

**A Prospective Interventional Registry of
One-month DAPT Strategy after DES
Implantation in Patients with AF
Requiring Oral Anti-coagulation Therapy**

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Conflict statement

Speaker's name: Naoto Inoue

- **I have the following potential conflicts of interest to report:**
 - Consulting-Kaneka, Tokai medical
 - Employment in industry
 - Stockholder of a healthcare company
 - Owner of a healthcare company
 - Other(s)

- I do not have any potential conflict of interest**

The view of interventionalist

- The interventionalist puts stents for my patient with ischemic heart disease.
- The interventionalist wants to prevent stent thrombosis. DAPT is necessary but the appropriate length of DAPT is still controversial.
- DAPT is not able to prevent stroke for AF patient.
- Patients with stenting and AF require OAC.
- Confuse to decide sweet zone between DAPT and OAC

Background

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

Any bleeding

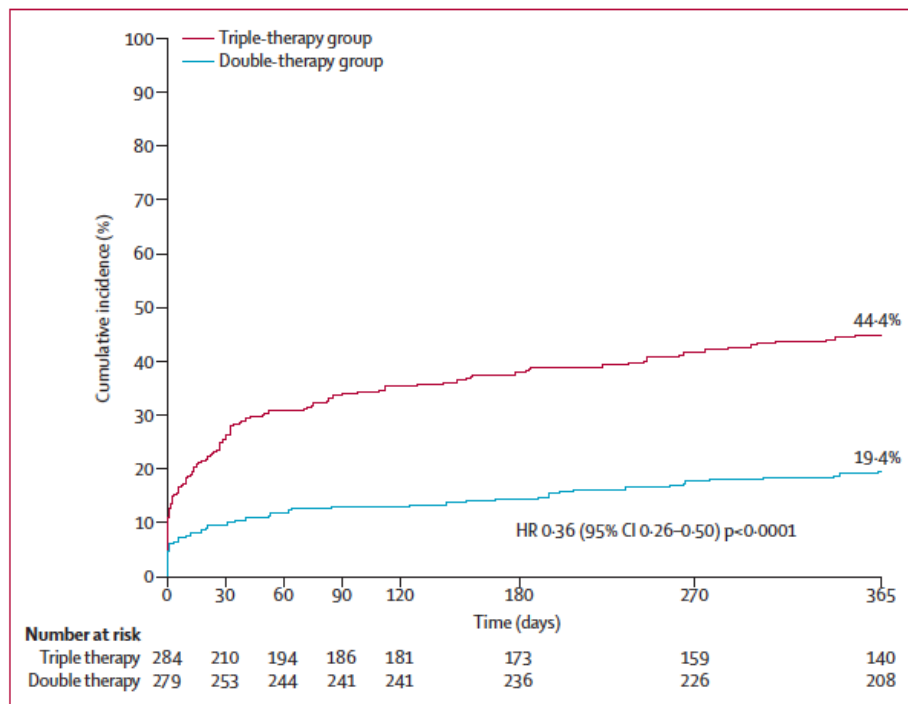


Figure 2: Incidence of the primary endpoint (any bleeding)

MACE

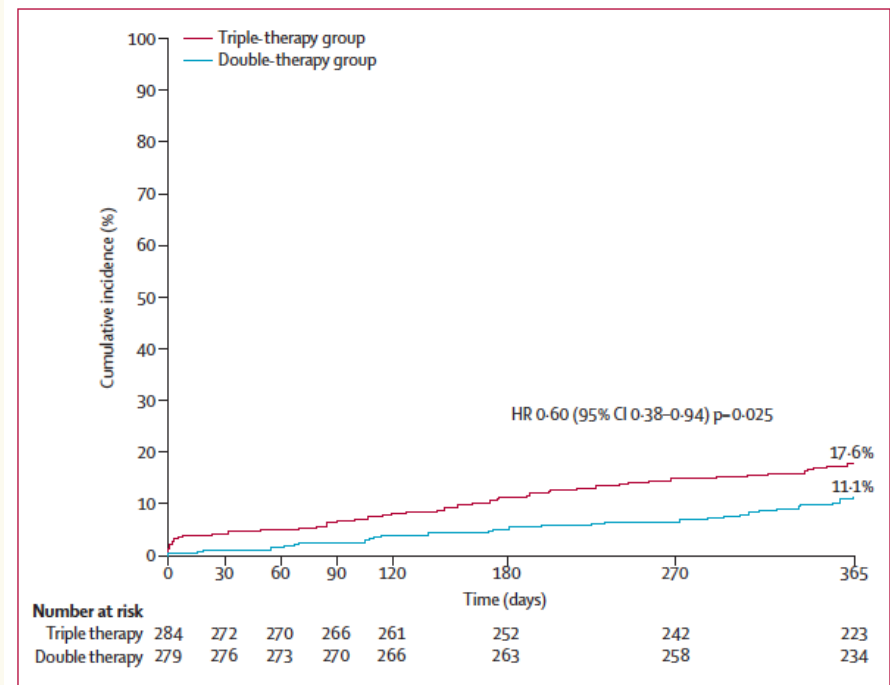


Figure 3: Cumulative Incidence of the secondary endpoint (death, myocardial infarction, stroke, target-vessel revascularisation, and stent thrombosis)

Clinical Questions

Any bleeding in WOEST

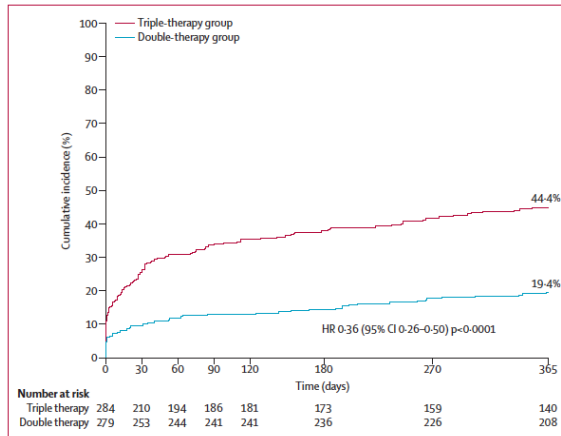


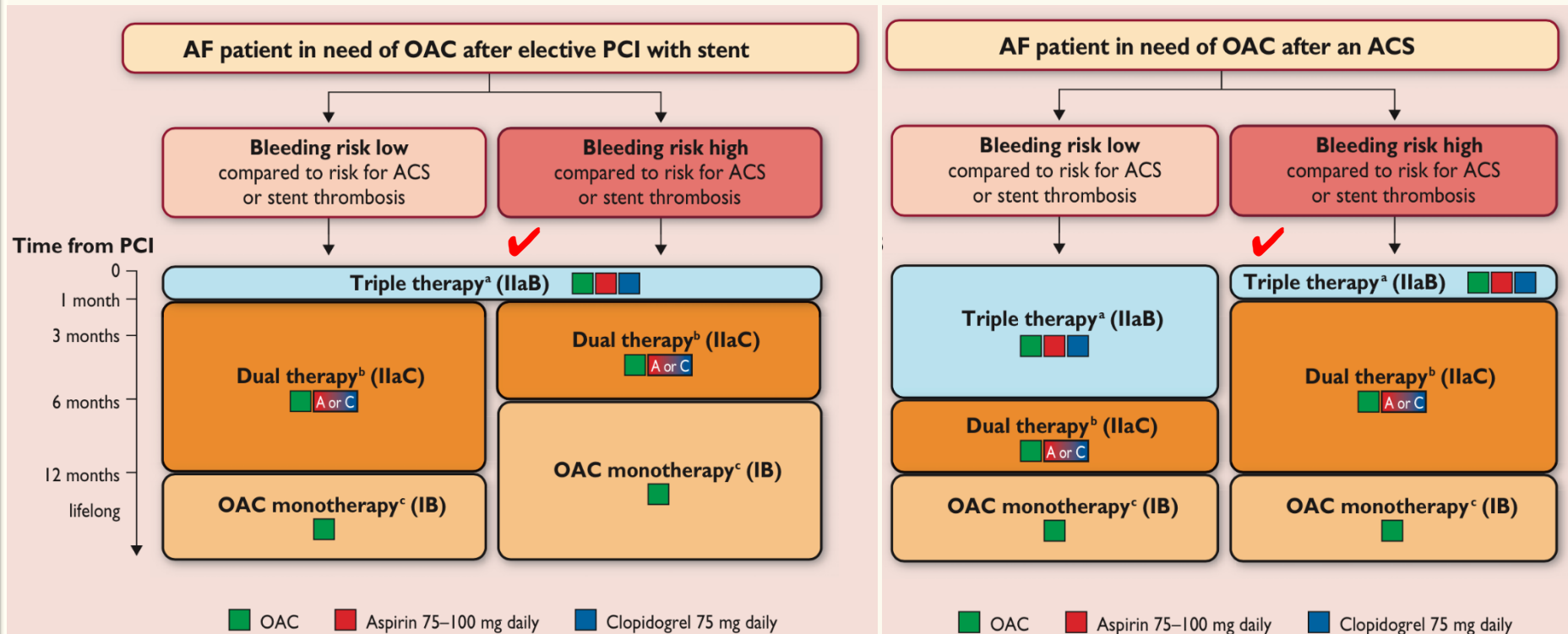
Figure 2: Incidence of the primary endpoint (any bleeding)

- ✓ WOEST trial showed the excellent results of the combination of oral anti-coagulation (OAC) and single anti-platelet therapy to prevent bleeding events and to keep drug-eluting stent (DES) open, compared with the triple therapy.
- ✓ The double therapy is truly an optimal management for atrial fibrillation (AF) patients undergoing DES implantation?
- ✓ If the double therapy is inferior to dual antiplatelet therapy (DAPT) in preventing the serious bleeding events, the combination of left atrial appendage (LAA) closure and DAPT seems to be optimal?



Objective

- ✓ The aim of this study is to evaluate the feasibility of one month DAPT after DES implantation for preventing bleeding complications in AF patients who were prescribed OAC, compared with patients without AF treated with conventional DAPT therapy.
- ✓ Trial profile is a prospective, open-label, Interventional single-center registry of one-month DAPT in consecutive AF patients after DES implantation.



Methods

1058 patients with 1360 lesions, including 117 patients with AF from January to December 2015 in our hospital

252 patients were excluded

116 pts treated without DES (10 pts with AF)

78 pts on hemodialysis (4 pts with AF)

32 pts under OAC for any reason other than AF

26 pts with AF treated without OAC

806 patients with 1027 lesions, implanted DES

**75 AF pts with 92 lesions,
treated by OAC and one-month DAPT
(9.3%)**

**731 non-AF pts with 935 lesions,
treated by 12-month DAPT
(90.7%)**

Methods

Study End Points

- ✓ The primary endpoint was the occurrence of serious bleeding episode during one-year follow-up. Serious bleeding events was defined as Bleeding Academic Research Consortium (BARC) criteria over 2.
 - ❑ Type 2: medical intervention without blood transfusion
 - ❑ Type 3
 - 3a: Hemoglobin drop of 3.0 to 5.0 g/dL or transfusion
 - 3b: Hemoglobin drop of over 5.0 g/dL or surgical intervention
 - 3c: Intracranial hemorrhage
 - ❑ Type 5: fatal bleeding

- ✓ The secondary endpoints were major adverse cardiac event (MACE), including composite of
 - ❑ Death
 - ❑ Definite stent thrombosis
 - ❑ Acute coronary syndrome
 - ❑ Target lesion revascularization
 - ❑ Stroke

DAPT → SAPT

The selection of SAPT after one month is at the doctor's discretion

75 patients

Clopidogrel	46 cases	(61.3%)
Prasugrel	11 cases	(14.6%)
Aspirin	18 cases	(24.0%)

Baseline Patient Characteristics

	AF Group (n=75)	Non-AF Group (n=731)	P Value
Male, n (%)	66 (88.0)	574 (78.5)	0.053
Mean age, (years)	72.5 ± 9.2	68.9 ± 11.6	0.009
Acute coronary syndrome, n (%)	24 (32)	297 (40.6)	0.170
BMI, (kg/m ²)	24.3 ± 3.3	24.4 ± 3.5	0.802
Hypertension, n (%)	68 (90.7)	618 (84.5)	0.176
Dyslipidemia, n (%)	49 (65.3)	561 (76.7)	0.034
Diabetes, n (%)	40 (53.3)	330 (45.1)	0.176
Chronic kidney disease, n (%)	33 (44.0)	134 (18.3)	<0.001
Anti-coagulant, n (%)			
Warfarin / DOAC	30 (40.0) / 45 (60.0)	—	—
Off-label reduced dose, WF/DOAC	9 (30.0) / 12 (26.7)	—	—
AF type, paroxysmal / chronic, n (%)	41 (54.7) / 34 (45.3)	—	—
Duration of DAPT, (days)	30.9 ± 10.2	—	—
Proton pump inhibitor, n (%)	48 (64.9)	509 (69.8)	0.384
SYNTAX score	11.3 ± 8.5	11.3 ± 7.8	0.939
CHA ₂ DS ₂ -VASc score	4.6 ± 1.5	3.8 ± 1.5	<0.001
HAS-BLED score	3.5 ± 1.3	2.7 ± 1.0	<0.001

Lesion & Procedural Characteristics

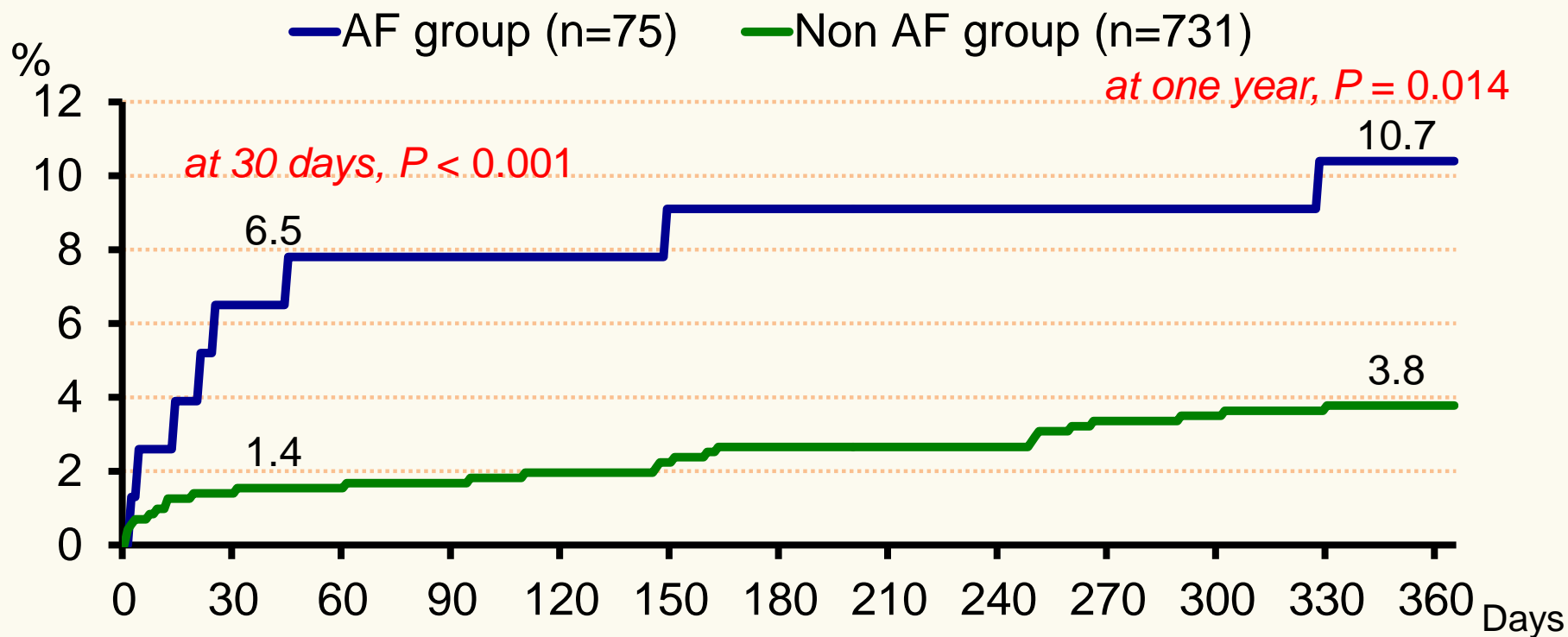
	AF Group (n=92)	Non-AF Group (n=935)	P Value
AHA/ACC lesion morphology, n (%)			0.130
A / B1	18 (20.0)	124 (13.3)	
B2 / C	74 (80.0)	811 (86.7)	
Target vessel, n (%)			0.393
Left main trunk	5 (5.5)	55 (5.9)	
Left anterior descending	37 (40.7)	388 (41.5)	
Left circumflex	24 (26.4)	179 (19.1)	
Right coronary artery	25 (27.5)	313 (33.5)	
Bifurcation lesion, n (%)	25 (27.2)	279 (29.9)	0.582
Calcified lesion, n (%)	13 (14.2)	120 (12.9)	0.935
Chronic total occlusion, n (%)	3 (3.3)	51 (5.5)	0.470
Transradial approach, n (%)	76 (82.6)	809 (86.8)	0.383
Number of stents per lesion	1.14 ± 0.38	1.15 ± 0.37	0.913
Measurements of QCA			
Lesion reference diameter, (mm)	2.94 ± 0.46	2.98 ± 0.48	0.479
Lesion diameter stenosis, (%)	82.4 ± 11.5	85.3 ± 12.4	0.031
Lesion length, (mm)	21.0 ± 9.5	18.7 ± 10.7	0.043

Comparison of the Primary Endpoint within one year

	AF Group (n=75)	Non-AF Group (n=731)	P Value
BARC bleeding, (%)			
2	4 (5.3)	12 (1.6)	0.053
3	3 (4.0)	10 (1.4)	0.112
5	1 (1.3)	6 (0.8)	0.500
Total (2-5)	8 (10.7)	28 (3.8)	0.014
Discontinuing OAC, n (%)	4 (5.3)	—	—
The details of bleeding event, n (%)			
Intracranial	0 (0.0)	2 (0.3)	1.000
Gastrointestinal	4 (5.3)	14 (1.9)	0.078
Urogenital	0 (0.0)	2 (0.3)	1.000
Pericardial	1 (1.3)	1 (0.1)	0.178
Eye	1 (1.3)	2 (0.3)	0.254
Respiratory tract	1 (1.3)	3 (0.4)	0.324
Intra-articular	1 (1.3)	0 (0.0)	0.093
Nasal	0 (0.0)	3 (0.4)	1.000
Respiratory tract	1 (1.3)	0 (0.0)	0.093

Comparison of the Primary Endpoint within one year

The One-year Incidence of BARC ≥ 2 Serious Bleeding



No. at risk

AF	70	69	68	65
Non-AF	683	670	633	626

✓ The event rates were calculated with Kaplan-Meier methods and compared with the log-rank test.

Comparison of the Secondary Endpoint within one year

	AF Group (n=75)	Non-AF Group (n=731)	P Value
One-year death, (%)			
Cardiac	2 (2.7)	12 (1.6)	0.380
Non-Cardiac	3 (4.0)	21 (2.9)	0.482
The definite stent thrombosis, n (%)			
Acute	0 (0.0)	2 (0.3)	1.000
Sub-acute	0 (0.0)	1 (0.1)	1.000
Late	0 (0.0)	1 (0.1)	1.000
Ischemic stroke, n (%)			
Within 30 days	1 (1.3)	1 (0.1)	0.178
Between 31 to 365 days	1 (1.3)	4 (0.6)	0.387
Acute coronary syndrome, n (%)	2 (2.7)	4 (0.6)	0.100
Target lesion revascularization, n (%)	3 (4.0)	39 (5.3)	0.789
New onset of AF, n (%)	—	11 (1.5)	—

Summary

- ✓ We analyzed the 806 patients implanted DES and administered one-month DAPT for 75 AF patients (9.3%) requiring OAC during one year.
- ✓ Even using short DAPT protocol, the onset of serious bleeding events were significantly higher in AF group than non-AF group, however, the rate of MACE were comparative.
 - BARC 2, 3 and 5: 10.7% vs. 3.8% ($P = 0.014$)
 - Stent thrombosis: 0.0% vs. 0.5% ($P = 1.000$)
 - Ischemic stroke: 2.6% vs. 0.7% ($P = 0.132$), including 28.0% of off-label reduced dose of OAC.
- ✓ This study is still underpowered to establish the predictors of bleeding complications in short DAPT protocol, therefore, case inclusion is on going.

Left Atrial Appendage Closure

- ✓ The meaning of comparison between OAC and DAPT is to detect the high risks of AF patients who can not continue to take OAC and APT.

Recommendations for occlusion or exclusion of the left atrial appendage

Recommendations	Class ^a	Level ^b	Ref ^c
After surgical occlusion or exclusion of the LAA, it is recommended to continue anticoagulation in at-risk patients with AF for stroke prevention.	I	B	461, 462
LAA occlusion may be considered for stroke prevention in patients with AF and contra-indications for long-term anticoagulant treatment (e.g. those with a previous life-threatening bleed without a reversible cause).	IIb	B	449, 453, 454
Surgical occlusion or exclusion of the LAA may be considered for stroke prevention in patients with AF undergoing cardiac surgery.	IIb	B	463
Surgical occlusion or exclusion of the LAA may be considered for stroke prevention in patients undergoing thoracoscopic AF surgery.	IIb	B	468

- ✓ Protocol of anti-platelet therapy after Watchman™ implantation
 - 45 days after Watchman™
Aspirin + Warfarin
 - 45 days to 6 months
Aspirin + Clopidogrel
 - After 6 months
Aspirin alone

Conclusion

- ✓ Short DAPT strategy did not increase definite stent thrombosis after DES implantation in patients with AF requiring OAC; however, this protocol might not be an optimal goal to prevent bleeding complications in AF patients requiring OAC.