Post-procedural anticoagulation after primary percutaneous coronary intervention for ST-segment elevation myocardial infarction: a multicentre, randomised, double-blind trial

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On behalf of G Montalescot, Y Li, J Lu, Y Yan and the RIGHT trial investigators

Background

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Empirical prescription of post procedural anticoagulation (PPA) after primary PCI is common worldwide, with various drugs and dosages

CCC-ACS registry (2014–2019)[1]

- 159 tertiary and 82 secondary hospitals in China
- 34,826 STEMI patients with primary PCI, **75.4% were treated with PPA**

American Heart Association | American Stroke Association | Chinese Society of Cardiology

HORIZONS-AMI and EUROMAX pooled analysis[2]

- HORIZONS-AMI 123 centres in 11 countries and EUROMAX 65 sites in 9 countries
- Among 5239 patients with primary PCI, **41.1% received PPA**

HORIZONS-AMI

EUROMAX
EUROpean AMbulance ACS AngioX Trial

Current ESC and AHA/ACC guidelines do not provide recommendations for PPA after primary PCI in patients with STEMI

1. J Am Coll Cardiol Intv. 2022;15(3):251-263; 2. Eur Heart J Acute Cardiovasc Care. 2017;6(7):659-665.

Study Design

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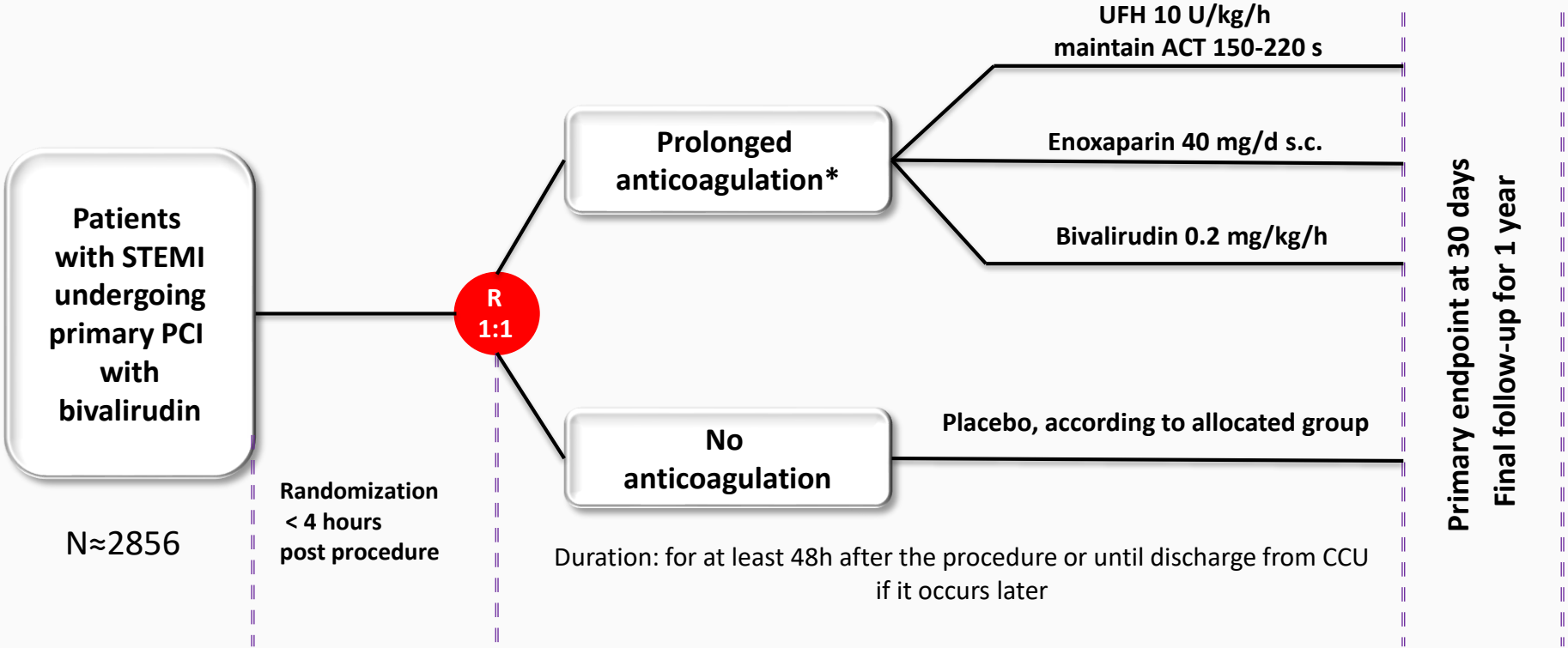

* Each center will use only one anticoagulant in all patients randomized at this center

Yan Y. et al. Am Heart J 2020;227:19-30; RIGHT ClinicalTrials.gov number, NCT 03664180

Study Endpoints

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- **Primary efficacy endpoint**

  Composite of all-cause death, non-fatal myocardial infarction, non-fatal stroke, stent thrombosis (definite) or urgent revascularization (of any vessel) at 30 days

- **Primary safety endpoint**

  Major bleeding (BARC definition type 3 to 5) at 30 days

Key Baseline Characteristics

Variables	PPA (n=1494)	Placebo (n=1495)
Age, years; mean (SD)	60.7 (12.4)	61.1 (12.3)
Male sex	1195/1494 (80.0)	1175/1495 (78.6)
Current smoking	763/1494 (51.1)	712/1495 (47.6)
Hypertension	830/1494 (55.6)	800/1495 (53.5)
Diabetes	359/1494 (24.0)	372/1495 (24.9)
Dyslipidaemia	637/1494 (42.6)	623/1495 (41.7)
Prior myocardial infarction	107/1494 (7.2)	92/1495 (6.2)
Chronic kidney disease	30/1494 (2.0)	28/1495 (1.9)
Anterior STEMI	640/1494 (42.8)	658/1495 (44.0)
Door-to-balloon time, minutes; median (IQR)	74 (55, 99)	75 (53, 103)
Aspirin before angiography	1467/1494 (98.2)	1458/1495 (97.5)
$P2Y_{12}$ inhibitor loading before angiography	1425/1494 (95.4)	1407/1495 (94.1)

Primary Efficacy Endpoint

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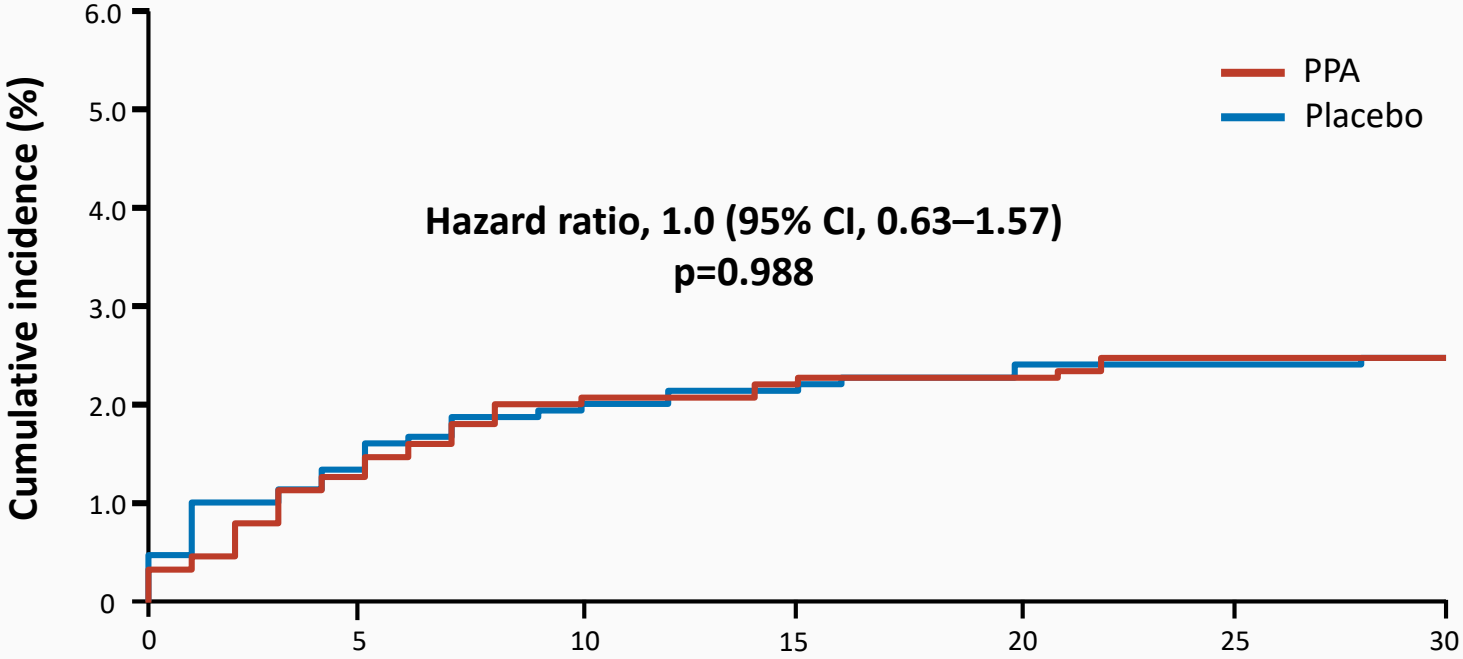
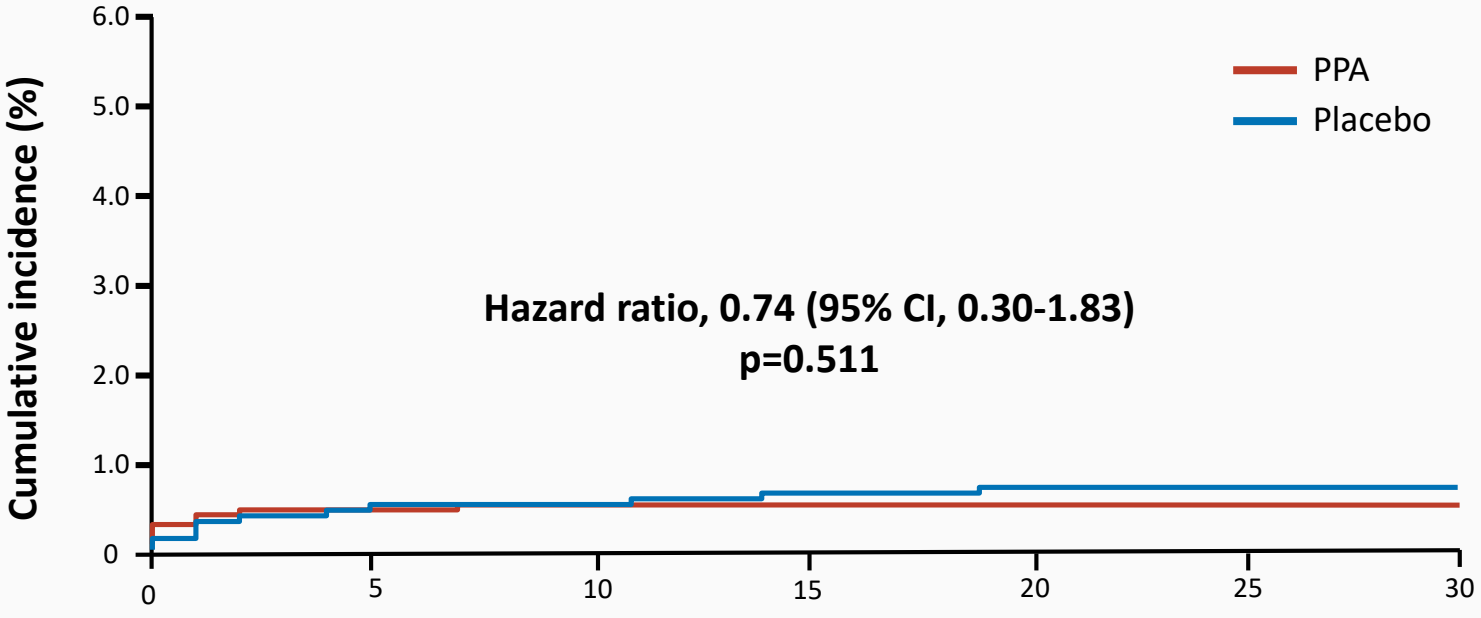


No. at risk							
Placebo	1495	1475	1466	1463	1461	1459	1458
PPA	1494	1475	1464	1461	1460	1457	1457

Primary efficacy endpoint: Death, MI, stroke, stent thrombosis or urgent revascularization at 30 days

Primary Safety Endpoint



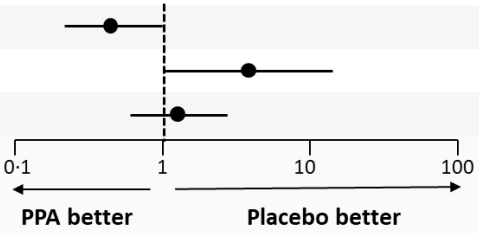
No. at risk							
Placebo	1488	1470	1462	1458	1457	1456	1456
PPA	1468	1448	1440	1438	1437	1435	1435

Primary safety endpoint: Major bleeding (BARC 3 to 5) at 30 days

Secondary Exploratory Findings

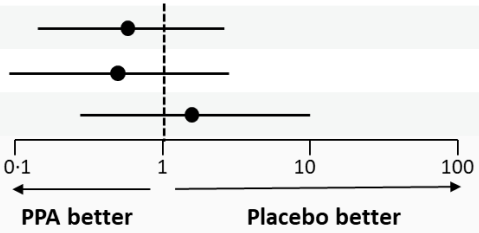
A **Primary efficacy outcome in three anticoagulation regimen groups**

Subgroup	PPA	Placebo	Hazard ratio (95%CI)	*p for interaction 0·015*
	no./total no. (%)			
Enoxaparin	10/474 (2·1)	21/471 (4.5)		0·46 (0·22-0·98)
UFH	11/510 (2·2)	3/512 (0·6)		3·71 (1·03-13·28)
Bivalirudin	16/510 (3·1)	13/512 (2·5)		1·24 (0·60-2·59)



B **Primary safety outcome in three anticoagulation regimen groups**

Subgroup	PPA	Placebo	Hazard ratio (95%CI)	*p for interaction 0·679*
	no./total no. (%)			
Enoxaparin	3/466 (0·6)	5/470 (1·1)		0·60 (0·14-2·52)
UFH	2/503 (0·4)	4/508 (0·8)		0·50 (0·09-2·75)
Bivalirudin	3/499 (0·6)	2/510 (0·4)		1·54 (0·26-9·24)



Conclusion & Clinical Implications

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- Routine PPA using low-dose anticoagulation after primary PCI is safe but does not improve ischaemic outcome at 30 days
- Our data suggest that the three anticoagulants may not be equivalent in the prevention of 30-day ischaemic events but this finding deserves confirmation in future studies