ACUTE CORONARY SYNDROME

Dr. Aniff YEAROO

- Term used for any condition brought on by sudden, reduced blood flow to the heart.
- Presentations variable chest pain – Dyspnea to cardiac arrest
- ACS is treatable if diagnosed quickly is a complication of a plaque buildup in the Coronary Arteries (Coronary Atherosclerosis)
- Most are due to rupture of plaque and formation of a blood clot.

Risk factors

- Age ≥45yrs
- HBP
- High cholesterol
- Cigarette smoking
- Lack of physical activity
- Type 2 diabetes
- Family history

Diagnosis

- Electrocardiogram

- Blood Tests

- Cardiac Enzymes

- Echocardiography

- Coronary Angiogram

Treatment

- Antithrombotic and dual antiplatelet therapy

  Aspirin - clopidogrel – ticagrelor – prasugrel – GPIIb/IIIa inhibitors

- Fibrinolysis or Primary PCI

- Nitroglycerin

- Beta blocker

- Surgery

Radial Access

- Less bleeding complications
- RIVAL Register 7000 patients (1.4 vs 3.7%)
- STEMI – RADIAL (2014) – 707 patients
- 1.4% vascular complication versus 7.2% (femoral)
- No mortality benefit

Manual Thrombus Aspiration (STEMI)

➢ TASTE STUDY – Randomized study – 7244 patients

30 days comparable MACE

➢ TAPAS Registry 4212 patients (Sweden)

MACE higher in thrombus aspiration

patients - ↑ mortality

➢ Older studies – showed more benefits

(REMEDIA) - ↓ mortality one year

➢ Selection of patients important

(Thrombus ++)

Multivessel Disease in ACS

➤ Timing for complete Revascularization

➤ ESC 2012 – " Staged Procedure" – unless choc or persistent ischeamia

➤ META ANALYSIS – (early 2014) ↑ MACE for complete revascularization

Recent publications (awaiting further

studies) showed no significant MACE for

complete Revascularization

(Re hospitalisation-Reintervention)

NSTEMI

- DAPT before Coronary Angiography
- ➢ ABOARD – ACCOAST
- 5-10% CABG
- 20-25% Medical (Distal Disease, Myocarditis, Pulmonary embolism, Dissection of the Aorta)
- Clopidogrel (P2Y12 inhibitor) effect in 12hours
- ➢ Newer drugs Prasugrel & Ticagrelor faster effect
- ➢ ESC DAPT as soon as possible – Recent controversies in ACS (NSTEMI)
- ➢ Meta analysis 37814 patients
- ➢ Higher risk patients more beneficial (STEMI)– Newer drugs act quicker – Pre treatment needs re evaluation

ACCOAST STUDY (NSTEMI)

4033 patients – NSTEMI – PCI- Prasugrel

➢ No benefit for pre treatment (10% vs 9.8%)

➢ Pretreatment with prasugrel ↑Bleeding risk

➢ Prasugrel after Coronary Angiography

➢ No benefit in NSTEMI for early PCI

STEMI

- PCI <2 hours after medical contact (otherwiseThrombolysis) (ESC Recommendation)

- DAPT ASA + (Prasugrel C.I previous CVA, TIA, <75yrs, <60kgs)
  + Ticagrelor (less MACE)

  Clopidogrel second intention

➢ Prasugrel – (TRITON – TIMI) vs Clopidogrel

- ↓ 19% MACE 15 months
- No significant ↑ Bleeding risks
- ↓ stent thrombosis – 30 days 1.2 vs 2.4%

➢ Ticagrelor (PLATO) vs Clopidogrel
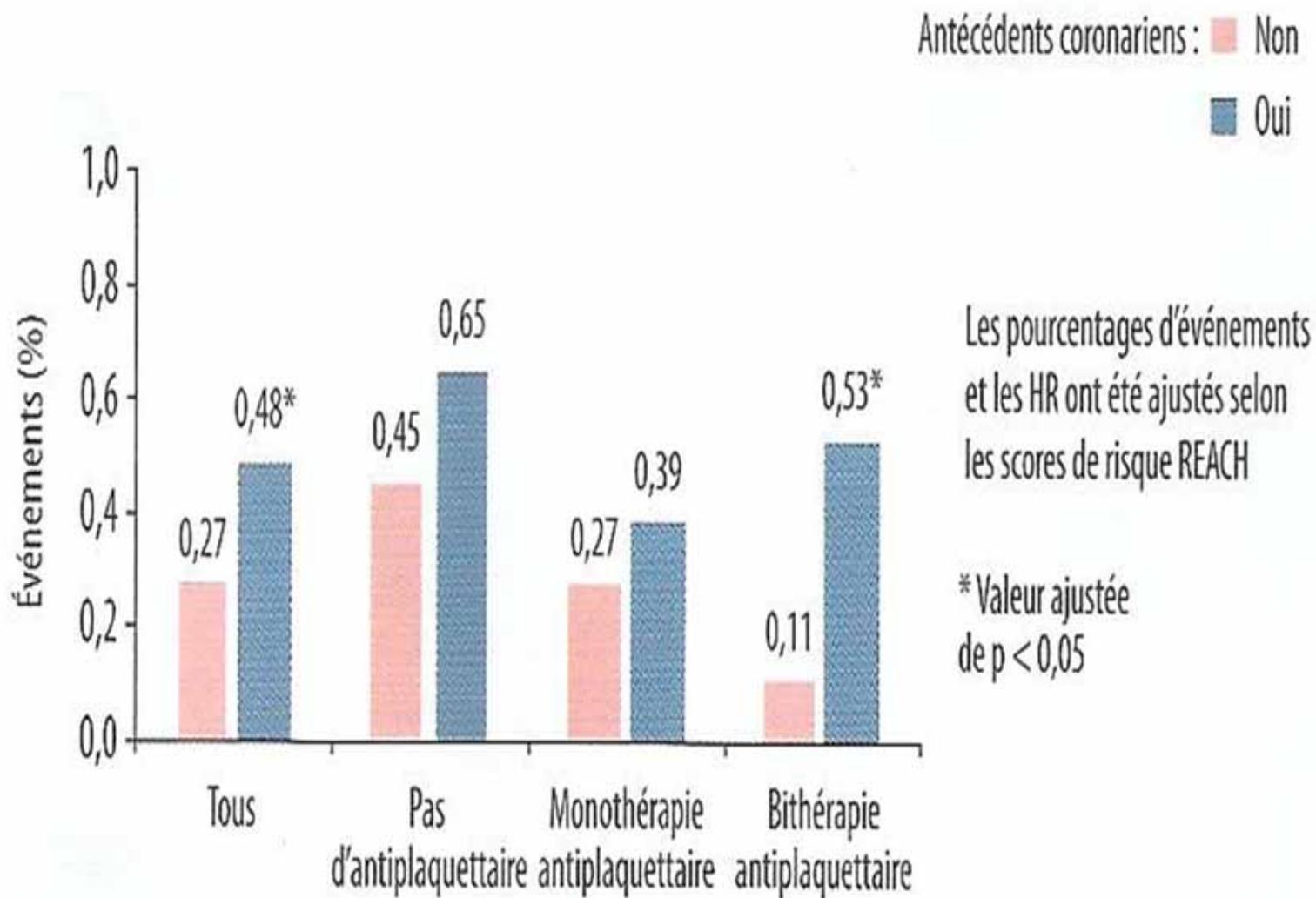
- ↓ MACE 16% - one year
- No ↑ Bleeding risks

Figure 1. Registre REACH : risque d'AVC hémorragique non fatal à 4 ans de suivi (d'après [6]).
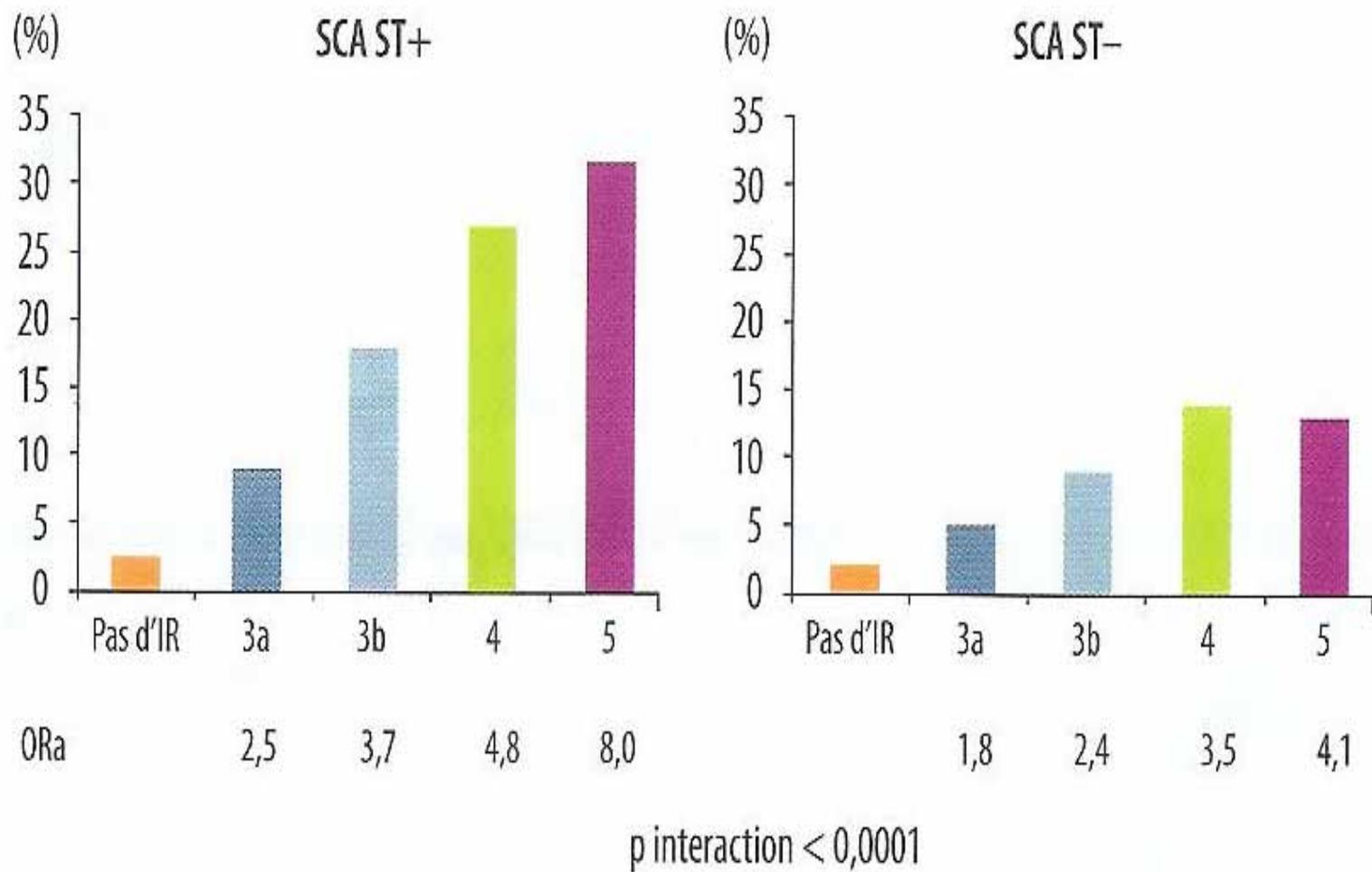
(%) SCA ST+

	35			
	30			
	25			
	20			
	15			
	10			
	5			
	0			

	Pas d'IR	3a	3b	4	5
ORa		2,5	3,7	4,8	8,0

(%) SCA ST–

	Pas d'IR	3a	3b	4	5
ORa		1,8	2,4	3,5	4,1

p interaction < 0,0001

Figure 2. Mortalité intrahospitalière chez les patients SCA ST+ et SCA ST– en fonction du stade d'atteinte rénale (d'après [7]).

HR = 1,02 ;
IC$_{95}$: 0,84-1,25 ;
p = 0,81

Décès CV, IDM, AVC et revascularisation
par anti-GP IIb/IIIa en urgence

HR = 0,997 ;
IC$_{95}$: 0,83-1,20 ;
p = 0,98

Prétraitement
10,0

Prétraitement
10,8

Absence
de prétraitement
9,8

Absence
de prétraitement
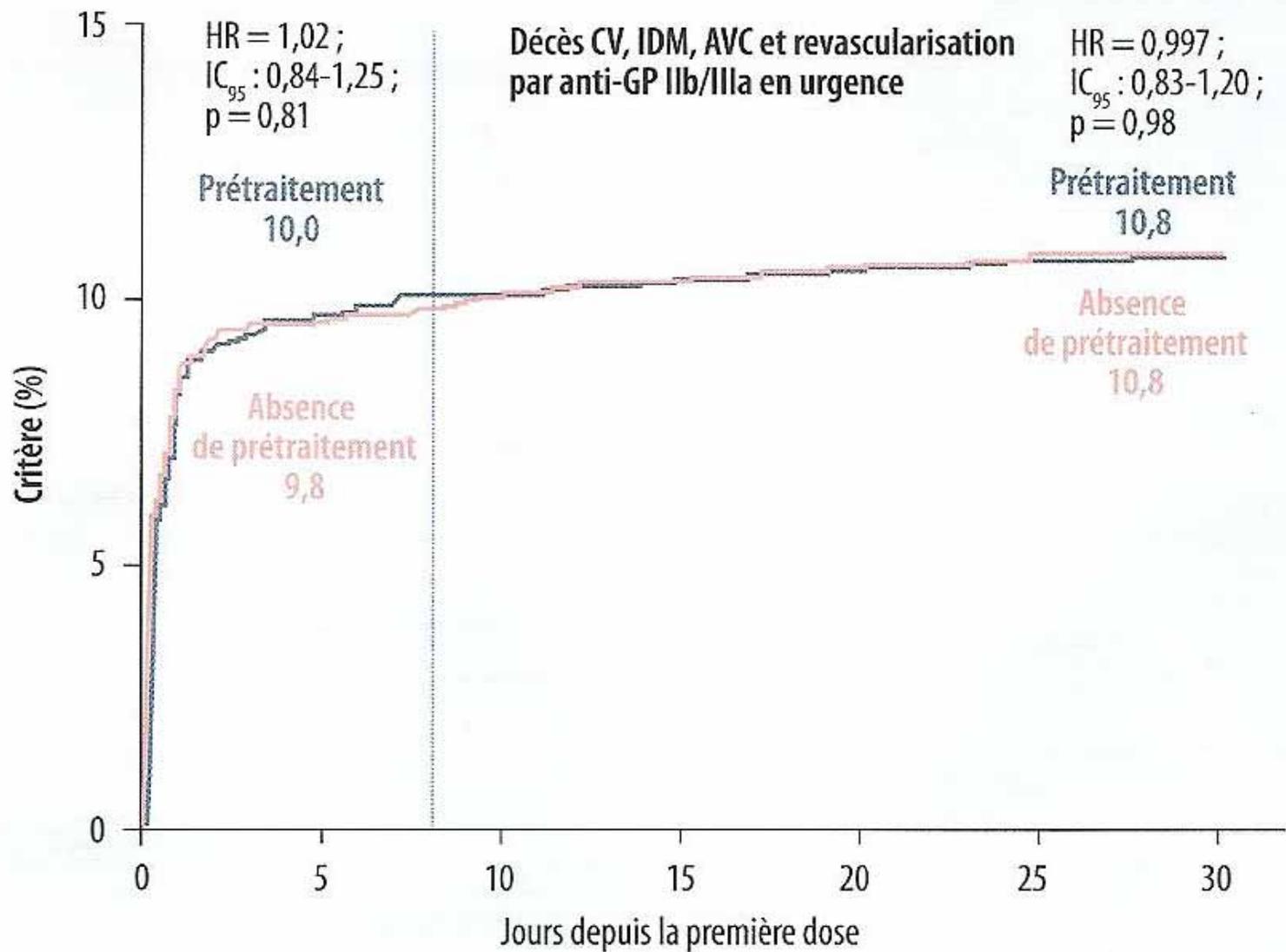10,8

Critère (%)

Jours depuis la première dose

Figure 1. Étude ACCOAST : critère primaire : décès CV, IDM, AVC et revascularisation par anti-GPIIb/IIIa en urgence à 7 et à 30 jours (d'après [9]).
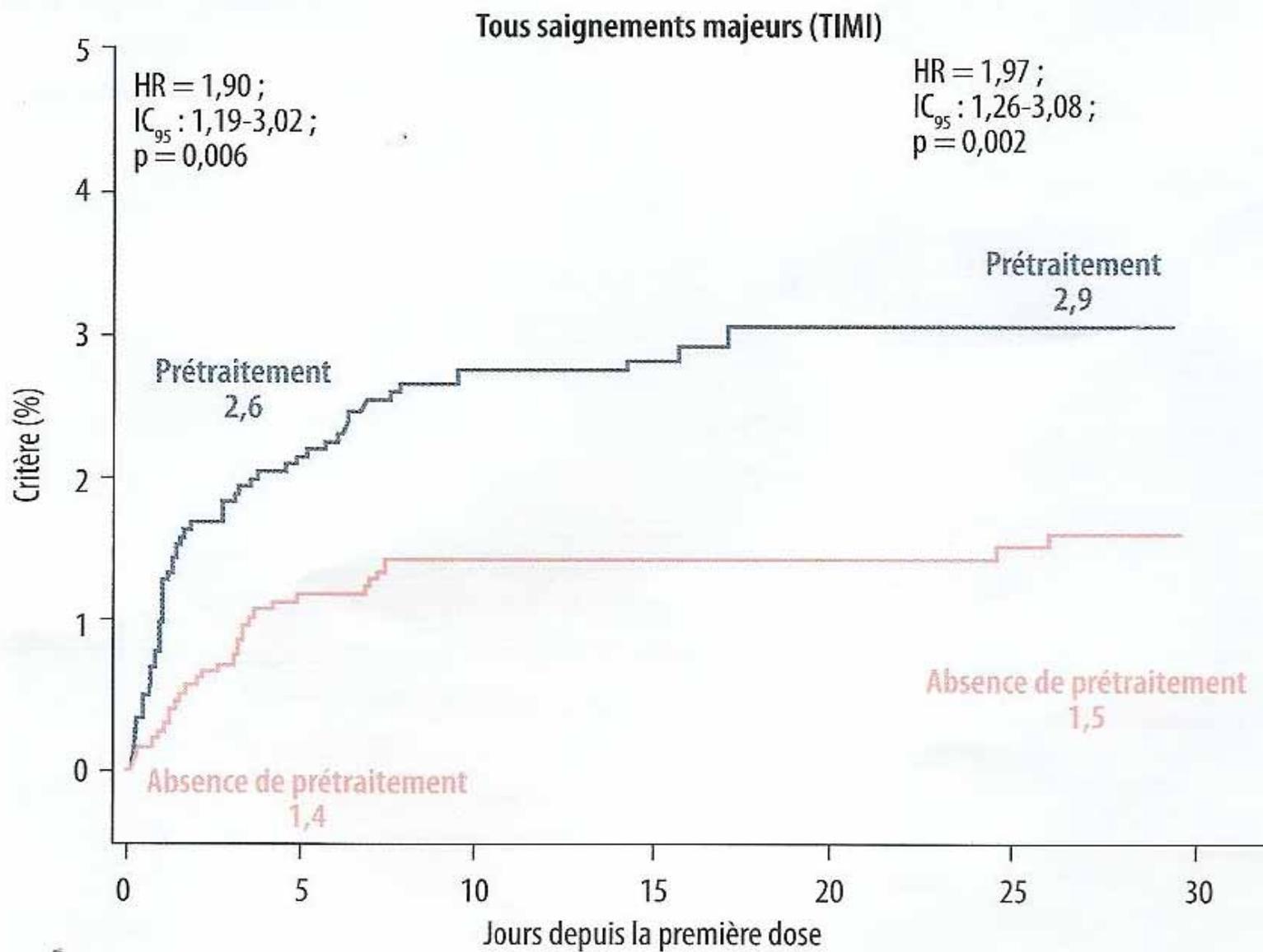
Tous saignements majeurs (TIMI)

HR = 1,90 ;
IC_{95} : 1,19-3,02 ;
p = 0,006

HR = 1,97 ;
IC_{95} : 1,26-3,08 ;
p = 0,002

Prétraitement
2,9

Prétraitement
2,6

Critère (%)

Absence de prétraitement
1,5

Absence de prétraitement
1,4

Jours depuis la première dose

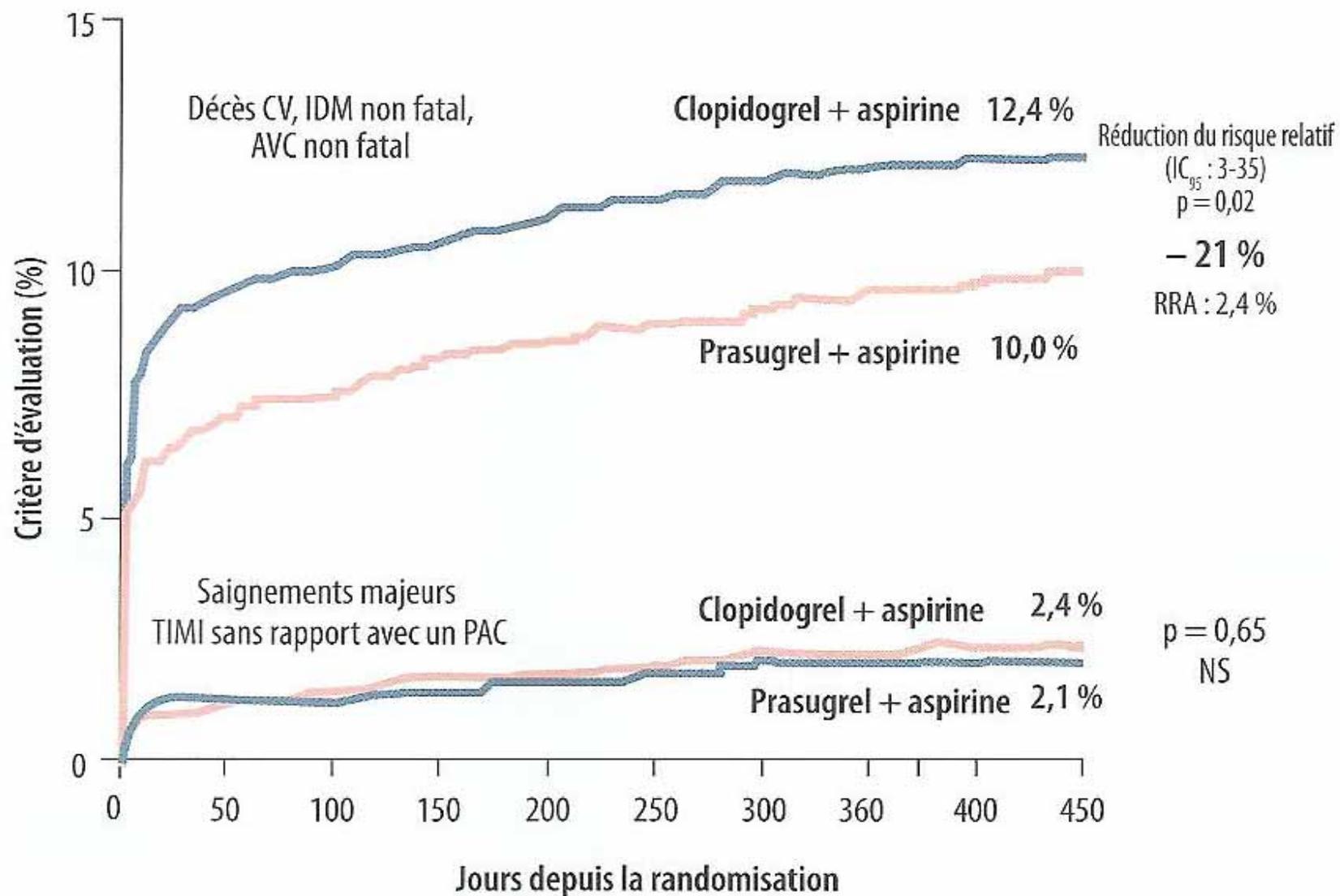**Figure 2.** Étude ACCOAST : critère primaire de tolérance.

Figure 3. Critères principaux d'efficacité et de tolérance sur toute la durée de l'étude TRITON sur la population STEMI (d'après [2]).
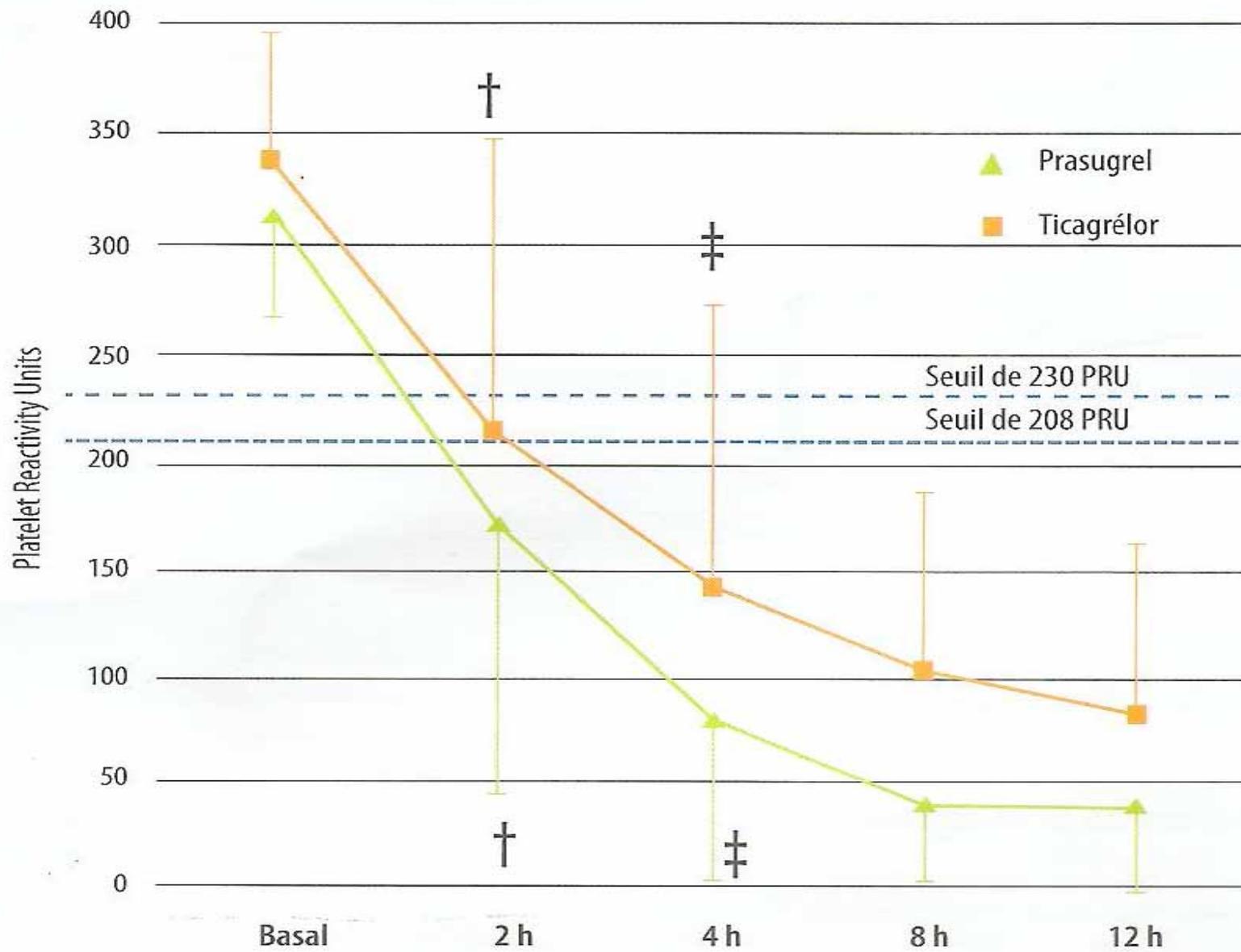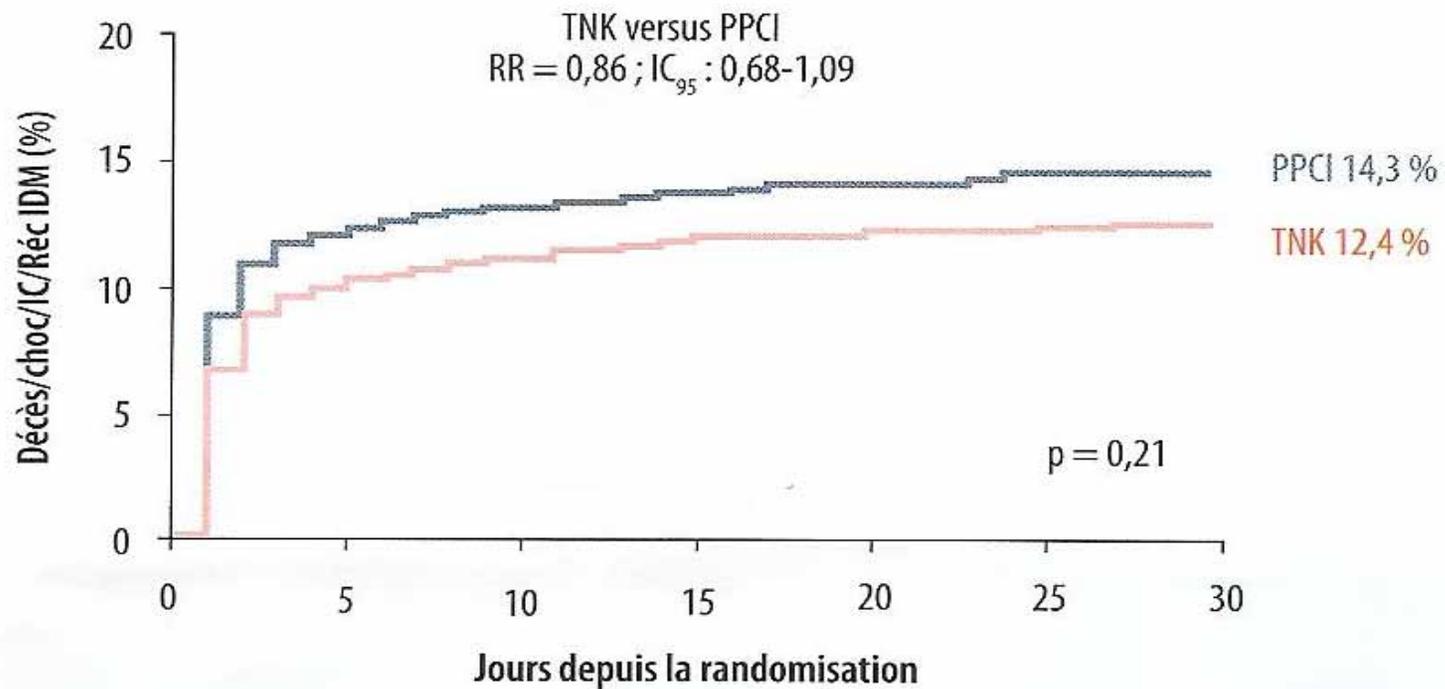
Figure 4. Évolution du PRU chez des patients STEMI en cas d'administration de prasugrel ou de ticagrélor (d'après [4]).

TNK versus PPCI
RR = 0,86 ; IC$_{95}$: 0,68-1,09

Décès/choc/IC/Réc IDM (%)

PPCI 14,3 %

TNK 12,4 %

p = 0,21

Jours depuis la randomisation

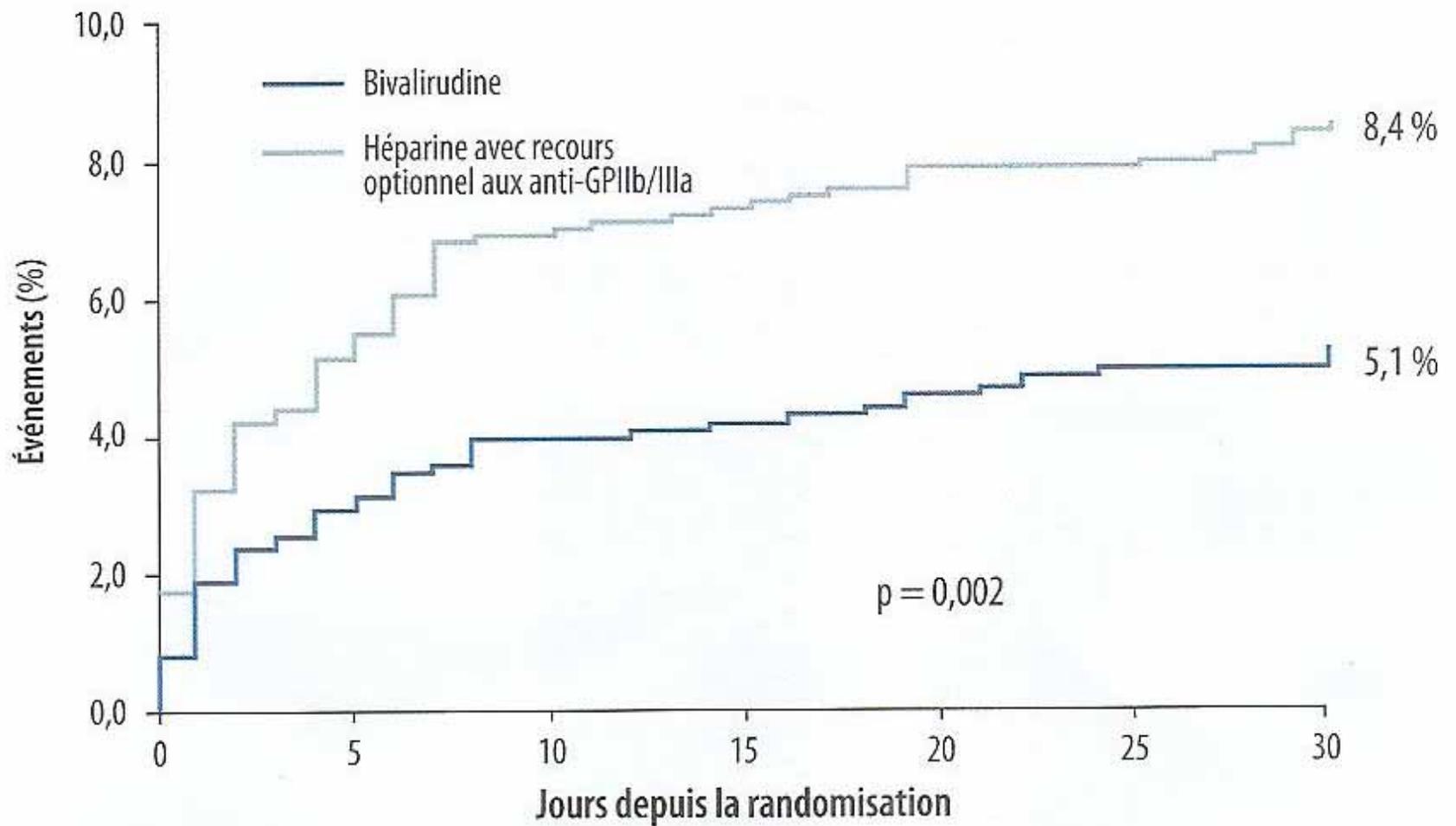| AVC	TNK	PPCI	p
AVC (total)	15/939 (1,60 %)	5/946 (0,53 %)	0,03
AVC fatal	7/993 (0,75 %)	4/946 (0,42 %)	0,39
AVC hémorragique	9/939 (0,96 %)	2/946 (0,21 %)	0,04
Après amendement (80 % des patients)			
AVC (total)	9/747 (1,2 %)	5/758 (0,66 %)	0,30
AVC fatal	3/747 (0,40 %)	4/758 (0,53 %)	> 0,99
AVC hémorragique	4/747 (0,54 %)	2/758 (0,26 %)	> 0,45

Figure 1. Critère principal de l'étude STREAM.

Figure 2. Étude EUROMAX : critère principal – décès ou saignements majeurs à 30 jours (d'après *[3]*).

CLINICAL CASE

- 50 years old man without any previous medical history presented with a six hours intermittent constricting chest pain

- ECG changes and troponine consistent with anterior NSTEMI

- Coronary Angiography revealed a double vessel disease. Tight LAD (culprit lesion) and RCA disease

- LAD predilated – BVS – Absorb – Post dilated

- RCA FFR 0.78 – 0.80 – predilated and stented BVS