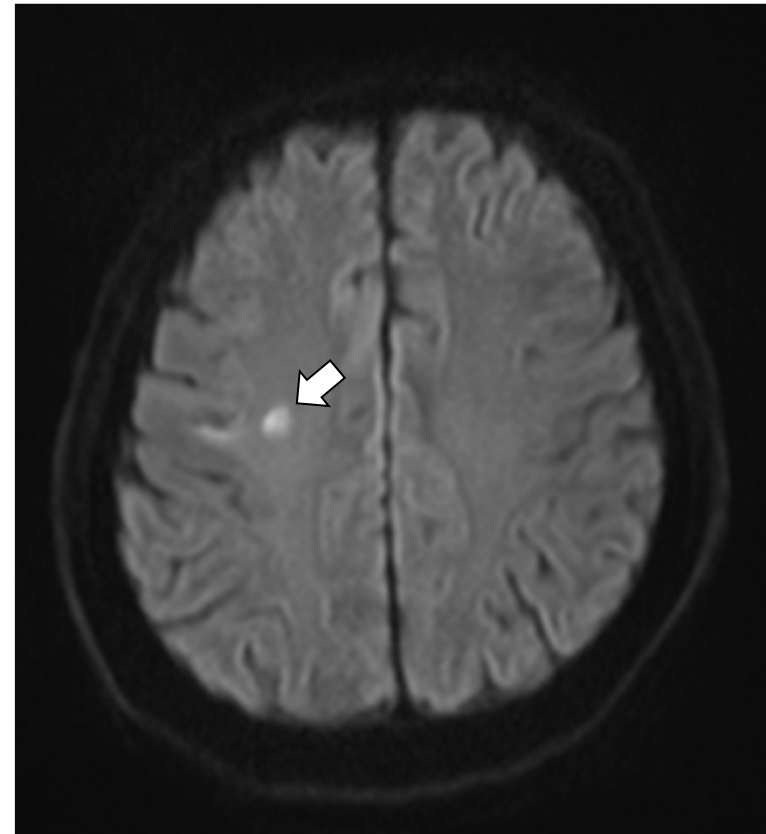
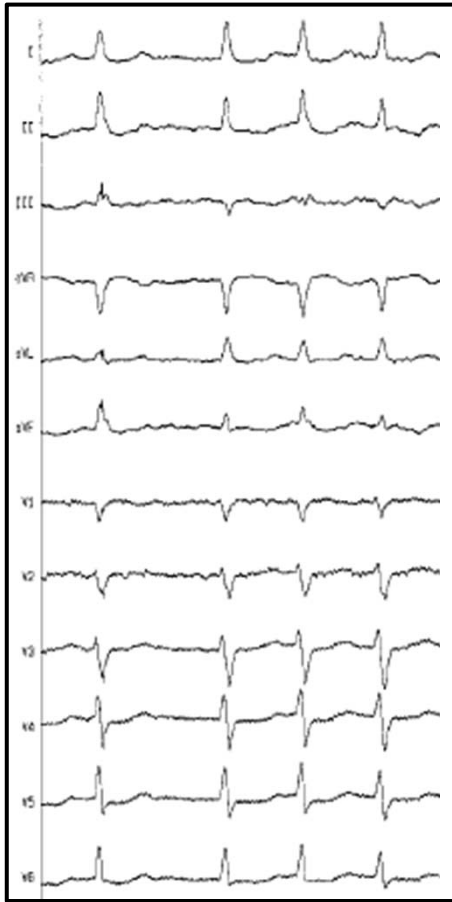
Stroke severity in patients with AF

Effect of first ischemic stroke in patients with AF (n=597)



Atrial fibrillation and Stroke

M/55, ACS, Hypertension, DM



Conclusions

- AF is the most common indication for OAC in patients who undergoing stenting.
- Patients undergoing PCI, in whom OAC is indicated, present a unique challenge in the selection of antithrombotic therapy.
- In the absence of meaningful randomized data, antithrombotic therapy should probably be individualized, weighing the risk of bleeding, embolic, and ischemic complications.
- Patients who have less than two moderate risk factors may be managed with aspirin. If a decision has been made to use OAC in a patient who is on TAT special care should be taken to maintain the INR at the lowest effective range, typically 2.0-2.5 for patients with atrial fibrillation.
- Randomized prospective trials are needed to actually prove the benefit or to improve the current strategy.

Combining warfarin and antiplatelet therapy after coronary stenting in the Global Registry of Acute Coronary Events: is it safe and effective to use just one antiplatelet agent?

We analysed data from **800** patients with an ACS who underwent coronary stenting (130 patients received a DES) and were discharged on warfarin and either dual (**n=580**) or single (**n=220**) antiplatelet therapy.

Hospital events

Event n (%)	Combination discharge therapy		P-value
	Warfarin/dual antiplatelet (n = 580)	Warfarin/single antiplatelet (n = 220)	
Cardiogenic shock	33 (5.7)	17 (7.7)	0.27
Myocardial infarction >24 h/re-infarction	48 (8.3)	26 (12)	0.12
Recurrent ischaemic symptoms	164 (28)	57 (26)	0.49
Atrial fibrillation/flutter	127 (22)	66 (30)	0.01
Stroke	6 (1.0)	7 (3.2)	0.05
Congestive heart failure	128 (22)	65 (30)	0.02
Major bleeding	34 (5.9)	10 (4.6)	0.46

Six-month outcomes

	Warfarin/dual antiplatelet	Warfarin/single antiplatelet	P-value
Overall cohort n (%)			
Death	23/453 (5.1)	12/184 (6.5)	0.47
Stroke	3/426 (0.7)	6/179 (3.4)	0.02 ^a
Unscheduled PCI	45/424 (10.6)	22/176 (12.5)	0.50
Myocardial infarction	13/391 (3.3)	7/154 (4.5)	0.49
Cohort with atrial fibrillation n (%)			
Death	9/156 (5.8)	7/75 (9.3)	0.32
Stroke	0/148 (0)	1/71 (1.4)	0.32
Unscheduled PCI	13/148 (8.8)	7/68 (10.3)	0.72
Myocardial infarction	3/138 (2.2)	2/61 (3.3)	0.64
Aspirin vs. thienopyridine n (%)	Warfarin/aspirin (n = 107)	Warfarin/thienopyridine (n = 113)	
Death	7/91 (7.7)	5/93 (5.4)	0.52
Stroke	4/88 (4.5)	2/91 (2.2)	0.44
Myocardial infarction	3/75 (4.0)	4/79 (5.1)	1.00
Unscheduled PCI	15/87 (17.2)	7/89 (7.9)	0.06

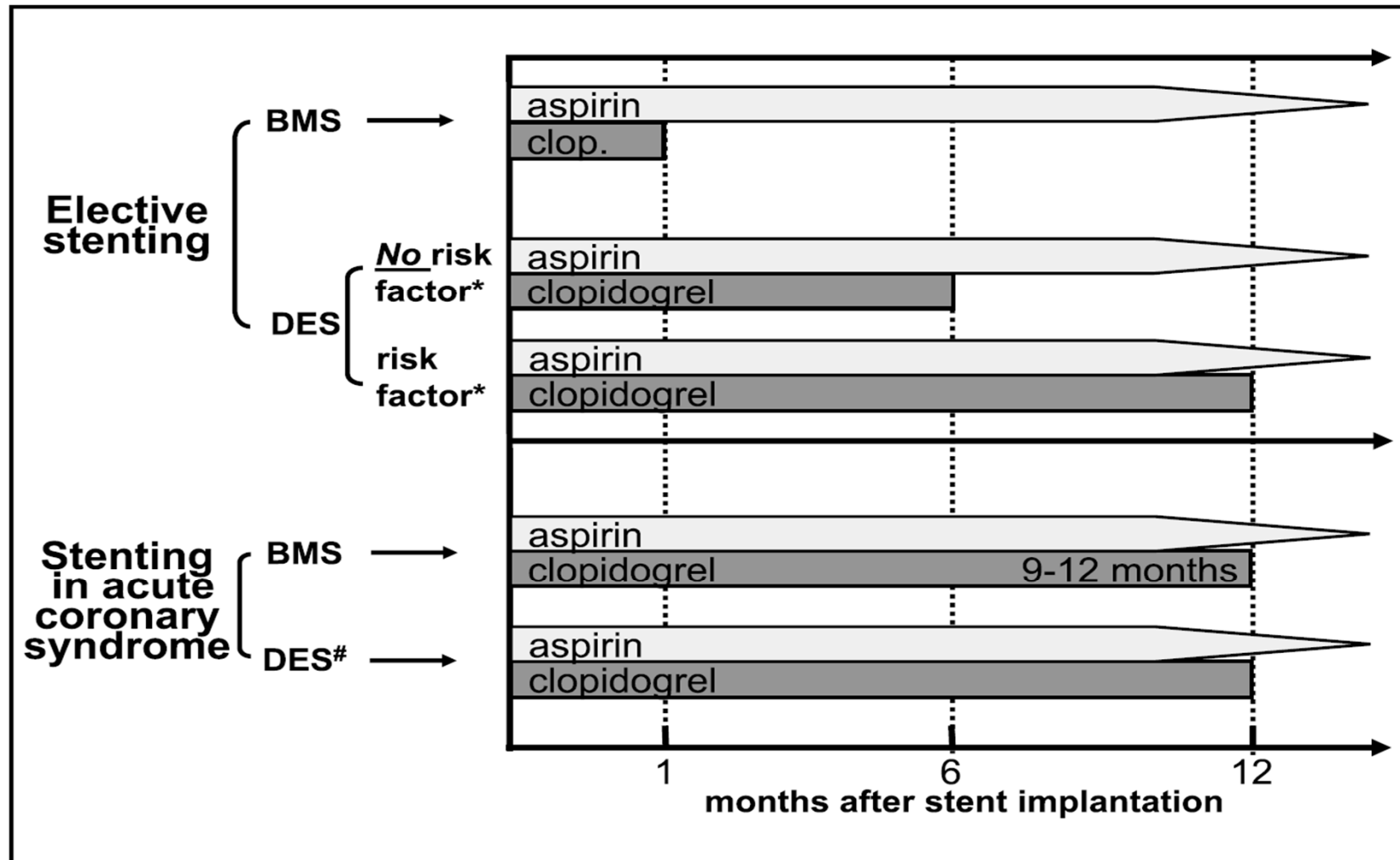
A regimen of warfarin + a single antiplatelet agent (either aspirin or a thienopyridine) may be reasonable in patients who require OAC following coronary stenting.

Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting

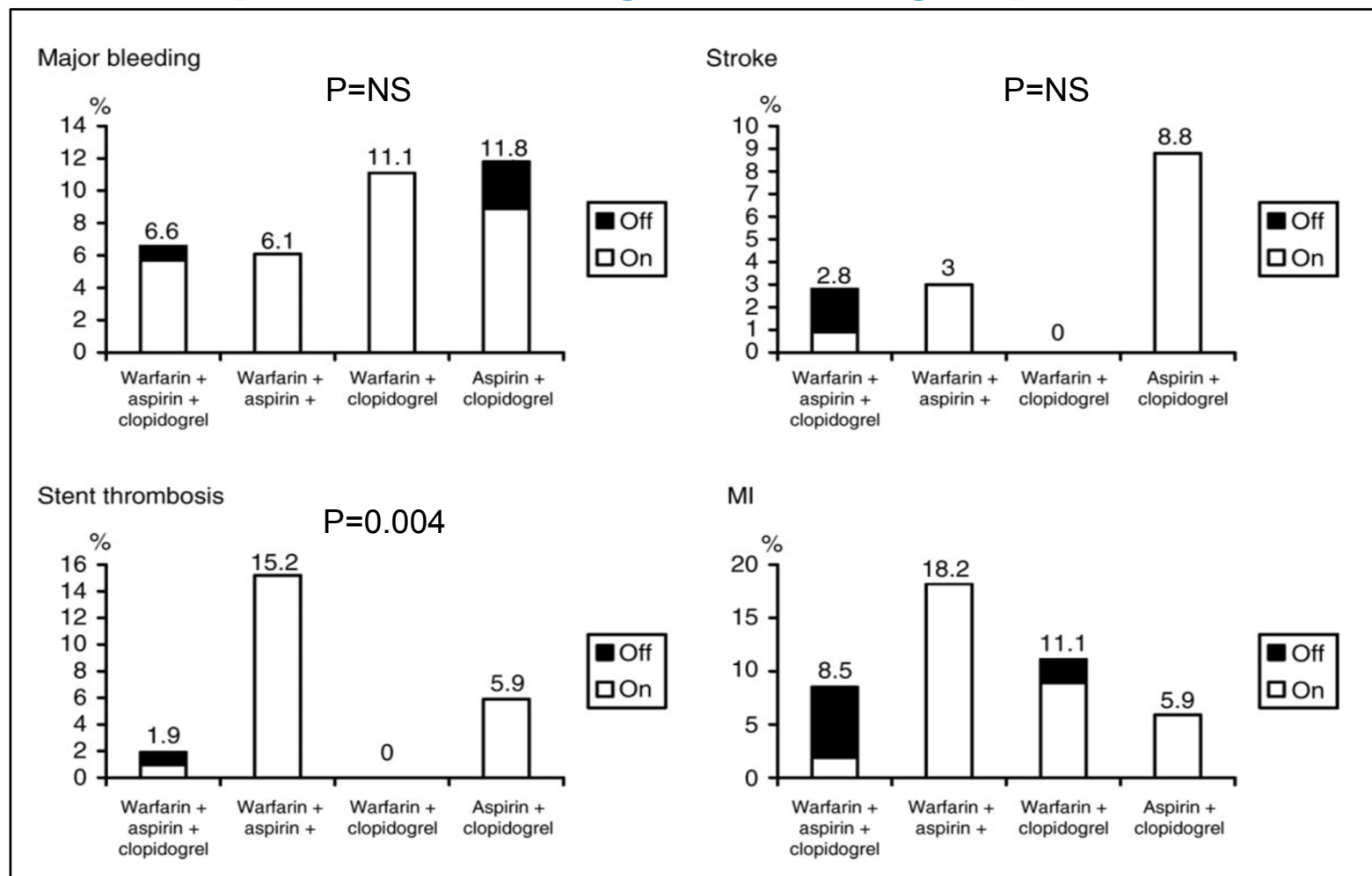
We analysed retrospectively all consecutive patients on warfarin therapy (n=239) who underwent PCI in six hospitals. PE was defined as the occurrence of death, MI, TVR, or stent thrombosis at 12 months.

	Warfarin patients (n = 219)	Control patients (n = 227)	OR (95% CI) ^a	P-value
At discharge				
Primary endpoint				
Death, n (%)	3 (1.4)	1 (0.4)		
MI, n (%)	4 (1.8)	3 (1.3)		
TVR, n (%)	3 (1.4)	1 (0.4)		
Stent thrombosis, n (%)	4 (1.8)	1 (0.4)		
Overall, n (%)	6 (2.7)	3 (1.3)	2.1 (0.5–8.6)	0.30
Secondary endpoint				
Major bleeding, n (%)	4 (1.8)	0 (0)		
Stroke, ^b n (%)	1 (0.5)	0 (0)		
At 12 months^c				
Primary endpoint				
Death, ^d n (%)	19 (8.7)	4 (1.8)	5.3 (1.8–16.0)	0.003
MI, n (%)	22 (10.0)	11 (4.8)	2.2 (1.0–4.7)	0.041
TVR, n (%)	24 (11.0)	17 (7.5)	1.5 (0.8–2.9)	0.21
Stent thrombosis, (%)	9 (4.1)	3 (1.3)	3.2 (0.8–12.1)	0.09
Overall, n (%)	48 (21.9)	25 (11.0)	2.3 (1.3–3.8)	0.003
Secondary endpoint				
Major bleeding, n (%)	18 (8.2)	6 (2.6)	3.3 (1.3–8.6)	0.014
Stroke, ^b n (%)	7 (3.2)	5 (2.2)	1.5 (0.5–4.7)	0.52
Overall, n (%)	25 (11.4)	11 (4.8)	2.5 (1.2–5.3)	0.014

Antiplatelet therapy after coronary stent implantation in "standard" patients.



Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting : Complications during 12-month follow-up with various drug regimens adopted after stenting in warfarin group



Safety and efficacy of combined antiplatelet-warfarin therapy after coronary stenting

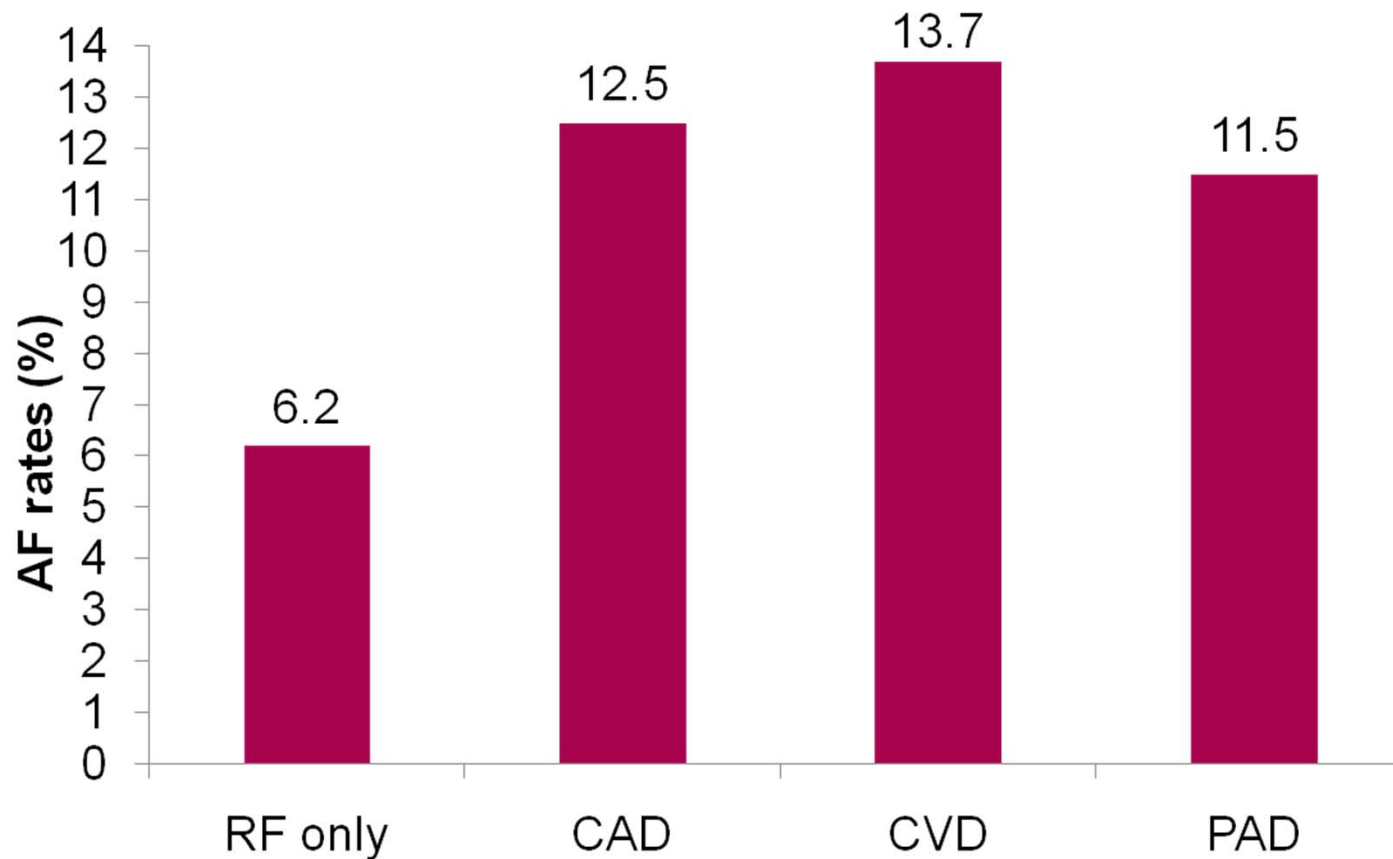
- Patients who have an indication for OAC are a much higher risk group than those who do not: Mortality at 12 M was 8.7 vs. 1.8%,(p=0.003).
- Major bleeding occurs in 6-12% of patients and does not seem to be increased by TAT as compared to other combinations.
- The risk of stroke is markedly elevated in the absence of warfarin.
- The risk of ST and MI is markedly elevated in the absence of clopidogrel.
- The combination of clopidogrel plus warfarin compares reasonably well with either aspirin plus clopidogrel or warfarin plus aspirin.
- Following coronary stenting, the risk of stent thrombosis (ST) declines rapidly over time whereas the risk of bleeding remains stable during the first year.
 - A relatively short course of clopidogrel might reduce the risk of bleeding without increasing the risk of ST.

Recommended antithrombotic strategies following PCI in patients with AF at moderate-to-high thrombo-embolic risk

Elective	Bare-metal ^c	<p><u>2–4 weeks:</u> triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day</p> <p><u>Lifelong:</u> VKA (INR 2.0–3.0) alone</p>
ACS	Bare-metal ^c	<p><u>4 weeks:</u> triple therapy of VKA (INR 2.0–2.5) + aspirin ≤100 mg/day + clopidogrel 75 mg/day</p> <p><u>Up to 12th month:</u> combination of VKA (INR 2.0–2.5) + clopidogrel 75 mg/day^b (or aspirin 100 mg/day)</p> <p><u>Lifelong:</u> VKA (INR 2.0–3.0) alone</p>

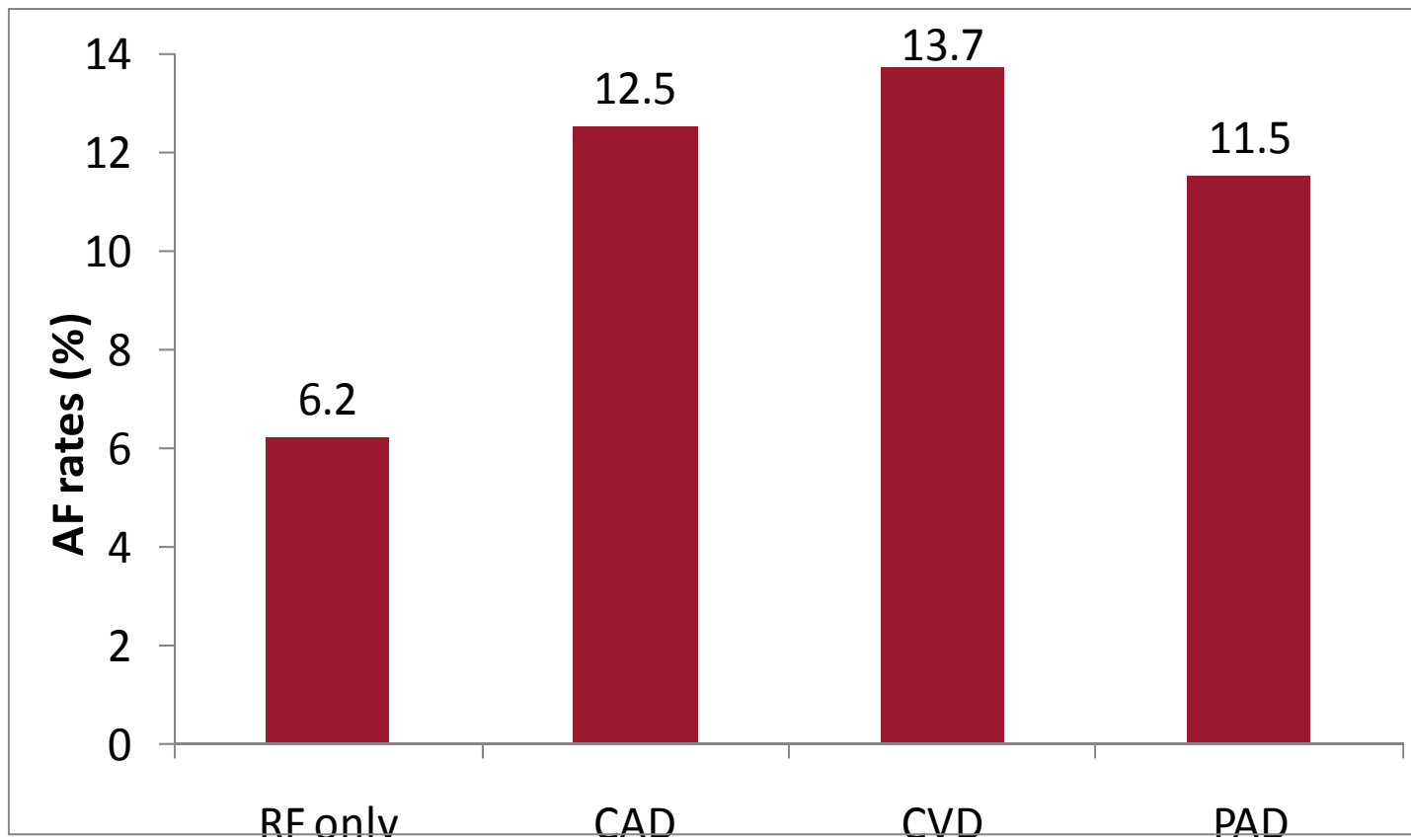
Atrial Fibrillation Rates by Patient Group

Greater incidence of AF in patients with vascular disease compared with patients with risk factors only



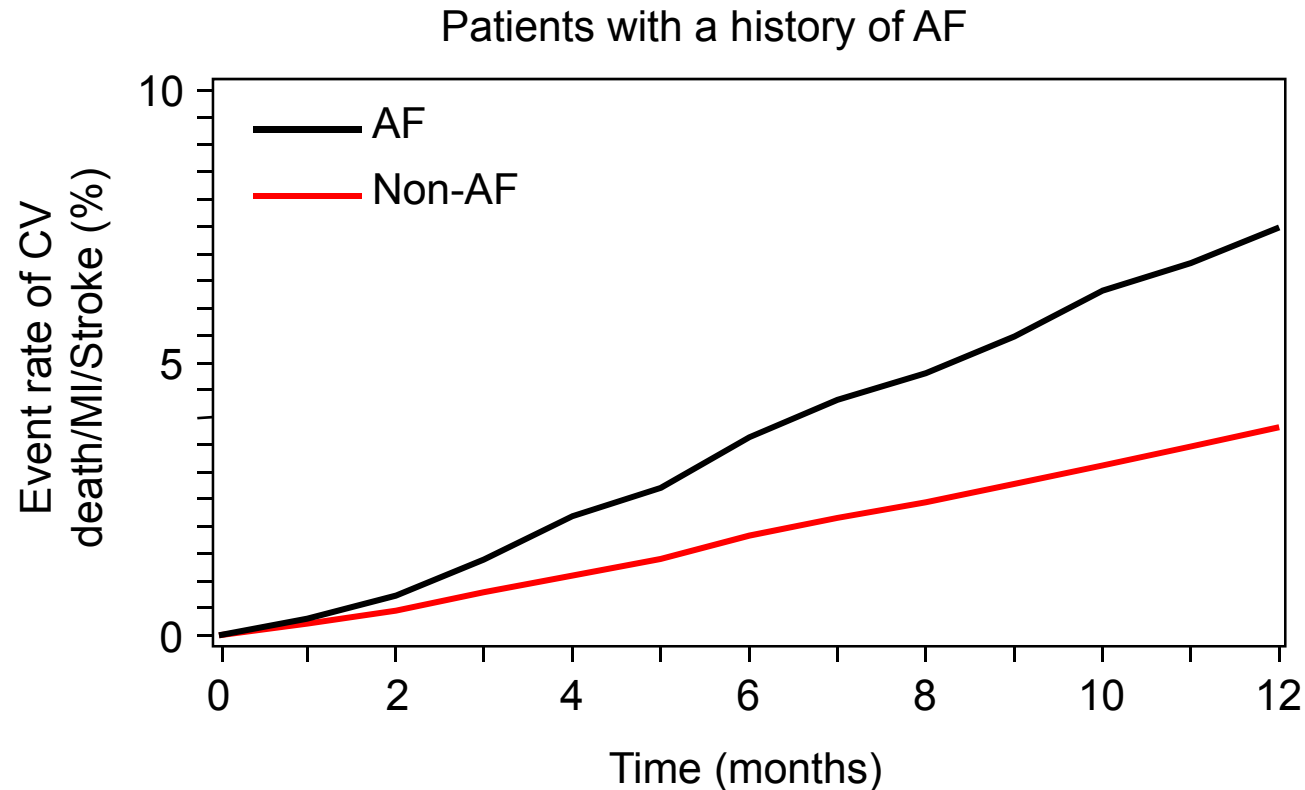
Atrial Fibrillation Rates by Patient Group

Greater incidence of AF in patients with vascular disease compared with patients with risk factors only

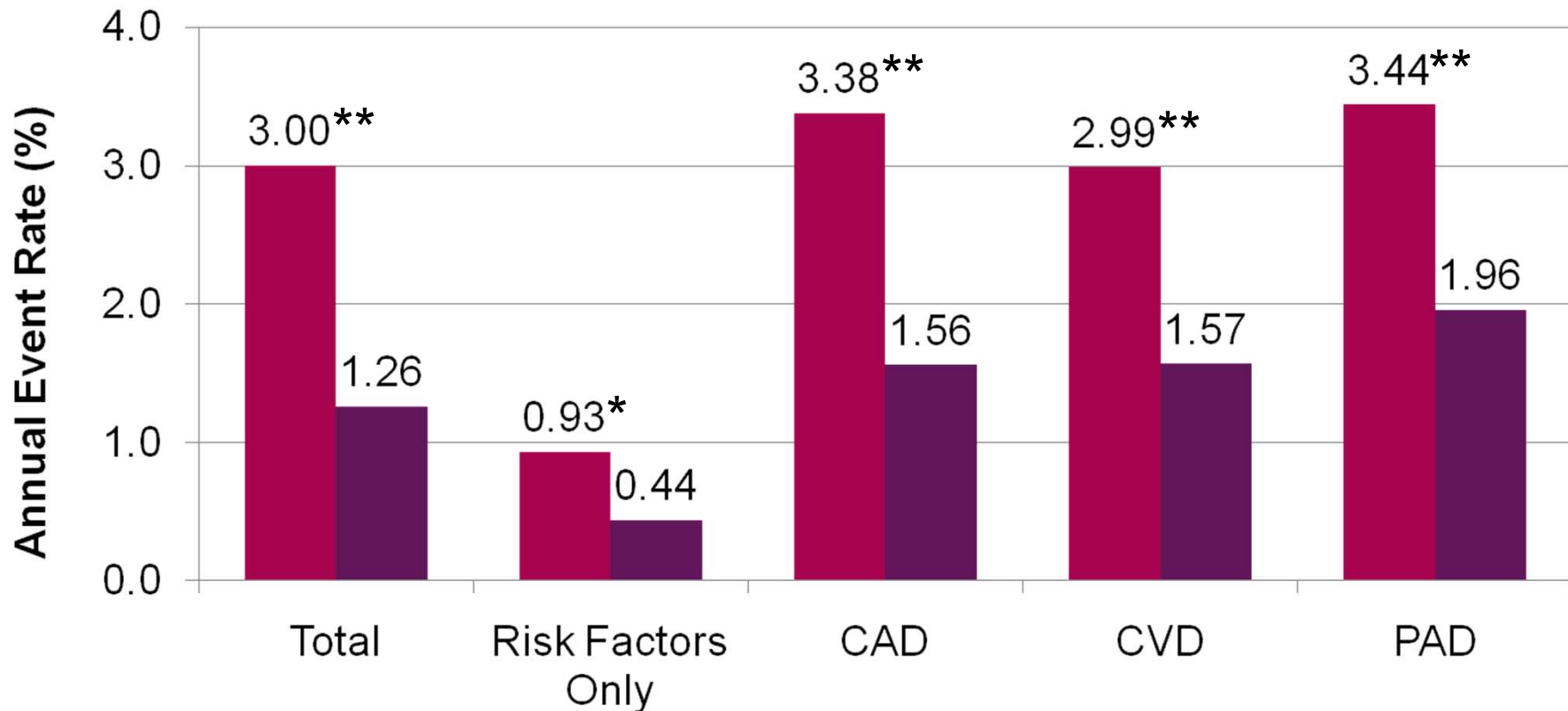


CV Event Frequency in AF and non-AF Patients

Combined event of CV death and/or nonfatal MI and/or nonfatal stroke in patients with vs without history of AF are shown after adjustment of age, gender, and classical risk factors



Annual Rate of CV Death in AF and Non-AF Patients



* $p < 0.05$

** $p < 0.01$

Multivariate analysis

■ AF Patients

■ Non-AF Patients

Score	Annual risk (%)
0	3
1-2	8-12
3-4	30-48

Outpatient bleeding risk index score: 1 point each for age ≥ 65 years, prior stroke, history of bleeding; and 1 point for any of the following: hematocrit $< 30\%$, serum creatinine > 1.5 mg/dL, or diabetes.