Oh WOEST Me: Is Triple Therapy Really Necessary Post MI in Patients with Atrial Fibrillation?

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Atrial Fibrillation

Stroke Risk Prediction

$CHADS_2$

Table 1. The $CHADS_2$ score for estimating stroke risk in patients with atrial fibrillation according to the presence of major risk factors

	$CHADS_2$ risk criteria	Score
C	Congestive heart failure	1
H	Hypertension	1
A	Age >75 years	1
D	Diabetes mellitus	1
S_2	(Prior) stroke or TIA	2

$CHADS_2$ score	Adjusted stroke rate, %/y (95% CI)
0	1.9 (1.2-3.0)
1	2.8 (2.0-3.8)
2	4.0 (3.1-5.1)
3	5.9 (4.6-7.3)
4	8.5 (6.3-11.1)
5	12.5 (8.2-17.5)
6	18.2 (10.5-27.4)

$CHA_2DS_2VAS_C$

CHA_2DS_2-VASc	Score	Score	Adjusted stroke rate (%/year)
Congestive heart failure/ LV dysfunction	1	0	0
Hypertension	1	1	0.7
Age ≥75 years	2	2	1.9
Diabetes mellitus	1	3	4.7
Stroke/TIA/TE	2	4	2.3
Vascular disease (prior MI, PAD, or aortic plaque)	1	5	3.9
Age 65–74 years	1	6	4.5
Female sex	1	7	10.1
	Max=9	8	14.2
		9	100

Can J Cardiol 2012; 28: 125 - 136

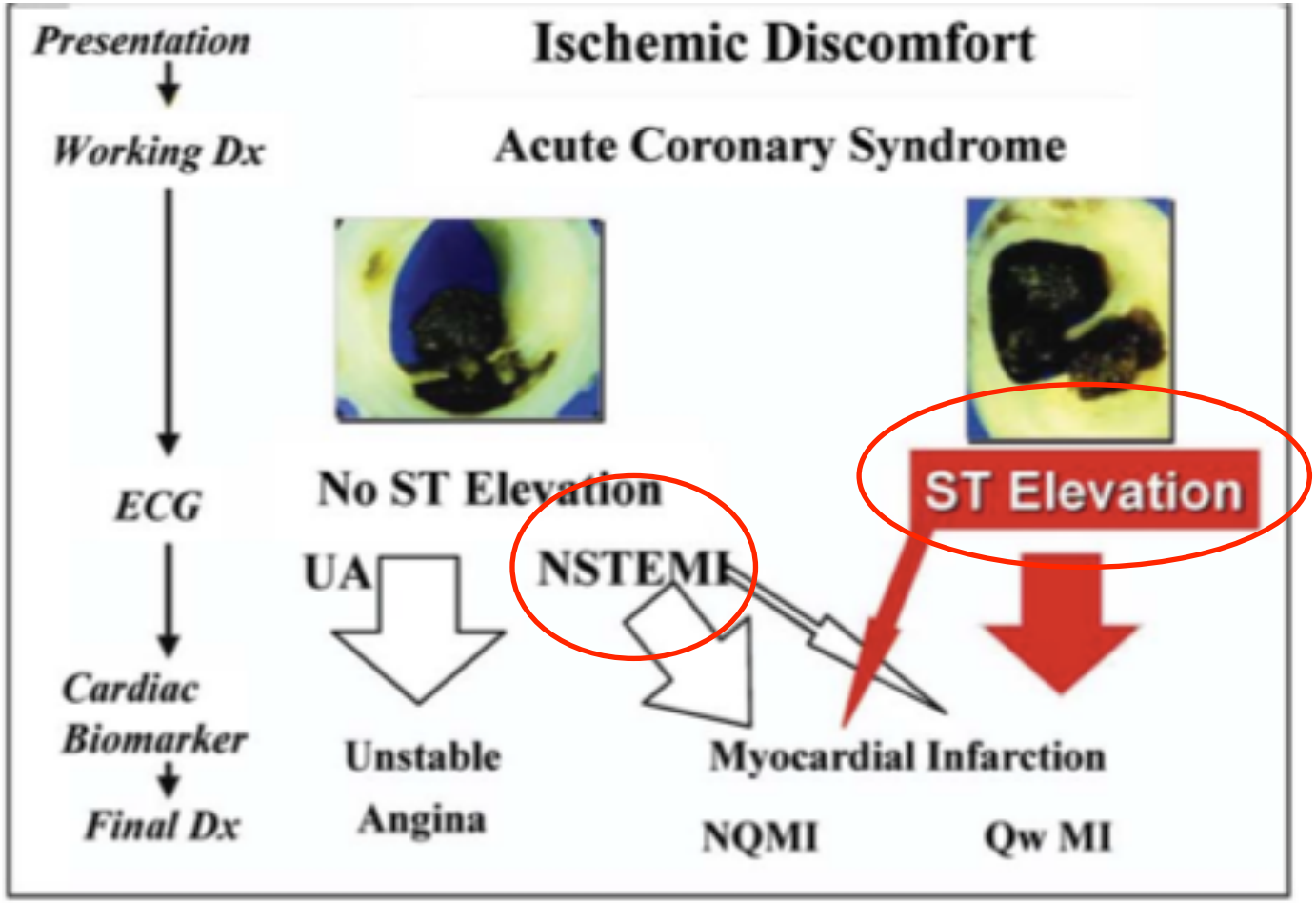
Thromb Haemost 2011; 106: 571–584

Stroke Prevention in A Fib

	ASA	ASA + Clopidogrel	Warfarin
Stroke (RRR)	22%	44%	66%
Major Bleeding	1.1%	3.8%	3.8%

Ann Intern Med 2007; 146: 857-67
Lancet 2006; 367:1903-12
N Engl J Med 2009; 360: 2066 -78

Myocardial Infarction



American College of Cardiology NSTEMI Guidelines 2004

Myocardial Infarction

- Risk of a major cardiovascular event is 10% in the first year following an MI (highest risk in the first 3 months)
- Stroke occurs in 0.75 – 1.2% of patients post MI
- Within 6 years post MI, 18% of men, 25% of women will have another MI

TIMI RISK SCORE for STEMI

HISTORICAL	POINTS
Age ≥75	3
65-74	2
DM or HTN or angina	1
EXAM	
SBP < 100 mmHg	3
HR >100 bpm	2
Killip II-IV	2
Weight < 67 kg (150 lb)	1
PRESENTATION	
Anterior STE or LBBB	1
Time to Rx > 4	1

RISK SCORE = Total points (0 -14)

RISK SCORE	30-DAY MORTALITY
0	0.8
1	1.6
2	2.2
3	4.4
4	7.3
5	12
6	16
7	23
8	27
>8	36

*Entry criteria: CP > 30 min, ST ↑, sx onset < 6hrs, fibrinolytic-eligible

For more info go to www.timi.org

Morrow et al. *Circulation* 2000;

TIMI RISK SCORE for UA/NSTEMI

HISTORICAL	POINTS
Age ≥65	1
≥ 3 CAD risk factors (FHx, HTN, ↑ chol, DM, active smoker)	1
Known CAD (stenosis ≥ 50%)	1
ASA use in past 7 days	1
PRESENTATION	
Recent (≤24H) severe angina	1
↑ cardiac markers	1
ST deviation ≥ 0.5 mm	1

RISK SCORE = Total Points (0 - 7)

RISK SCORE	RISK OF CARDIAC EVENTS (%) BY 14 DAYS IN TIMI 11B*	
	DEATH OR MI	DEATH, MI OR URGENT REVASC
0/1	3	5
2	3	8
3	5	13
4	7	20
5	12	26
6/7	19	41

*Entry criteria:UA or NSTEMII defined as ischemic pain at rest within past 24H, with evidence of CAD (ST segment deviation or +marker)

For more info go to www.timi.org

Antman et al *JAMA 2000;* 284: 835 - 842

American College of Cardiology NSTEMI Guidelines 2004

Stent Thrombosis

- Risk of 1 – 2% over the first year
  - Highest in the first 30 days regardless of stent type
- Drug Eluding Stent (DES):
  - 0.4 – 0.6%/year after the first year
- Bare Metal Stent (BMS):
  - 0.1%/year after the first year
- Mortality: 10 – 20%
- MI: 30 – 70%

Thromb Haemost 2011; 106: 571–584

Post MI

- CURE (2001)
  - PCI CURE (2001)
- WARIS (2002)
- CLARITY (2005)
- COMMIT (2005)

Bleeding Risk Assessment

HASBLED Score

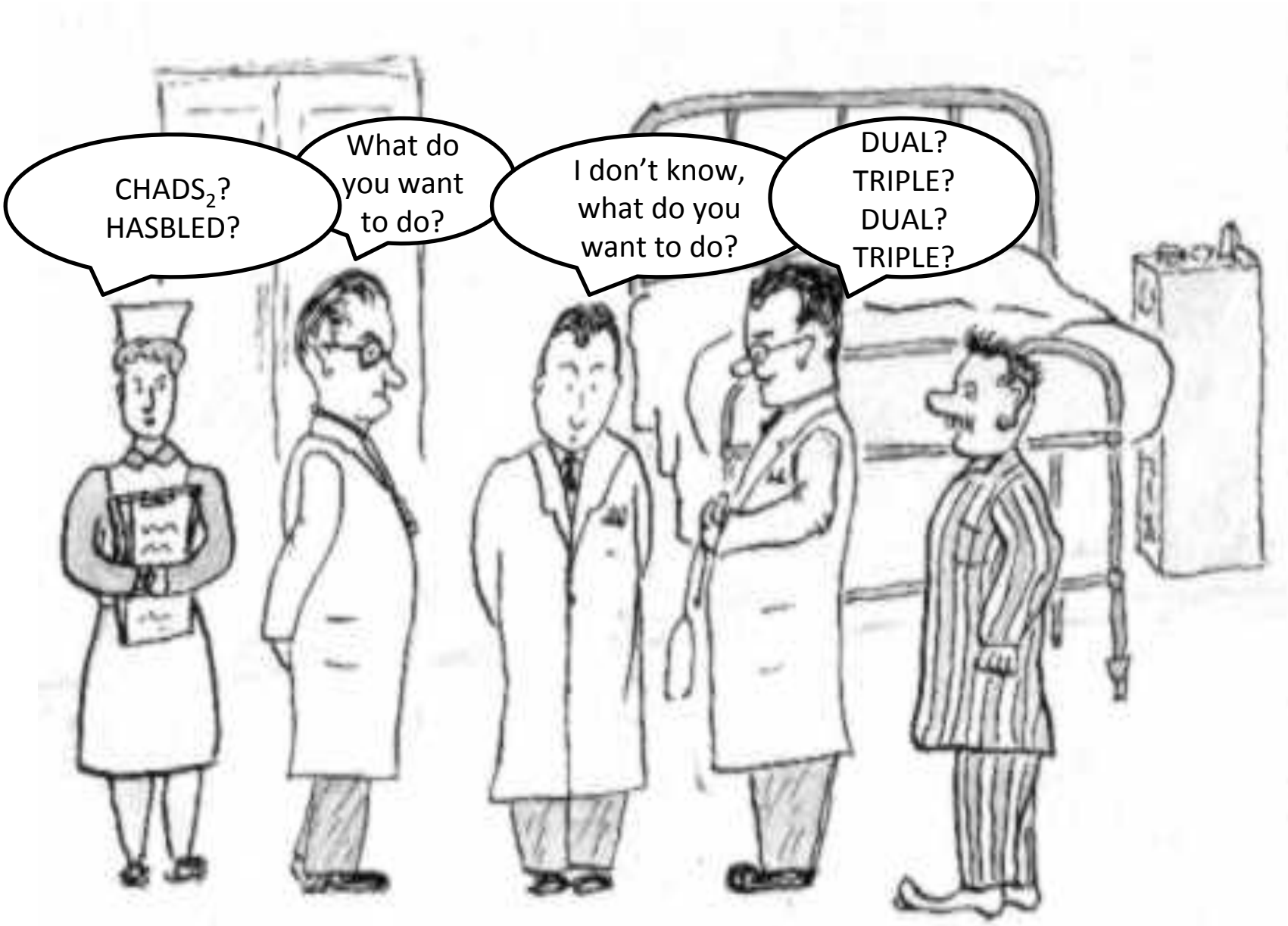
Letter	Clinical characteristic	Score	HAS-BLED Score	Bleeds/100 patient-years
H	Hypertension	1	0	1.13
A	Abnormal renal and liver function (1 point each)	1 or 2	1	1.02
S	Stroke	1	2	1.88
B	Bleeding	1	3	3.74
L	Labile INRs	1	4	8.70
E	Elderly	1		
D	Drugs or alcohol (1 each)	1 or 2		
		9 max		

Thromb Haemost 2011; 106: 571–584

Atrial Fibrillation + Myocardial Infarction

- Up to 1/3 of patients with AF have CAD
- 20 – 30% of patients requiring long term OAC have ischemic heart disease requiring PCI with stenting
- AF occurs in 5 – 23% in patients post MI
- Mortality in patients post MI with AF can be up to twice as high
- 5–7% of patients undergoing PCI have AF or other indications for chronic OAC

Can J Cardiol 2013; 29: s60 – 70
Circulation 2005; 112: 3225 – 3231
Circ Cardiovasc Interv. 2011;4:522-534


CHADS$_2$?
HASBLED?
What do you want to do?
I don't know, what do you want to do?
DUAL?
TRIPLE?
DUAL?
TRIPLE?

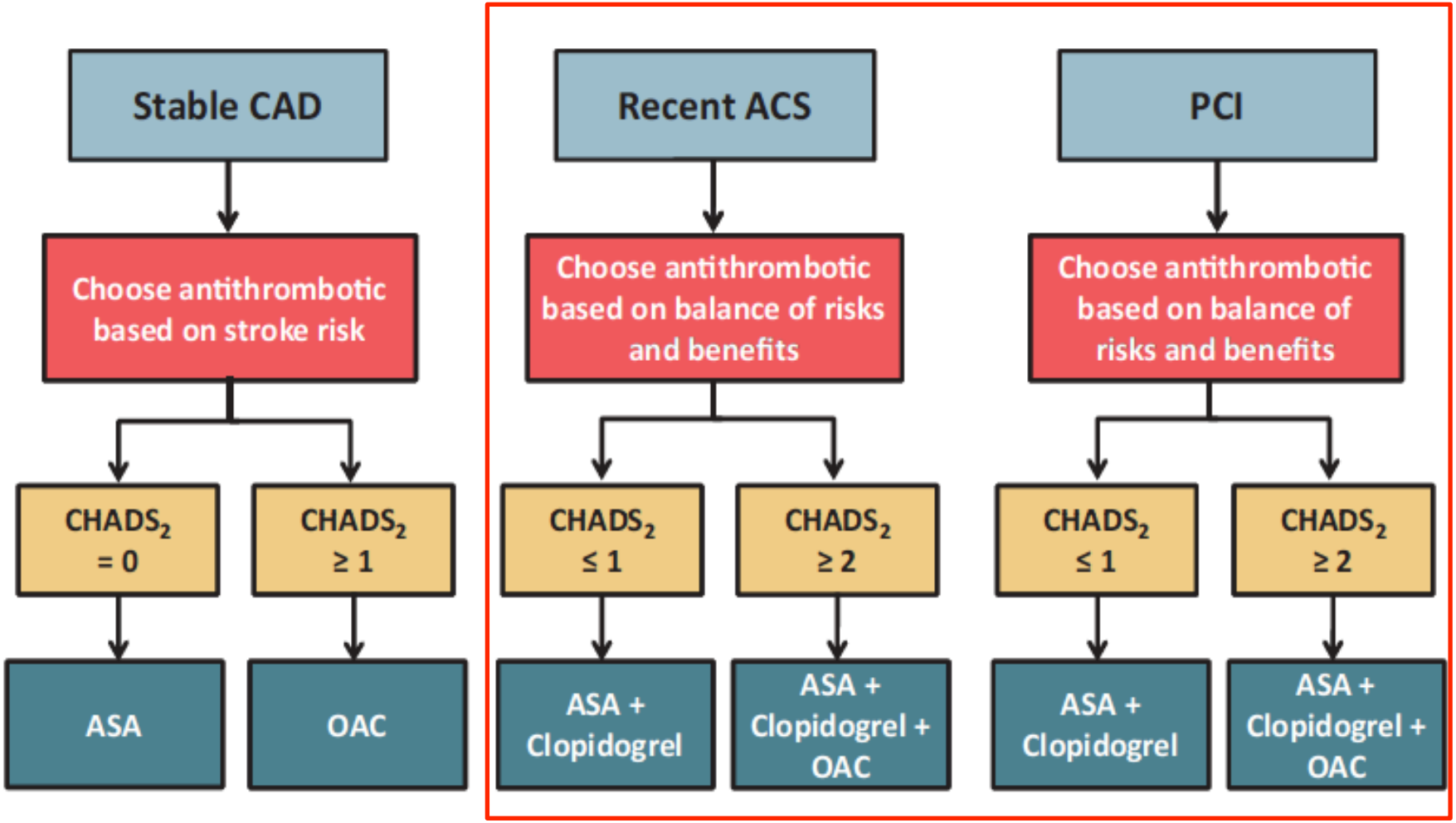
Bleeding Risk With Triple Therapy

- Major bleeding requiring hospitalization on triple therapy = 6 to 15%/year

Thromb Haemost 2011; 106: 571–584

What do the Guidelines Say?

Antithrombotic Management of AF/AFL in CAD



Can J Cardiol 2012; 28: 125 - 136

What do the Guidelines Say?

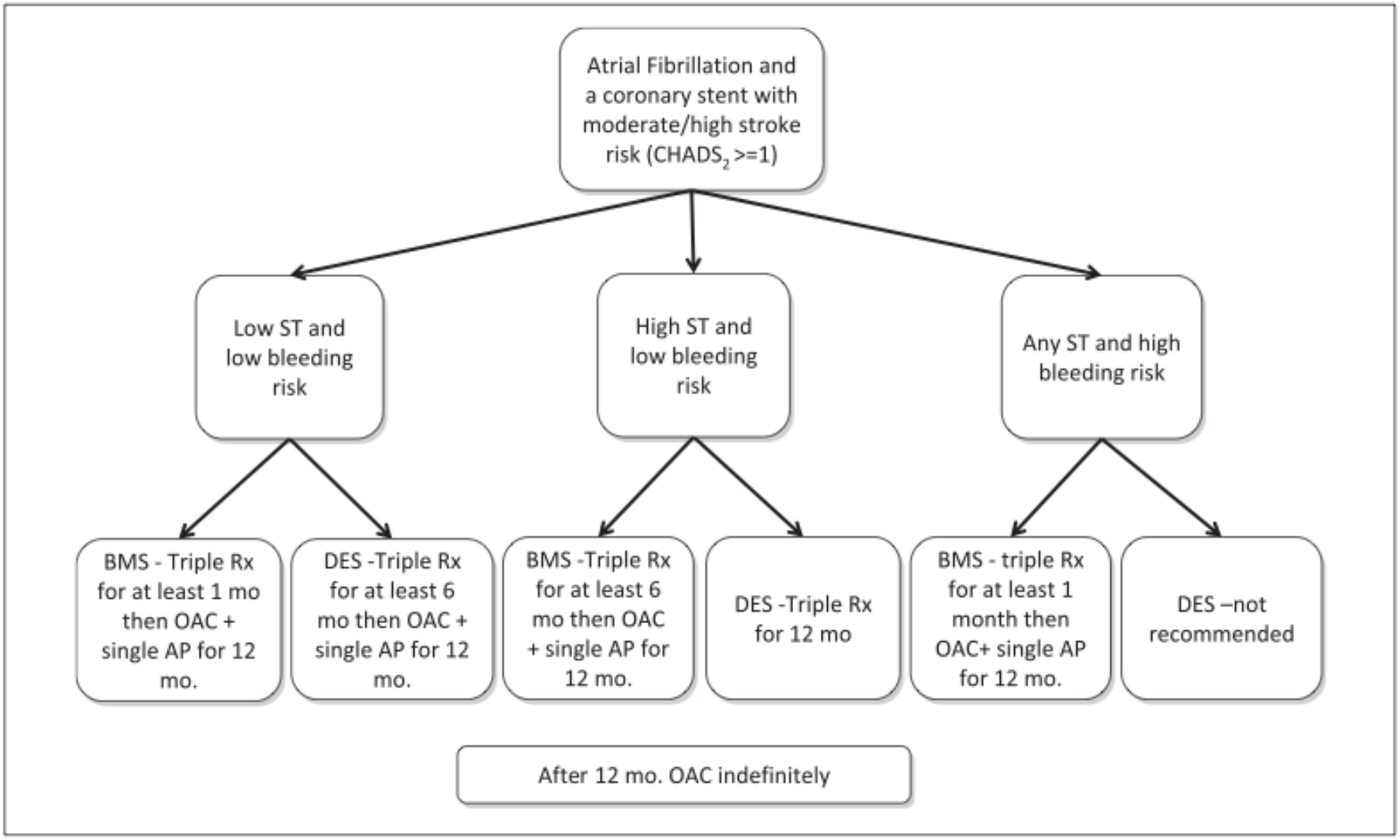


Figure 1: Recommendations for the duration of triple therapy in patients with atrial fibrillation and a coronary stent (BMS or DES) with moderate/high stroke risk (CHADS2 ≥1). BMS, bare metal stent; DES, drug eluting stent; OAC, warfarin; AP, anti-platelet agent; triple therapy, aspirin, clopidogrel and warfarin.

Thromb Haemost 2011; 106: 571–584

What do the Guidelines Say?

Table 3: Recommended antithrombotic strategies following coronary artery stenting in patients with atrial fibrillation at moderate-to-high thromboembolic risk (in whom oral anticoagulation therapy is required).

Haemorrhagic risk	Clinical setting	Stent implanted	Recommendations
Low or intermediate	Elective	Bare metal	***1 month:*** triple therapy of warfarin (INR 2.0–2.5) + aspirin ≥100 mg/day + clopidogrel 75 mg/day + gastric protection
			lifelong: warfarin (INR 2.0–3.0) alone.
	Elective	Drug eluting	***3 (-olimus group) to 6 (paclitaxel) months:*** triple therapy of warfarin (INR 2.0–2.5) + aspirin ≥100 mg/day + clopidogrel 75 mg/day;
			up to 12th month: combination of warfarin (INR 2.0–2.5) + clopidogrel 75 mg/day* (or aspirin 100 mg/day);
			lifelong: warfarin (INR 2.0–3.0) alone.
	ACS	Bare metal/drug eluting	***6 months:*** triple therapy of warfarin (INR 2.0–2.5) + aspirin ≥100 mg/day + clopidogrel 75 mg/day;
			up to 12th month: combination of warfarin (INR 2.0–2.5) + clopidogrel 75 mg/day* (or aspirin 100 mg/day);
			lifelong: warfarin (INR 2.0–3.0) alone.
High	Elective	Bare metal#	***2 to 4 weeks:*** triple therapy of warfarin (INR 2.0–2.5) + aspirin ≥100 mg/day + clopidogrel 75 mg/day;
			lifelong: warfarin (INR 2.0–3.0) alone.
	ACS	Bare metal#	***4 weeks:*** triple therapy of warfarin (INR 2.0–2.5) + aspirin ≥100 mg/day + clopidogrel 75 mg/day ;
			up to 12th month: combination of warfarin (INR 2.0–2.5) + clopidogrel 75 mg/day*(or aspirin 100 mg/day); mg/day);
			lifelong: warfarin (INR 2.0–3.0) alone.

Thromb Haemost 2010; 103: 13–28

$CHADS_2$ Post MI?

CHEST

Original Research

CARDIOVASCULAR DISEASE

An Evaluation of the $CHADS_2$ Stroke Risk Score in Patients With Atrial Fibrillation Who Undergo Percutaneous Coronary Revascularization

Juan M. Ruiz-Nodar, MD, PhD; Francisco Marín, MD, PhD; Sergio Manzano-Fernández, MD; José Valencia-Martín, MD, PhD; José A. Hurtado, MD; Vanessa Roldán, MD, PhD; Javier Pineda, MD, PhD; Eduardo Pinar, MD, PhD; Francisco Sogorb, MD, PhD; Mariano Valdés, MD, PhD; and Gregory Y. H. Lip, MD

Clinical Question

P	Patients post MI with atrial fibrillation
I	“Dual therapy” (Warfarin + clopidogrel)
C	“Triple therapy” (Warfarin + clopidogrel + ASA)
O	Mortality Stroke MI Bleeding

Search Strategy

Databases	Medline, Embase, IPA, Google, Google Scholar, Cochrane, Clinicaltrials.gov
Search Terms	Atrial fibrillation, myocardial infarction, acute coronary syndrome, coronary artery disease, percutaneous coronary intervention, antithrombotics, anticoagulation, antiplatelets, warfarin, clopidogrel, aspirin, triple therapy
Limits	Human, English
Results	1 RCT 31 Observational Trials

Use of clopidogrel with or without aspirin in patients taking oral anticoagulant therapy and undergoing percutaneous coronary intervention: an open-label, randomised, controlled trial

Willem J M Dewilde, Tom Oirbans, Freek W A Verheugt, Johannes C Kelder, Bart J G L De Smet, Jean-Paul Herrman, Tom Adriaenssens, Mathias Vrolix, Antonius A C M Heestermans, Marije M Vis, Jan G P Tijsen, Arnoud W van 't Hof, Jurriën M ten Berg, for the WOEST study investigators

Lancet 2013; 381: 1107–15

Dewilde et al

"WOEST Trial"

Design	RCT, Open label
Patients	N = 573 Inclusion: - Long term indication for OAC - Severe coronary lesion with indication for PCI - Age 18 – 80 y Exclusion: - Hx of intracranial bleeding - Cardiogenic shock - Contraindication to aspirin/clopidogrel - Peptic ulcer within 6 mo - Plt < 50 - Major bleeding in previous 12 mo - Pregnancy
Intervention	Clopidogrel 75 mg po OD (N = 284)
Comparator	Clopidogrel 75 mg po OD + ASA 80 – 100 mg po OD (N = 289)

Dewilde et al

"WOEST Trial"

Outcomes	Primary: Any bleeding episode Secondary: Composite (death, MI, stroke, target-vessel revascularization, stent thrombosis)

Baseline Characteristics

	Double therapy (n=279)	Triple therapy (n=284)
Clinical baseline characteristics		
Mean (SD) age (years)	70·3 (7·0)	69·5 (8·0)
Sex (male/female)	214 (77%)/65 (23%)	234 (82%)/50 (18%)
Risk factors		
Mean (SD) BMI (kg/m²)	27·5 (4·3)	27·9 (4·2)
Diabetes	68 (24%)	72 (25%)
Hypertension	193 (69%)	193 (68%)
Hypercholesterolaemia	191 (68%)	205 (72%)
Current smoker	60 (22%)	42 (15%)
Family history of CAD	116 (42%)	122 (43%)
History of myocardial infarction	96 (34%)	100 (35%)
History of heart failure	71 (25%)	70 (25%)
History of stroke	49 (18%)	50 (18%)
History of PCI	86 (31%)	101 (36%)
History of CABG	56 (20%)	74 (26%)
History of gastrointestinal bleeding	14 (5%)	14 (5%)
History of renal failure	51 (18%)	48 (17%)

	Double therapy (n=279)	Triple therapy (n=284)
Clinical baseline characteristics		
$CHADS_2$ score at baseline for AF patients*		
1	19 (12%)	20 (12%)
2	52 (32%)	42 (26%)
3	53 (32%)	58 (36%)
4	26 (16%)	25 (15%)
5	11 (7%)	12 (7%)
>5	2 (1%)	4 (2%)
Medication on admission		
β blocker	211 (76%)	230 (81%)
ACE inhibitor or ARB	193 (69%)	188 (66%)
Calcium-channel blocker	75 (27%)	89 (31%)
Diuretic	129 (46%)	143 (50%)
Statin	196 (70%)	226 (80%)
Digoxin	30 (11%)	38 (13%)
Nitrate	81 (29%)	93 (33%)
Aspirin	74 (27%)	118 (42%)
Clopidogrel	124 (44%)	154 (54%)
Insulin	21 (8%)	27 (10%)
Oral antidiabetic	58 (21%)	50 (18%)
Fibrate	7 (3%)	5 (2%)
PPI use	95 (34%)	110 (39%)
Omeprazole	50 (18%)	65 (23%)
Other	45 (16%)	45 (16%)

Baseline Characteristics

	Double therapy (n=279)	Triple therapy (n=284)
(Continued from previous column)		
Indication for oral anticoagulation		
Atrial fibrillation/atrial flutter	164/236 (69%)	162/234 (69%)
Mechanical valve	24/236 (10%)	25/234 (11%)
Other (eg, apical aneurysm, pulmonary embolus, PAD, EF <30%)	48/236 (20%)	47/234 (20%)
Acute coronary syndrome at baseline		
Yes	69 (25%)	86 (30%)
Ejection fraction		
Mean (SD) at baseline (%)	46 (15)	47 (13)
EF <30%	40/190 (21%)	37/206 (18%)

Baseline Characteristics

	Double therapy (n=279)	Triple therapy (n=284)
Procedural characteristics		
Arterial access		
Radial	74 (27%)	71 (25%)
Femoral	204 (73%)	208 (75%)
Mean (SD) INR on day of PCI	1·86 (1·00)	1·94 (1·09)
Angiographic characteristics		
PCI vessel		
LAD	111 (40%)	118 (42%)
RCA	92 (33%)	72 (25%)
LCX	59 (21%)	76 (27%)
Venous or arterial graft	16 (6%)	16 (6%)
Number of vessels treated		
1	202 (72%)	199 (70%)
2	57 (20%)	68 (24%)
3	13 (5%)	13 (5%)
Predilatation	194 (70%)	212 (75%)
Stent type		
None	5 (2%)	4 (1%)
Bare metal	89 (32%)	86 (30%)
Drug eluting	181 (65%)	183 (64%)
Bare metal and drug eluting	3 (1%)	11 (4%)

Baseline Characteristics

	Double therapy (n=279)	Triple therapy (n=284)
Angiographic characteristics		
Non-ACS patients with electively fitted bare metal stents	61 (22%)	52 (19%)
Mean (SD) diameter (mm)*	3·16 (0·55)	3·11 (0·49)
Mean (SD) total length (mm)†	23·4 (13·0)	24·0 (12·7)
Closure device		
No	70 (25%)	85 (30%)
Angioseal‡	166 (60%)	167 (59%)
Other	43 (15%)	29 (10%)
ACC lesion type		
A	44 (16%)	34 (12%)
B1	82 (29%)	92 (32%)
B2	84 (30%)	83 (30%)
C	45 (16%)	65 (23%)
Periprocedural treatment		
Continuation of OAC	128 (46%)	113 (40%)
Bolus of heparin	251 (91%)	257 (90%)
Bridging with LMWH	66 (24%)	68 (24%)
GPIIbIIIa	25 (9%)	26 (9%)
Fondaparinux	3 (1%)	2 (1%)

Results

Any Bleeding

	Double therapy (n-279)	Triple therapy (n=284)	Hazard ratio (95% CI)	p value
Any bleeding event	54 (19·4%)	126 (44·4%)	0·36 (0·26–0·50)	<0·0001
TIMI bleeding				
Major	9 (3·2%)	16 (5·6%)	0·56 (0·25–1·27)	0·159
Major and minor	39 (14·0%)	89 (31·3%)	0·40 (0·27–0·58)	<0·0001
GUSTO bleeding				
Severe	4 (1·4)	10 (3·5%)	0·40 (0·12–1·27)	0·119
Severe and moderate	15 (5·4%)	35 (12·3%)	0·42 (0·23–0·76)	0·003
BARC bleeding				
3	18 (6·5%)	36 (12·7%)	0·49 (0·28–0·86)	0·011
3c	3 (1·1%)	3 (1·1%)	1·00 (0·20–4·90)	0·996
3b	6 (2·2%)	14 (5·0%)	0·43 (0·17–1·10)	0·074
3a	9 (3·2%)	19 (6·7%)	0·47 (0·21–1·00)	0·054·
2	23 (8·2%)	59 (20·8%)	0·36 (0·23–0·59)	<0·0001
2+3	40 (14·3%)	90 (31·7%)	0·40 (0·28–0·58)	<0·0001
1	18 (6·5%)	45 (15·8%)	0·38 (0·22–0·66)	0·0004
Any blood transfusion	11 (3·9%)	27 (9·5%)	0·39* (0·17–0·84)	0·011

Percentages are calculated from the Kaplan-Meier curve. TIMI= Thrombolysis in Myocardial Infarction criteria. GUSTO=Global Utilization of Streptokinase and Tissue Plasminogen Activator for Occluded Coronary Arteries criteria. BARC=Bleeding Academic Research Consortium criteria. *Odds ratio.

Table 3: **Results for the primary endpoint at 1 year**

Results

Any Bleeding

	Double therapy (n=279)	Triple therapy (n=284)
Total number of bleeding events		
≥1	54 (19·4%)	126 (44·4%)
2	3 (1·1%)	30 (10·6%)
≥3	3 (1·1%)	4 (1·4%)
Location of worst bleeding event		
Intracranial	3 (1·1%)	3 (1·1%)
Access site	16 (5·7%)	20 (7·0%)
Gastrointestinal	8 (2·9%)	25 (8·8%)
Skin haematoma requiring medical attention	7 (2·5%)	30 (10·6%)
Nose	10 (3·6%)	21 (7·4%)
Retroperitoneal	1 (0·3%)	3 (1·1%)
Urogenital	3 (1·1%)	8 (2·8%)
Percardial	0	2 (0·7%)
Eye	1 (0·4%)	3 (1·1%)
Respiratory tract	2 (0·7%)	3 (1·1%)
Muscle	1 (0·4%)	0
Mouth	0	3 (1·1%)
Bleeding after surgery at any location	1 (0·4%)	2 (0·7%)
ICD/pacemaker pocket	1 (0·4%)	3 (1·1%)

ICD=implantable cardioverter defibrillator.

Table 4: Location of worst bleeding per patient

Results

Composite

	Double therapy (n=297)	Triple therapy (n=284)	Hazard ratio (95% CI)	p value
Combined secondary endpoint	31 (11·1%)	50 (17·6%)	0·60 (0·38–0·94)	0·025
Death				
All-cause	7 (2·5%)	18 (6·3%)	0·39 (0·16–0·93)	0·027
Cardiac	3 (1·1%)	7 (2·5%)	0·43 (0·11–1·66)	0·207
Non-cardiac	4 (1·4%)	11 (3·9%)	0·36 (0·11–1·13)	0·069
Myocardial infarction				
Any	9 (3·2%)	13 (4·6%)	0·69 (0·29–1·60)	0·382
STEMI	1 (0·4%)	3 (1·1%)	0·34 (0·04–3·25)	0·325
Non-STEMI	8 (2·9%)	10 (3·5%)	0·79 (0·31–2·01)	0·625
Target-vessel revascularisation				
PCI or CABG	20 (7·2%)	19 (6·7%)	1·05 (0·56–1·97)	0·876
PCI	17 (6·1%)	16 (5·6%)	1·06 (0·54–2·10)	0·869
CABG	3 (1·1%)	3 (1·1%)	1·00 (0·20–4·90)	0·998

Results

Composite

	Double therapy (n=297)	Triple therapy (n=284)	Hazard ratio (95% CI)	p value
Stroke				
Any	3 (1·1%)	8 (2·8%)	0·37 (0·10–1·40)	0·128
Ischaemic	2 (0·7%)	8 (2·8%)	0·25 (0·05–1·17)	0·056
Haemorrhagic	1 (0·4%)	0	NA	0·321
Disabling	2 (0·7%)	2 (0·7%)	0·99 (0·14–6·99)	0·988
Non-disabling	1 (0·4%)	7 (2·5%)	0·14 (0·02–1·16)	0·034
Stent thrombosis				
Any	4 (1·4%)	9 (3·2%)	0·44 (0·14–1·44)	0·165
Definite	1 (0·4%)	3 (1·1%)	0·33 (0·03–3·22)	0·319
Probable	0	2 (0·7%)	NA	0·161
Possible	3 (1·1%)	4 (1·4%)	0·75 (0·17–3·30)	0·708

Percentages are calculated from the Kaplan-Meier curve. STEMI=ST-elevation myocardial infarction. PCI=percutaneous coronary intervention. CABG=coronary artery bypass graft. NA=not applicable.

Table 5: **Secondary and safety endpoints at 1 year**

Author's Conclusion

"Treatment with clopidogrel and oral anticoagulants was associated with a significantly lower risk of bleeding complications than was aspirin, clopidogrel, and oral anticoagulation. Although the trial was small, we saw no evidence of an increased risk of thrombotic events by the withholding of aspirin."

Analysis

- Unblinded
- Patient reporting
- Primary outcome: bleeding
- PPI use
- Non atrial fibrillation patients
- Number of patients therapeutic?
- Post MI medical management?

Accepted Manuscript

Oral anticoagulation and antiplatelets in atrial fibrillation patients after myocardial infarction and coronary intervention

Morten Lamberts, MD Gunnar H. Gislason, MD, PhD, (FACC) Jonas Bjerring Olesen, MD Søren Lund Kristensen, MD Anne-Marie Schjerning Olsen, MD Anders Mikkelsen, MB Christine Benn Christensen, MD Gregory Y.H. Lip, MD, (FACC) Lars Køber, MD, DMSc Christian Torp-Pedersen, MD, DMSc, (FACC) Morten Lock Hansen, MD, PhD

Journal of the American College of Cardiology (2013), doi: 10.1016/j.jacc.2013.05.029.

Lamberts et al

Design	Observational, database registry
Patients	N = 12, 165, 75.6 y, 61% M, $CHADS_2$ 1.9, CHA_2DS_2VASc 4, HASBLED 2 Inclusion: - Previous diagnosis AF - Hospitalized for MI or PCI - Prescription for antithrombotic treatment - $\geq$ 30 y - No bleeding/MI/thromboembolism during quarantine period Exclusion: - Admission for MI/PCI within 1 y before the index date
Intervention	DAPT (N= 3,590), OAC + ASA, (N = 1,504) OAC + clopidogrel (N = 548)
Comparator	OAC + ASA + clopidogrel (N = 1,896)
Outcomes	All cause mortality MI/coronary death Fatal/non fatal ischemic stroke Fatal/non fatal bleeding

Baseline Characteristics

	DAPT (n = 3,590)	OAC + ASA (n = 1,504)	OAC + clopidogrel (n= 548)	Triple therapy (n = 1,896)
MI	2,581 (71.9)	1.359 (90.4)	262 (47.8)	1,013 (53.4)
PCI	1,009 (28.1)	145 (9.6)	286 (52.2)	883 (46.6)
$CHADS_2$ 0	443 (12.3)	122 (8.1)	43 (7.9)	203 (10.7)
$CHADS_2$ 1	1,126 (31.4)	348 (23.1)	158 (28.8)	550 (29.0)
$CHADS_2 \geq 2$	2,021 (56.3)	1,034 (68.8)	347 (63.3)	1,143 (60.3)
Heart Failure	807 (22.5)	524 (34.8)	165 (30.1)	512 (27.0)
Hypertension	2,416 (67.3)	1,066 (70.9)	419 (76.5)	1,464 (77.2)
Previous Stroke	360 (10.0)	222 (14.8)	63 (11.5)	190 (10.0)
Previous Bleeding	257 (7.2)	131 (8.7)	51 (9.3)	116 (6.1)
Antiarrhythmics	3,279 (91.3)	1,408 (93.6)	517 (94.3)	1,808 (95.4)
Steroids	370 (10.3)	133 (8.8)	47 (8.6)	148 (7.8)
NSAIDs	765 (21.3)	262 (17.4)	111 (20.3)	380 (20.0)
PPIs	1,003 (27.9)	351 (23.3)	123 (22.5)	418 (22.1)

Results

	Triple Therapy	DAPT	OAC + ASA	OAC + Clopidogrel
All cause mortality		HR 1.6 (1,25 – 2.05)	HR 1.52 (1.17 – 1.99)	HR 0.87 (0.56 – 1.34)
MI/coronary death		HR 1.17 (0.96 – 1.42)	HR 0.96 (0.77 – 1.19)	HR 0.69 (0.48 – 1.00)
Fatal/non fatal ischemic stroke		HR 1.5 (1.03 – 2.2)		
Fatal/non fatal bleed		HR 0.48 (0.38 – 0.6)	HR 0.69 (0.53 – 0.9)	HR 0.78 (0.55 – 1.12)

Author's Conclusion

"AF patients with indication for multiple antithrombotic drugs after MI/PCI, OAC and clopidogrel was equal or better on both benefit and safety outcomes compared to triple therapy. Our data suggests that triple therapy management regimens might be replaced with OAC and clopidogrel without any additional risk of recurrent thrombotic events and a lower risk of bleeding."

Analysis

- Observational design using registry database
  - Missing information
  - Coding accuracy
  - Multiple confounders
- Small number of patients receiving OAC + clopidogrel
- "Higher" risk patients not included
- Time period during study conduction = evolving therapy practices
- Quarantine period

Summary

	WOEST	**Lamberts et al**
Mortality	HR 0.39 (0.16 – 0.93)	NSS
MI	NSS	NSS
Stroke	NSS	NSS
Bleeding	HR 0.36 (0.26 – 0.5)	NSS

Conclusion and Considerations

- ALWAYS assess risk of thromboembolic events vs risk of bleed for EACH patient
- Triple therapy still to be *considered* in all patients with A fib post MI
- In patients with high risk of bleed warfarin + clopidogrel an option
- Optimal duration?
  - Stent?
- NOACs?
- Prasugrel/Ticagrelor?

Coming Soon…

- ISAR TRIPLE (NCT00776633)
  - Recruiting patients
- MUSICA 2 (NCT01141153)
  - Recruiting patients

Questions?


"Heads, you get a quadruple bypass.
Tails, you take a baby aspirin."
GLASBERGEN


Saloon Bar
What's your poison, Ratty?
Warfarin
Image courtesy of A Dalby.
the heart.org