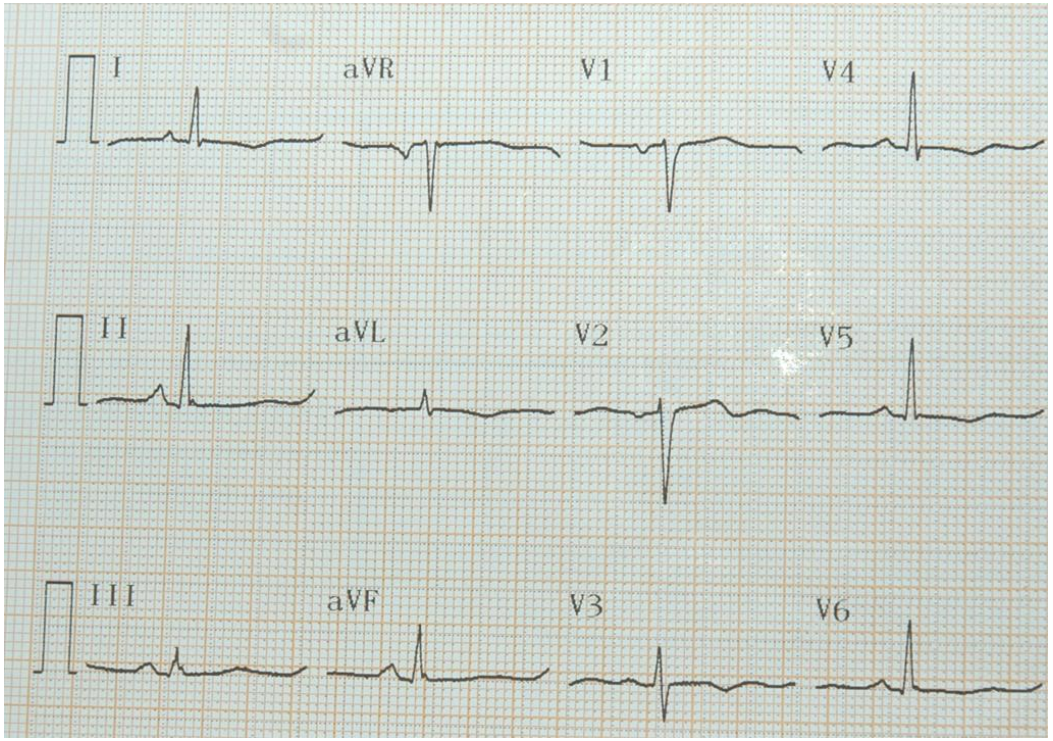
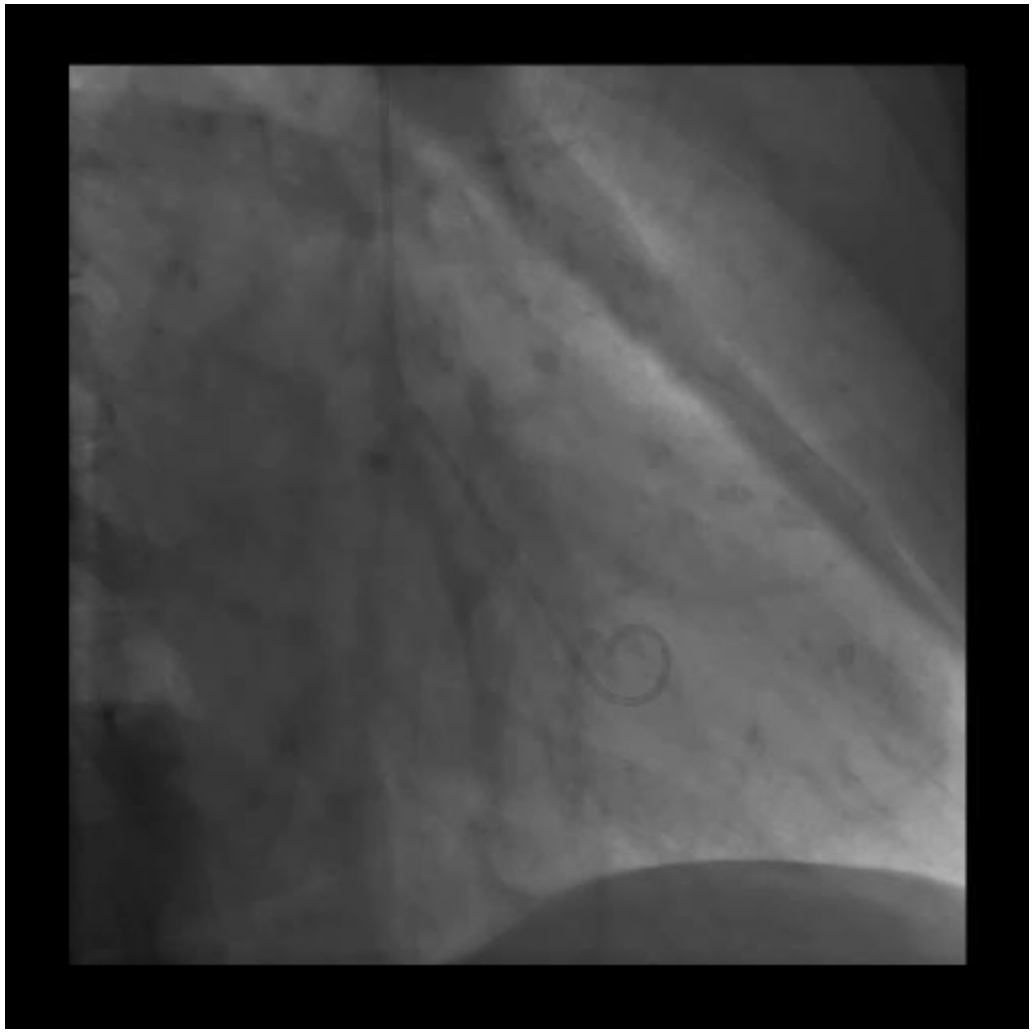
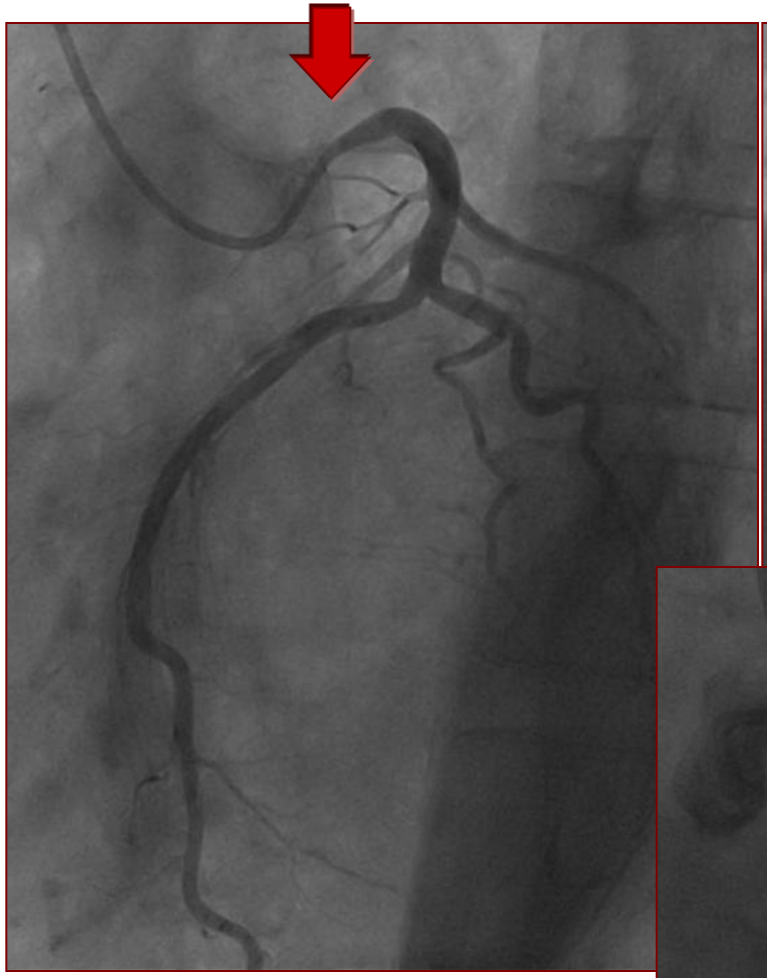
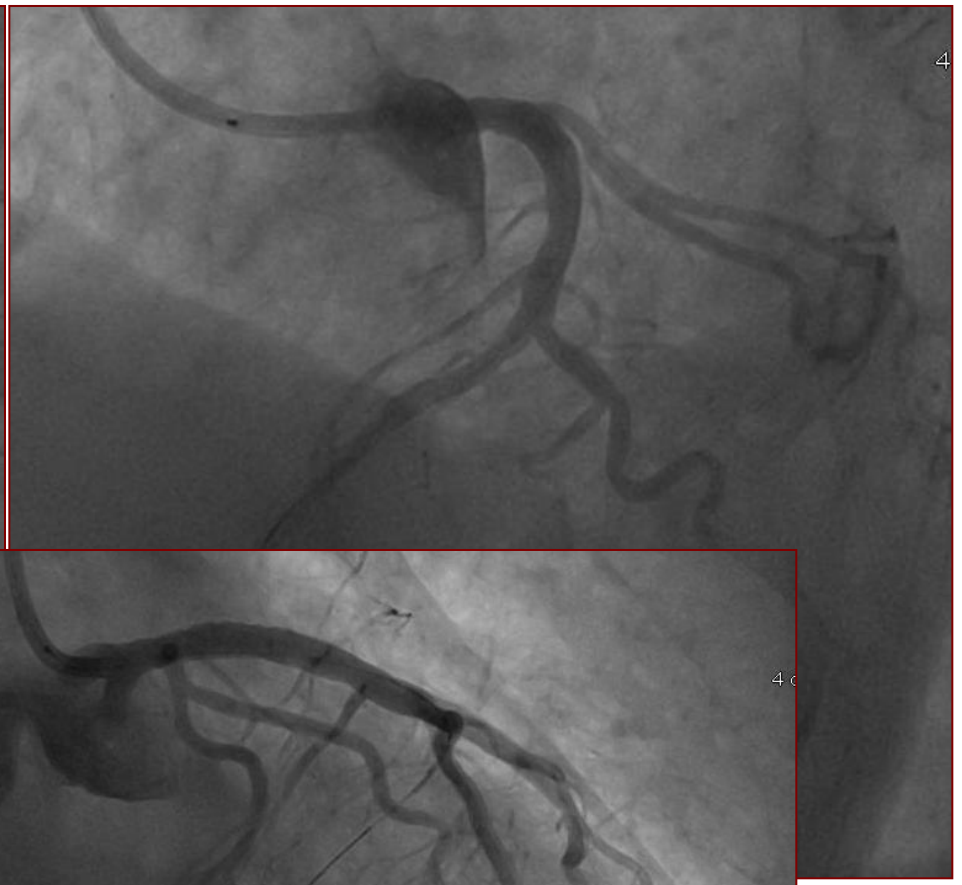
- Mme Al…61 ans, adressée par son généraliste et son cardiologue pour une gêne rétro-sternale prolongée, apparue le 29 décembre, sans modification ECG initiale. Prise de sang à H12 objectivant une troponine à 1.7 ng/ml motivant l'hospitalisation.
- Sportive, de corpulence normale, elle se plaint d'une dyspnée d'effort s'aggravant progressivement depuis 2 ans.
- FR : néant. Guérie d'un Hodjkin depuis 19 ans, par radiothérapie du médiastin et du cou.
- EDG à l'admission :

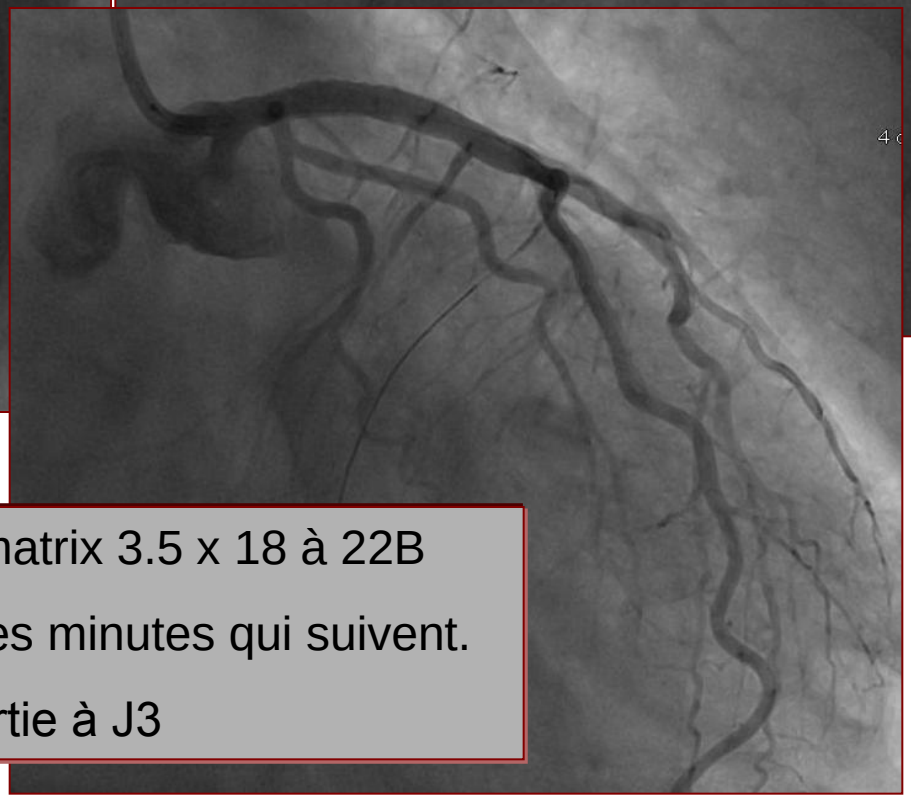


Décision d’exploration en urgence (4F, radiale droite)









Stenting du tronc par un Biomatrix 3.5 x 18 à 22B

Disparition de la gêne dans les minutes qui suivent.

Pas d'élévation des CPK. Sortie à J3

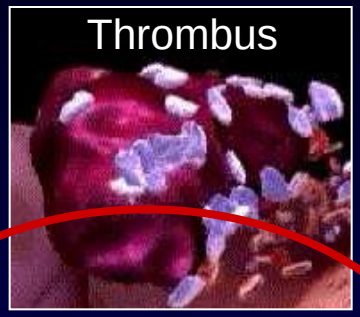
Gestion d’un patient présentant une douleur thoracique

Docteur Pierre Meyer
Institut Arnault Tzanck
Saint Laurent du Var
France

ESC 2011-2012

Plaque Rupture

Vasospasm



Vasoconstrictive

Serotonin, endothelin & thromboxaneA_2 Release

↓EDRF and prostacyclin

oxygen supply

≠

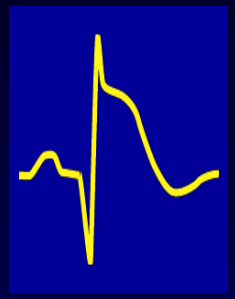
oxygen demand

Decrease in coronary flow

Mechanical

Thrombus formation, plaque dissection, intra mural haematoma Distal Embolization of atherosclerotic debris and Thrombus

Acute Coronary Syndrome



STEMI

non Sustained STE ACS

European Heart Journal (2011) 32, 2999–3054
doi:10.1093/eurheartj/ehr236

2011

ESC GUIDELINES

ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

The Task Force for the manage
(ACS) in patients presenting wit
elevation of the European Socie

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European Heart Journal (2012) 33, 2569–2619
doi:10.1093/eurheartj/ehs215

2012

ESC GUIDELINES

ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation

The Task Force on the management of ST-segment elevation acute myocardial infarction of the European Society of Cardiology (ESC)

Authors/Task Force Members: Ph. Gabriel Steg (Chairperson) (France)*, Stefan K. James (Chairperson) (Sweden)*, Dan Atar (Norway), Luigi P. Badano (Italy), Carina Blömstrom-Lundqvist (Sweden), Michael A. Borger (Germany), Carlo Di Mario (United Kingdom), Kenneth Dickstein (Norway), Gregory Ducrocq (France), Francisco Fernandez-Aviles (Spain), Anthony H. Gershlick (United Kingdom), Pantaleo Giannuzzi (Italy), Sigrun Halvorsen (Norway), Kurt Huber (Austria), Peter Juni (Switzerland), Adnan Kastrati (Germany), Juhani Knuuti (Finland), Mattie J. Lenzen (Netherlands), Kenneth W. Mahaffey (USA), Marco Valgimigli (Italy), Arnoud van 't Hof (Netherlands), Petr Widimsky (Czech Republic), Doron Zahger (Israel)

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L'histoire qui suit est arrivée à l'Institut. Elle est véridique et n'a pas été romancée pour les besoins de cette soirée…

Mr P…47 ans,

- Consulte en urgence le 20 mai 2011 à 8h40 au service des urgences de Tzanck, amené par sa femme pour un malaise général apparu à 8 heures s'accompagnant de nausées et d'une gène sourde au creux épigastrique et à la région médiothoracique basse, irradiant à l'épaule gauche. Il n'a jamais ressenti de tels symptômes et se sentait bien les jours précédents…
- A son admission, il présente toujours cette gêne, mais le malaise a régressé, à tel point qu'il n'accepte de rester pour être examiné que sur l'insistance de sa femme.
- **Quels compléments d'examen ?**

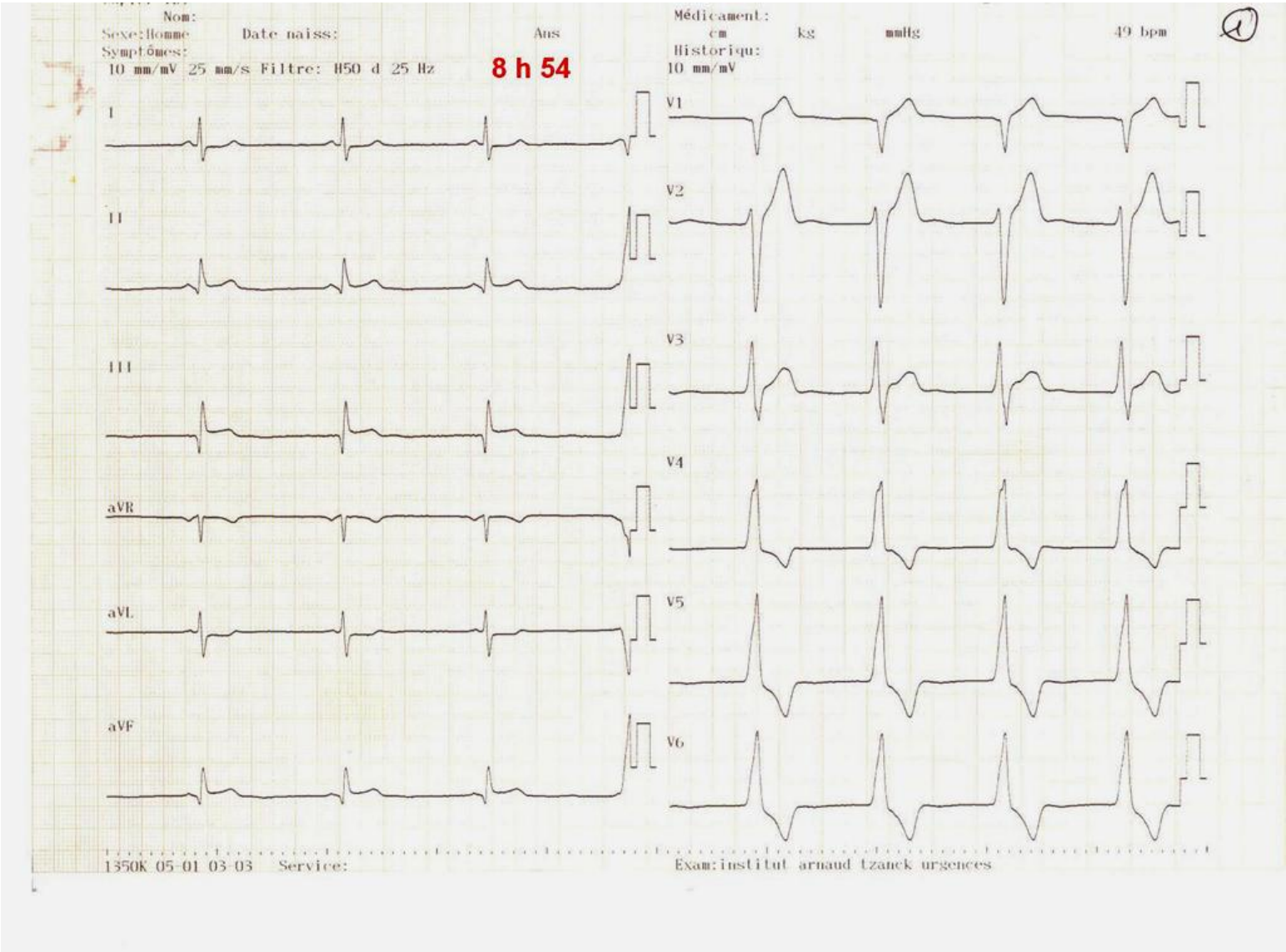
FR : Mr P… a un léger enbompoint. Il est sédentaire, tabagique et dyslipidémique. Pas d'hérédité coronarienne familiale.

ATCD CV : En 2008, Il avait appelé le SAMU pour une douleur thoracique latéralisée à droite à irradiation dorsale ; il avait alors été dirigé sur l'UPATOU de la clinique Saint Jean de Cagnes d'où on l'avait orienté sur l'Institut quelques heures après, où il avait reçu un stent (la lecture du dossier informatique révèle qu'il avait fait un infarctus larvé, dépisté avec retard sur l'élévation du taux de troponine au 2° prélèvement, signant une nécrose, alors que trois ECG n'avaient décelé aucune anomalie. Coro en urgence (Ph Durand) ayant montré une thrombose Cx moyenne désobstruée avec 7 heures de retard par aspiration et stent carbone avec un pic de CPK à 2200 et des suites simples. Les autres axes coronariens étaient à l'époque légèrement surchargés, sans autre lésion significative).

Après un séjour de rééducation à Callian, il avait rapidement repris son travail …et le tabac (5 cigarettes/jour).

- Aucun symptôme depuis 2008. Ergométries normales. Dernière Cs avec son cardio 3 mois auparavant : RAS ; discrète séquelle postérieure ECG
- Prend bien son traitement (Nebilox 5 mg/jour, Kardegic 75 mg, Crestor 5 mg).
- Son examen clinique est normal. TA : 135/95.

1° ECG, 15mn après l'enregistrement du patient au service porte



Quelle est votre hypothèse de travail ?

A. Syndrôme coronarien aigu
B. Possible trouble du rythme paroxystique sur WPW
C. Problème extra-cardiaque (digestif ?)

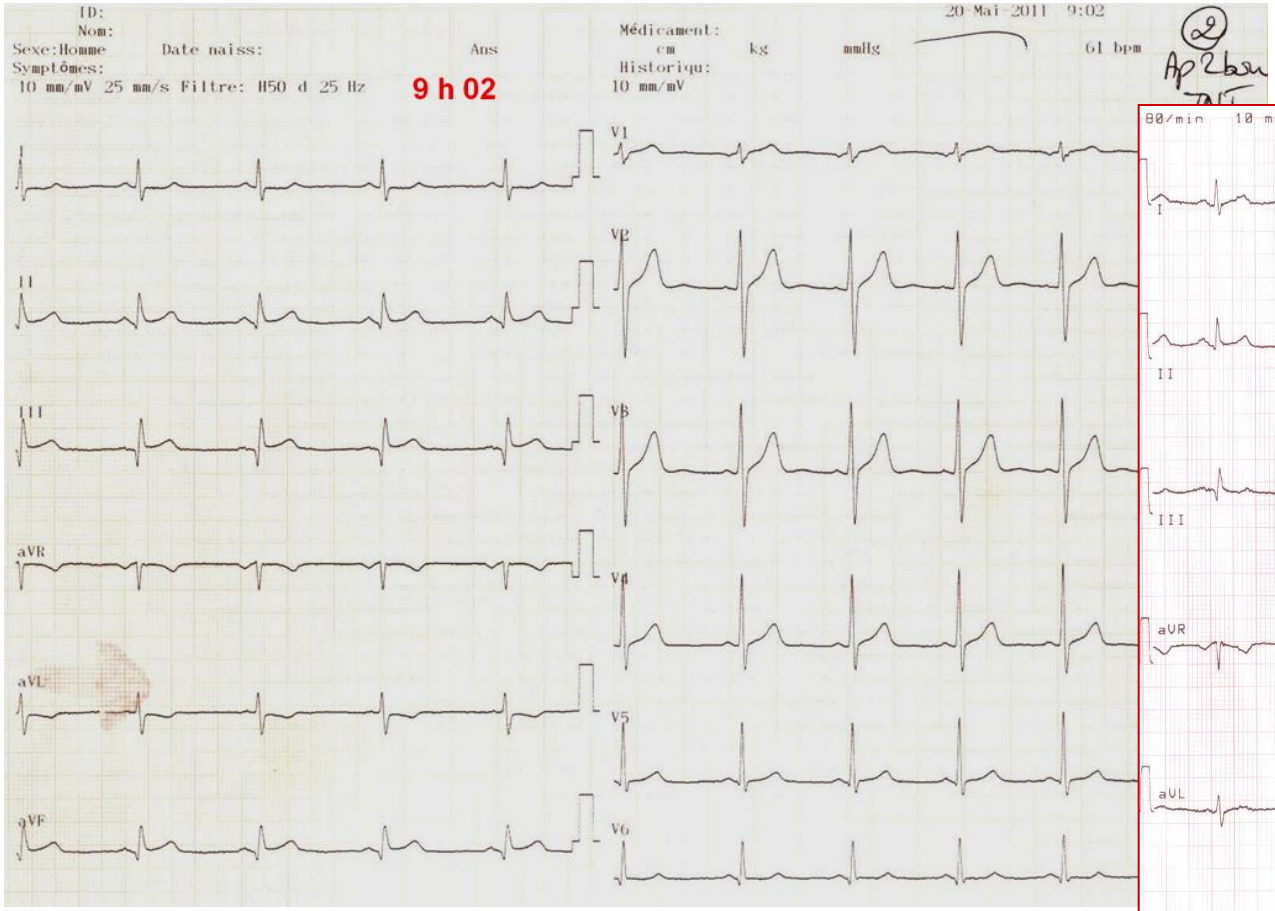
Que lui proposez-vous ?

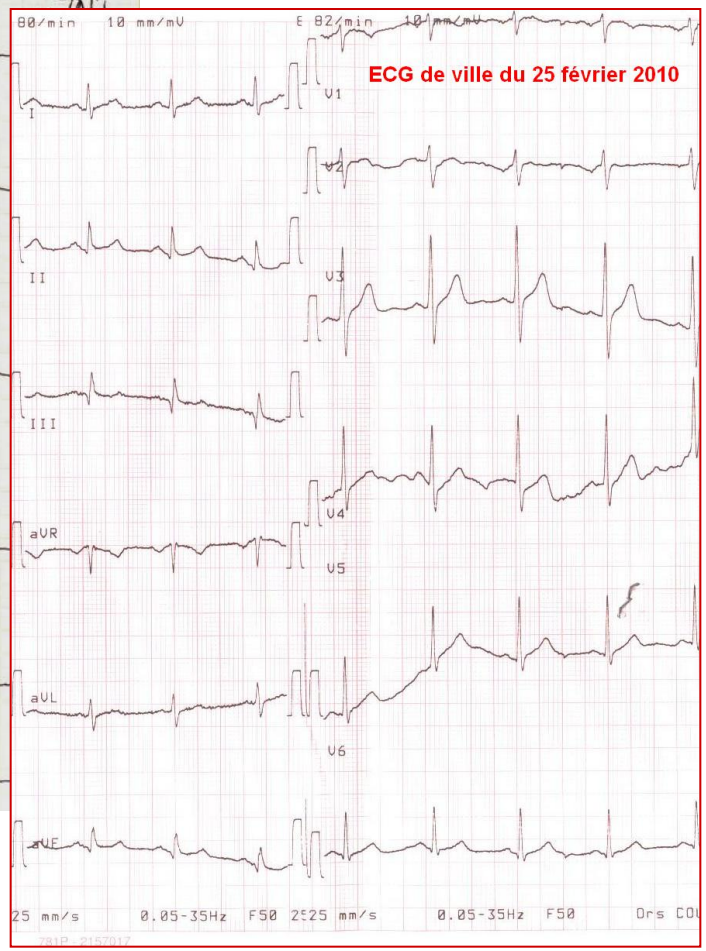
A. je le laisse rentrer à la maison avec RV d'ergométrie
B. je le garde en observation afin de refaire un ECG à distance et pratique deux dosages de troponine espacés de 6 heures
C. j'appelle le cardiologue interventionnel sans tarder

10 mn plus tard, 2° ECG sous nitrés à la demande du médecin.

Douleur sourde, toujours présente, peut-être atténuée. Examen normal.

Mis sous scope en observation dans l'attente de la troponine….





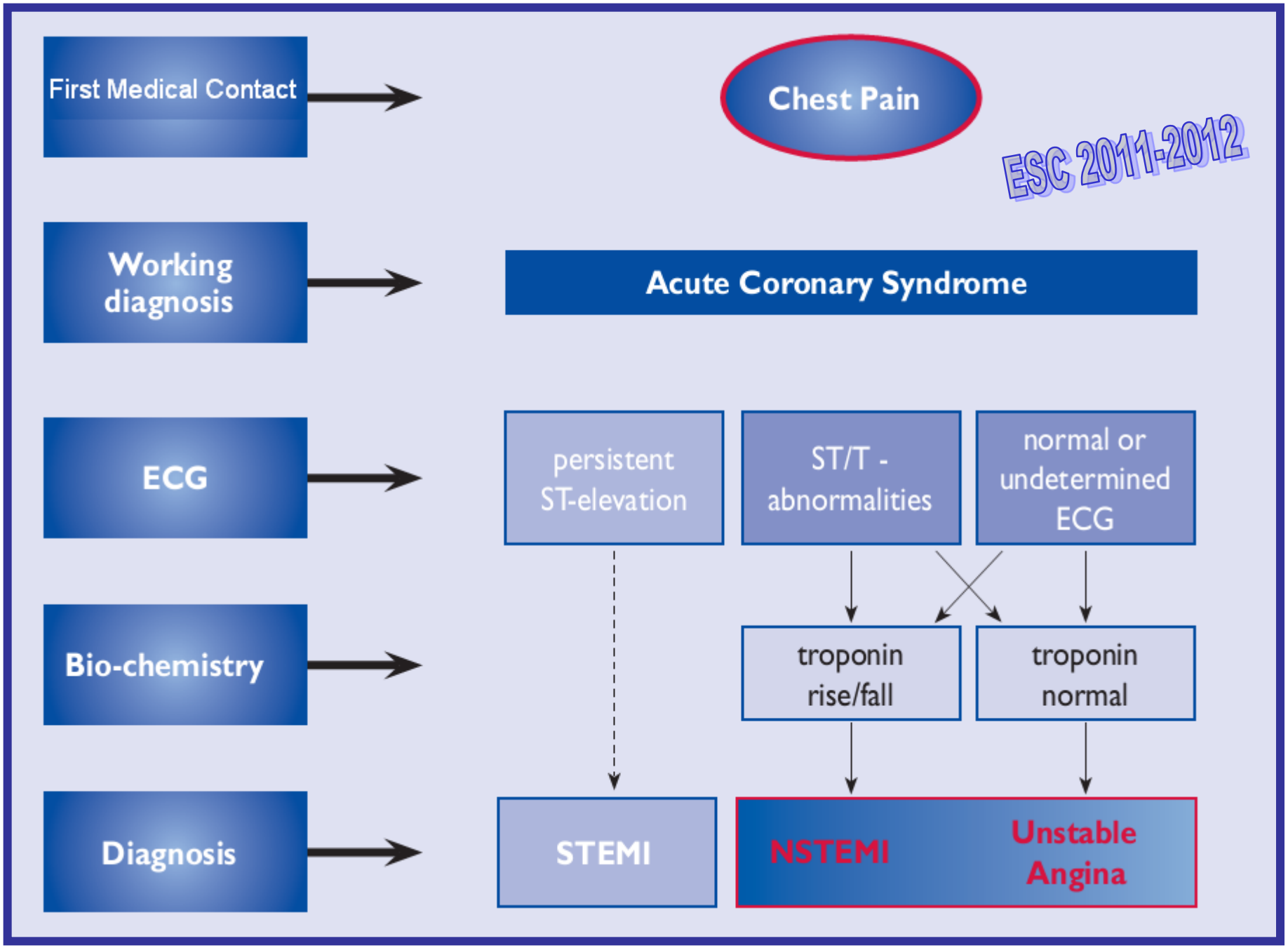
Le médecin urgentiste considère que le patient peut présenter un SCA sans anomalie électrique significative. Il opte pour une surveillance sous scope de quelques heures en prévoyant de contrôler ECG et troponine, dont il aura le résultat du premier prélèvement dans moins d'une heure.

Sa stratégie est-elle conforme aux recommandations ESC ?

A. Oui
B. Non

Quel examen vous semble le plus pertinent en urgence :

A. Scanner thoraco-abdominal injecté
B. Échocardiographie
C. Coronarographie
D. Aucun : j'attends les résultats biologiques en surveillant le patient


First Medical Contact
Chest Pain
ESC 2011-2012
Working diagnosis
Acute Coronary Syndrome
ECG
persistent ST-elevation
ST/T - abnormalities
normal or undetermined ECG
Bio-chemistry
troponin rise/fall
troponin normal
Diagnosis
STEMI
NSTEMI
Unstable Angina

Dans l'attente des résultats biologiques, l'urgentiste charge le patient en Efient (60 mg), lui administre 500 mg d'Aspegic IV, 0,3 ml de Lovenox IV et 0,8 en s/c.

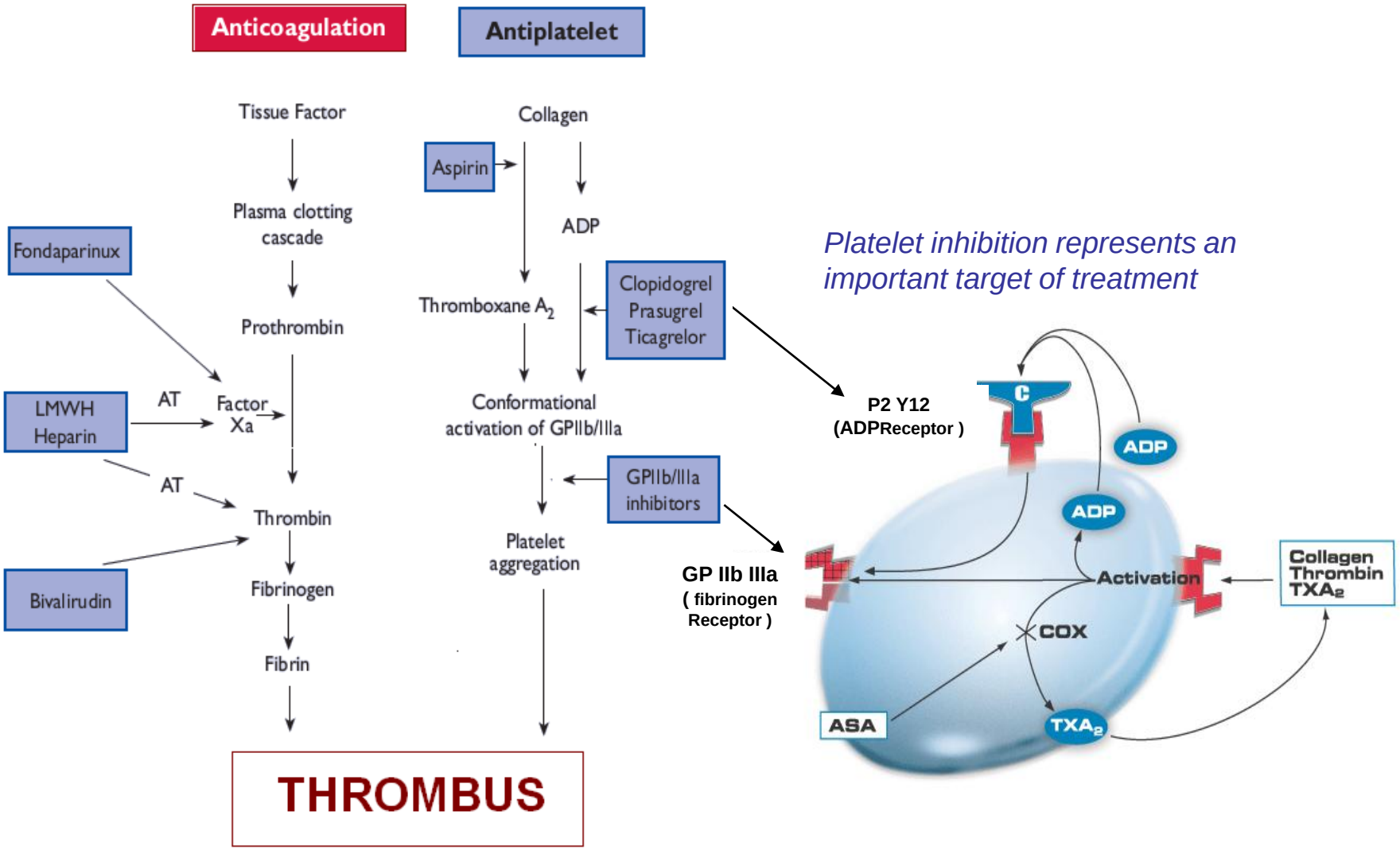
Ces prescriptions sont-elles cohérentes avec le diagnostic de SCA sans modifications électriques qui est retenu comme diagnostic probable ?

A. Oui ; j'aurais fait la même prescription
B. Non ; il n'y a pas urgence à rajouter un produit à son aspirine
C. Non ; je l'aurais chargé en plavix 300 mg
D. Non ; je l'aurais chargé en plavix 600 mg
E. Non ; je l'aurais chargé en Ticagrelor : 180 mg

Ajouteriez-vous :

A. Un béta-bloquant injectable
B. Une prescription d'IEC ou ARA II
C. Un anti GPIIb-IIIa
D. Une perfusion de nitrés
E. Les 4 produits
F. Aucun de ces produits

Targets for Antithrombics



Overview of P2Y12 studies

Trial	Population	Comparison	Primary endpoint	Mortality	MI	CVA	Stent thrombosis[a]	Bleeding
Cure[110] (2001)	12562 NSTE-ACS	Clopidogrel 75 mg (300 mg loading) vs. placebo	CV death, MI, CVA Clopidogrel 9.3% Placebo 11.4% ($P < 0.001$) ARR 2.1%; RRR 20%; NNT 48	CV causes Clopidogrel 5.1% Placebo 5.5% (P = NS)	Clopidogrel 5.2% Placebo 6.7% (P not given)	Clopidogrel 1.2% Placebo 1.4% (P not given)	Not given	Major bleeding[b] Clopidogrel 3.7% Placebo 2.7% ($P = 0.001$) NNH: 100
TRITON[130] (2007)	13608 undergoing PCI NSTE-ACS 74% STEMI 26%	Prasugrel 10 mg (60 mg loading) vs. clopidogrel 75 mg (300 loading)	CV death, MI, CVA Prasugrel 9.9% Clopidogrel 12.1% ($P < 0.001$) ARR 2.2%; RRR 27%; NNT 45	CV causes Prasugrel 2.1% Clopidogrel 2.4% ($P = 0.31$) Any cause Prasugrel 3.0% Clopidogrel 3.2% ($P = 0.64$)	Prasugrel 7.3% Clopidogrel 9.5% ($P < 0.001$)	Prasugrel 1.0% Clopidogrel 1.0% ($P = 0.93$)	Prasugrel 1.1% Clopidogrel 2.4% ($P < 0.001$)	Non–CABG-related major bleeding[d]: Prasugrel 2.4% Clopidogrel 1.8% ($P = 0.03$) NNH: 167 CABG-related major bleeding Prasugrel 13.4% Clopidogrel 3.2% ($P < 0.001$) NNH: 10 (CABG)
PLATO[132] (2009)	18624 NSTE-ACS: 59% STEMI: 38% (invasive and non-invasive) 50.9% STEMI 49.1%	Ticagrelor 90 mg b.i.d. (180 mg loading) vs. clopidogrel 75 mg (300–600 mg loading)	Death from vascular causes, MI, CVA Ticagrelor 9.8% Clopidogrel 11.7% ($P < 0.001$) ARR 1.9%; RRR 16%; NNT 53 ($P = 0.0025$) ARR 1.7%; RRR 16%; NNT 59	Vascular causes Ticagrelor 4.0% Clopidogrel 5.1% ($P = 0.001$) Any cause Ticagrelor 4.5% Clopidogrel 5.9% ($P < 0.001$) Ticagrelor 3.9% Clopidogrel 5.0% ($P = 0.010$)	Ticagrelor 5.8% Clopidogrel 6.9% ($P = 0.005$)	Ticagrelor 1.5% Clopidogrel 1.3% ($P = 0.22$)	See below	Major bleeding[e] Ticagrelor 11.6% Clopidogrel 11.2% ($P = 0.43$) NNH: NA Non-CABG bleeding Ticagrelor 4.5% Clopidogrel 3.8% ($P = 0.03$) NNH: 143 (not undergoing CABG)

ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

Recommendations for oral antiplatelet agents

Recommendations	Class	Level	Ref
Aspirin should be given to all patients without contraindications at an initial loading dose of 150–300 mg, and at a maintenance dose of 75–100 mg daily long-term regardless of treatment strategy.	I	A	107, 108
A $P2Y_{12}$ inhibitor should be added to aspirin as soon as possible and maintained over 12 months, unless there are contraindications such as excessive risk of bleeding.	I	A	110, 130, 132
A proton pump inhibitor (preferably not omeprazole) in combination with DAPT is recommended in patients with a history of gastrointestinal haemorrhage or peptic ulcer, and appropriate for patients with multiple other risk factors (*H. elicobacter pylori* infection, age ≥65 years, concurrent use of anticoagulants or steroids).	I	A	125–127
Prolonged or permanent withdrawal of $P2Y_{12}$ inhibitors within 12 months after the index event is discouraged unless clinically indicated.	I	C	-

ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation

Recommendations for oral antiplatelet agents

Ticagrelor (180-mg loading dose, 90 mg twice daily) is recommended for all patients at moderate-to-high risk of ischaemic events (e.g. elevated troponins), regardless of initial treatment strategy and including those pre-treated with clopidogrel (which should be discontinued when ticagrelor is commenced).	I	B	132
Prasugrel (60-mg loading dose, 10-mg daily dose) is recommended for $P2Y_{12}$-inhibitor-naïve patients (especially diabetics) in whom coronary anatomy is known and who are proceeding to PCI unless there is a high risk of life-threatening bleeding or other contraindications.	I	B	130
Clopidogrel (300-mg loading dose, 75-mg daily dose) is recommended for patients who cannot receive ticagrelor or prasugrel.	I	A	110, 146, 147
A 600-mg loading dose of clopidogrel (or a supplementary 300-mg dose at PCI following an initial 300-mg loading dose) is recommended for patients scheduled for an invasive strategy when ticagrelor or prasugrel is not an option.	I	B	108, 114, 115
A higher maintenance dose of clopidogrel 150 mg daily should be considered for the first 7 days in patients managed with PCI and without increased risk of bleeding.	IIa	B	108
Increasing the maintenance dose of clopidogrel based on platelet function testing is not advised as routine, but may be considered in selected cases.	IIb	B	124
Genotyping and/or platelet function testing may be considered in selected cases when clopidogrel is used.	IIb	B	119, 121
In patients pre-treated with $P2Y_{12}$ inhibitors who need to undergo non-emergent major surgery (including CABG), postponing surgery at least for 5 days after cessation of ticagrelor or clopidogrel, and 7 days for prasugrel, if clinically feasible and unless the patient is at high risk of ischaemic events should be considered.	IIa	C	-
Ticagrelor or clopidogrel should be considered to be (re-) started after CABG surgery as soon as considered safe.	IIa	B	134
The combination of aspirin with an NSAID (selective COX-2 inhibitors and non-selective NSAID) is not recommended.	III	C	-

Periprocedural anti thrombotic medication in primary PCI

Recommendations	Class	Level
Antiplatelet therapy		
Aspirin oral or i.v. (if unable to swallow) is recommended	I	B
An ADP-receptor blocker is recommended in addition to aspirin. Options are:	I	A
• Prasugrel in clopidogrel-naive patients, if no history of prior stroke/TIA, age < 75 years.	I	B
• Ticagrelor.	I	B
• Clopidogrel, preferably when prasugrel or ticagrelor are either not available or contraindicated.	I	C

ADP = adenosine diphosphate.

European Heart Journal (2012) 33, 2569–2619
doi:10.1093/eurheartj/ehs215

Periprocedural anti thrombotic medication in primary PCI, *con't*

Recommendations	Class	Level
Anticoagulants		
An injectable anticoagulant must be used in primary PCI.	I	C
Bivalirudin (with use of GP IIb/IIIa blocker restricted to bailout) is recommended over unfractionated heparin and a GP IIb/IIIa blocker.	I	B
Enoxaparin (with or without routine GP IIb/IIIa blocker) may be preferred over unfractionated heparin.	IIb	B
Unfractionated heparin with or without routine GP IIb/IIIa blocker must be used in patients not receiving bivalirudin or enoxaparin.	I	C
Fondaparinux is not recommended for primary PCI.	III	B
The use of fibrinolysis before planned primary PCI is not recommended.	III	A

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Periprocedural anti thrombotic medication in primary PCI, *con't*

Recommendations	Class	Level
GP IIb/IIIa inhibitors should be considered for bailout therapy if there is angiographic evidence of massive thrombus, slow or no-reflow or a thrombotic complication.	IIa	C
Routine use of a GP IIb/IIIa inhibitor as an adjunct to primary PCI performed with unfractionated heparin may be considered in patients without contraindications.	IIb	B
Upstream use of a GP IIb/IIIa inhibitor (vs. in-lab use) may be considered in high-risk patients undergoing transfer for primary PCI.	IIb	B
Options for GP IIb/IIIa inhibitors are (with LoE for each agent):		
• Abciximab		A
• Eptifibatide (with double bolus)		B
• Tirofiban (with a high bolus dose)		B

GP = glycoprotein; i.v. = intravenous; lab = catheterization laboratory.

European Heart Journal (2012) 33, 2569–2619
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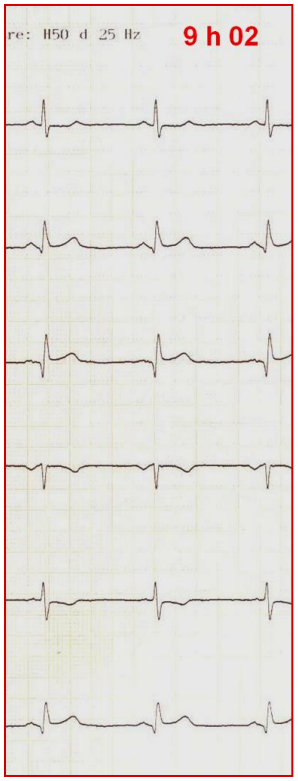
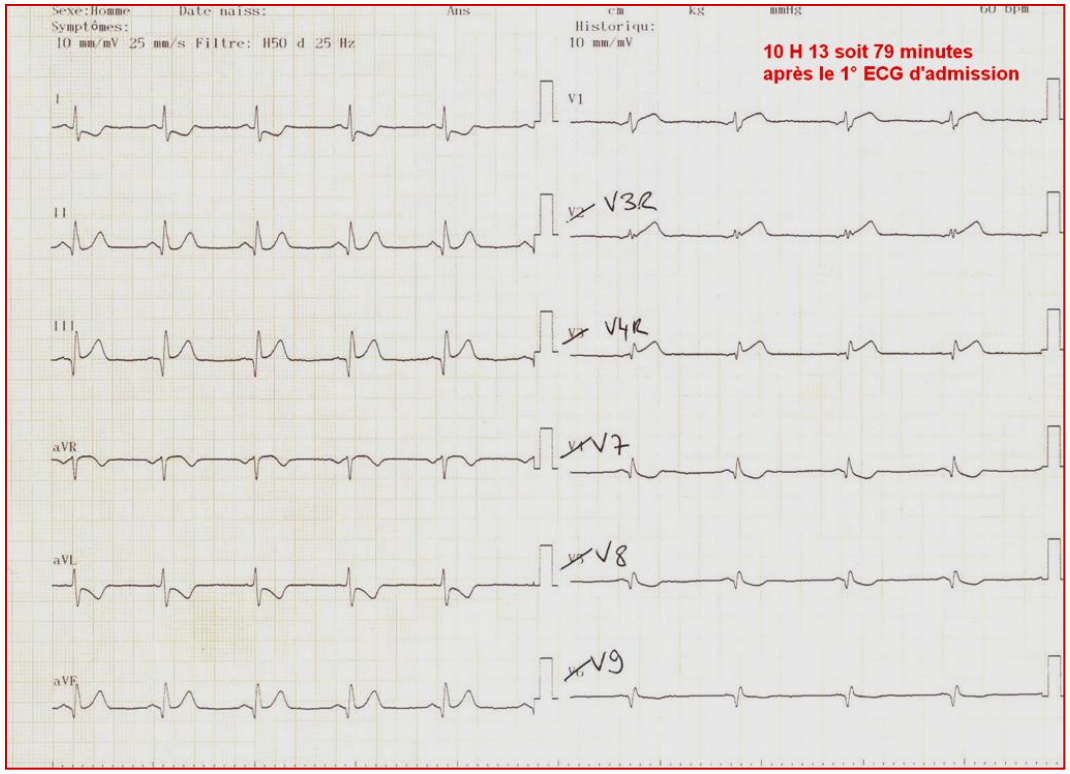
1 heure plus tard, le patient appelle l'infirmière ; la douleur augmente.
Un 3° ECG est réalisé et on appelle l'interne de cardio (D Baudouy)





Quel est votre diagnostic ?

A. Séquelle d'infarctus postéro-latéro-basal ?
B. Infarctus postérieur évolutif avec atteinte du VD ?
C. Les deux (1+2)
D. SCA avec modifications du segment ST du séquelle postéro-latéro-basale
E. Péricardite

Atypical ECG presentations that deserve promt management in patients with signs and symptoms of ischemia

ESC 2012

- LBBB.
- Ventricular paced rhythm.
- Patients without diagnostic ST-segment elevation but with persistent ischaemic symptoms.
- Isolated posterior myocardial infarction.
- ST-segment elevation in lead aVR.

ECG = electrocardiogram; LBBB = left bundle branch block.

European Heart Journal (2012) 33, 2569–2619
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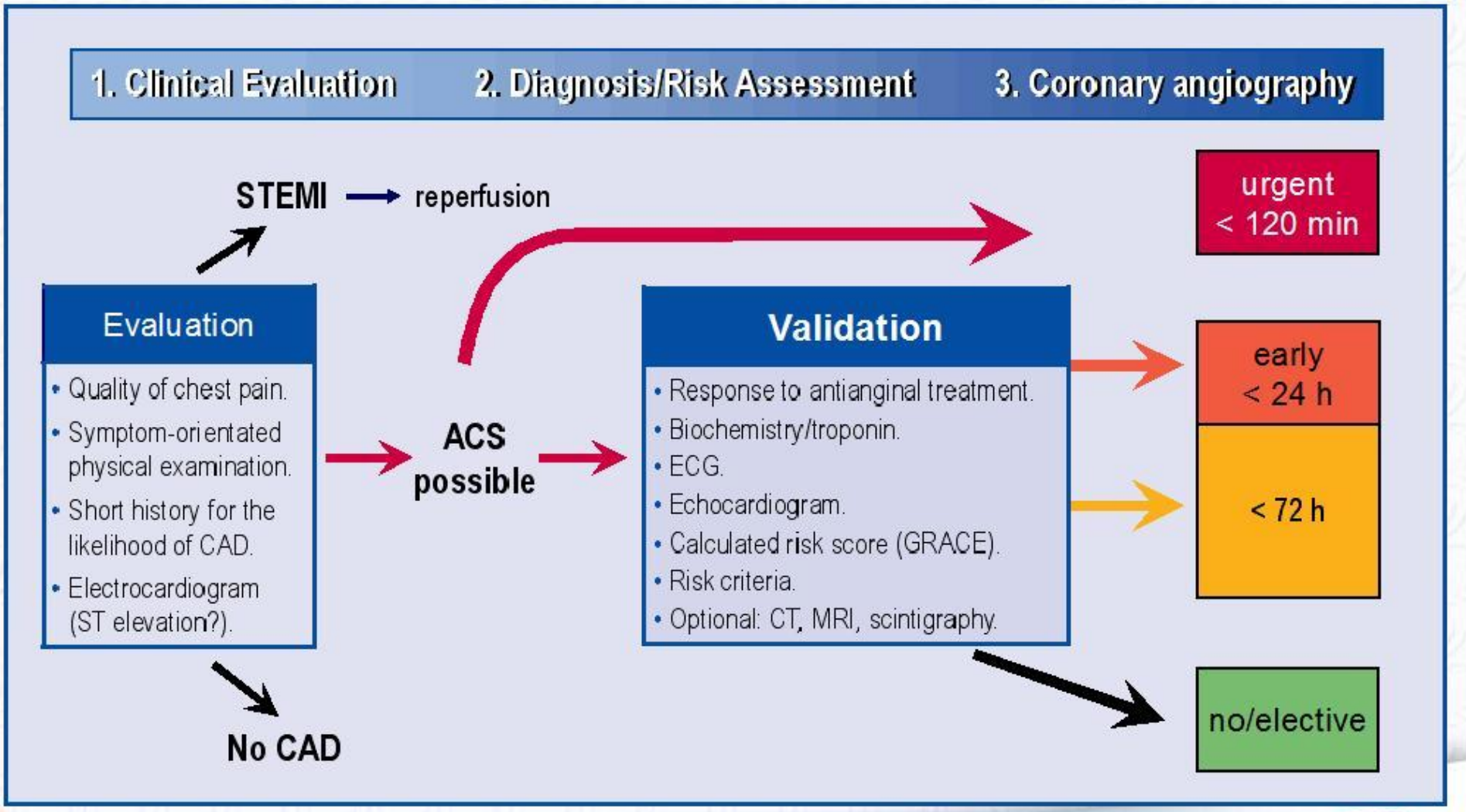
Recommendations for diagnosis and risk stratification (1)

ESC 2011

Recommendations	Class	Level
In patients with a suspected NSTE-ACS, diagnosis and short-term ischaemic/bleeding risk stratification should be based on a combination of clinical history, symptoms, physical findings, ECG (repeated or continuous ST monitoring), and biomarkers.	I	A
ACS patients should be admitted preferably to dedicated **chest pain units or coronary care units.**	I	C
It is recommended to use established risk scores **for prognosis and bleeding (e.g. GRACE, CRUSADE).**	I	B
A 12-lead ECG should be obtained within 10 min after first medical contact and immediately read by an experienced physician. This should be repeated in the case of recurrence of symptoms, and after 6–9 and 24 h, and before hospital discharge.	I	B
Additional ECG leads (V_3R, V_4R, V_7–V_9) are recommended when routine leads are inconclusive.	I	C

European Heart Journal (2011) 32:2999–3054
doi:10.1093/eurheartj/ehr236

Decision-making algorithm in ACS



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European Heart Journal (2011) 32:2999–3054
doi:10.1093/eurheartj/ehr236

EUROPEAN SOCIETY OF CARDIOLOGY®

Recommendations for invasive evaluation and revascularization

Recommendations	Class	Level
An invasive strategy (within 72 h after first presentation) is indicated in patients with: • at least one high-risk criterion, • recurrent symptoms.	I	A
Urgent coronary angiography (< 2 h) is recommended in patients at very high ischaemic risk (refractory angina, with associated heart failure, life-threatening ventricular arrhythmias, or haemodynamic instability).	I	C
An **early** invasive strategy (< 24 h) is recommended in patients with a GRACE score > 140 or with at least one primary high-risk criterion.	I	A
Non-invasive documentation of inducible ischaemia is recommended in low-risk patients without recurrent symptoms before deciding for invasive evaluation.	I	A
The revascularization strategy (*ad-hoc* culprit lesion PCI/ multivessel PCI/CABG) should be based on the clinical status as well as the disease severity, i.e. distribution and angiographic lesion characteristics (e.g. SYNTAX score), according to the local 'Heart Team' protocol.	I	C
As there are no safety concerns related to the use of DESs in ACS, DESs are indicated based on an individual basis taking into account baseline characteristics, coronary anatomy, and bleeding risk.	I	A
PCI of non-significant lesions is not recommended.	III	C
Routine invasive evaluation of low-risk patients is not recommended.	III	A

European Heart Journal (2011) 32:2999–3054
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Summary of indications for imaging and stress testing

ESC 2012

Recommendations	Class	Level
At presentation		
In the acute phase, when diagnosis is uncertain, emergency echo-cardiography may be useful. However, if inconclusive or unavailable and persistent doubt, emergency angiography should be considered.	I	C
After the acute phase		
All patients should have an echocardiography for assessment of infarct size and resting LV function.	I	B
If echocardiography is not feasible, MRI may be used as an alternative.	IIb	C
Before or after discharge		
For patients with multivessel disease, or in whom revascularization of other vessels is considered, stress testing or imaging (e.g. using stress myocardial perfusion scintigraphy, stress echocardiography, positron emission tomography or MRI) for ischaemia and viability is indicated.	I	A
Computed tomography angiography has no role in the routine management of STEMI patients.	III	C

PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

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doi:10.1093/eurheartj/ehs215

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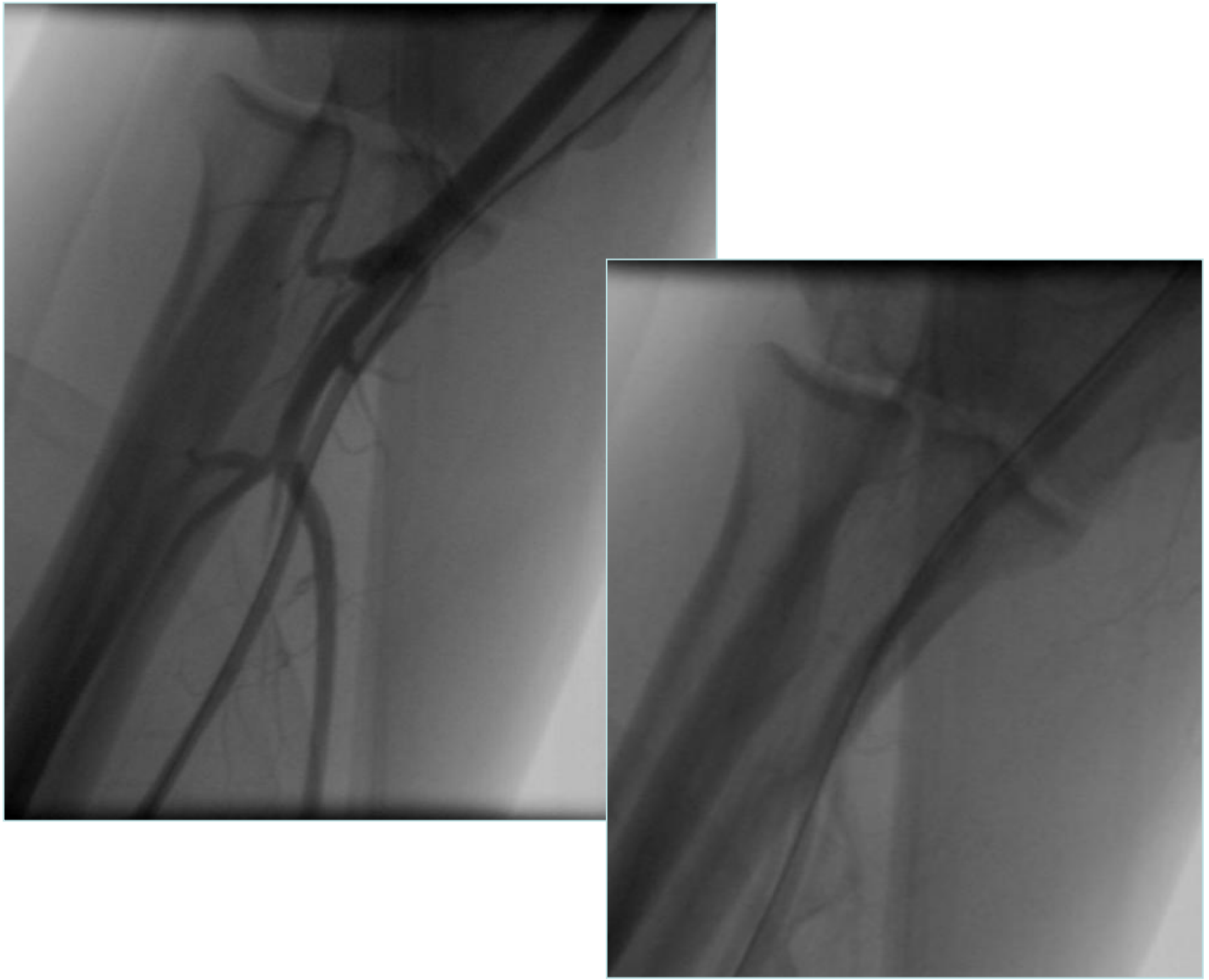
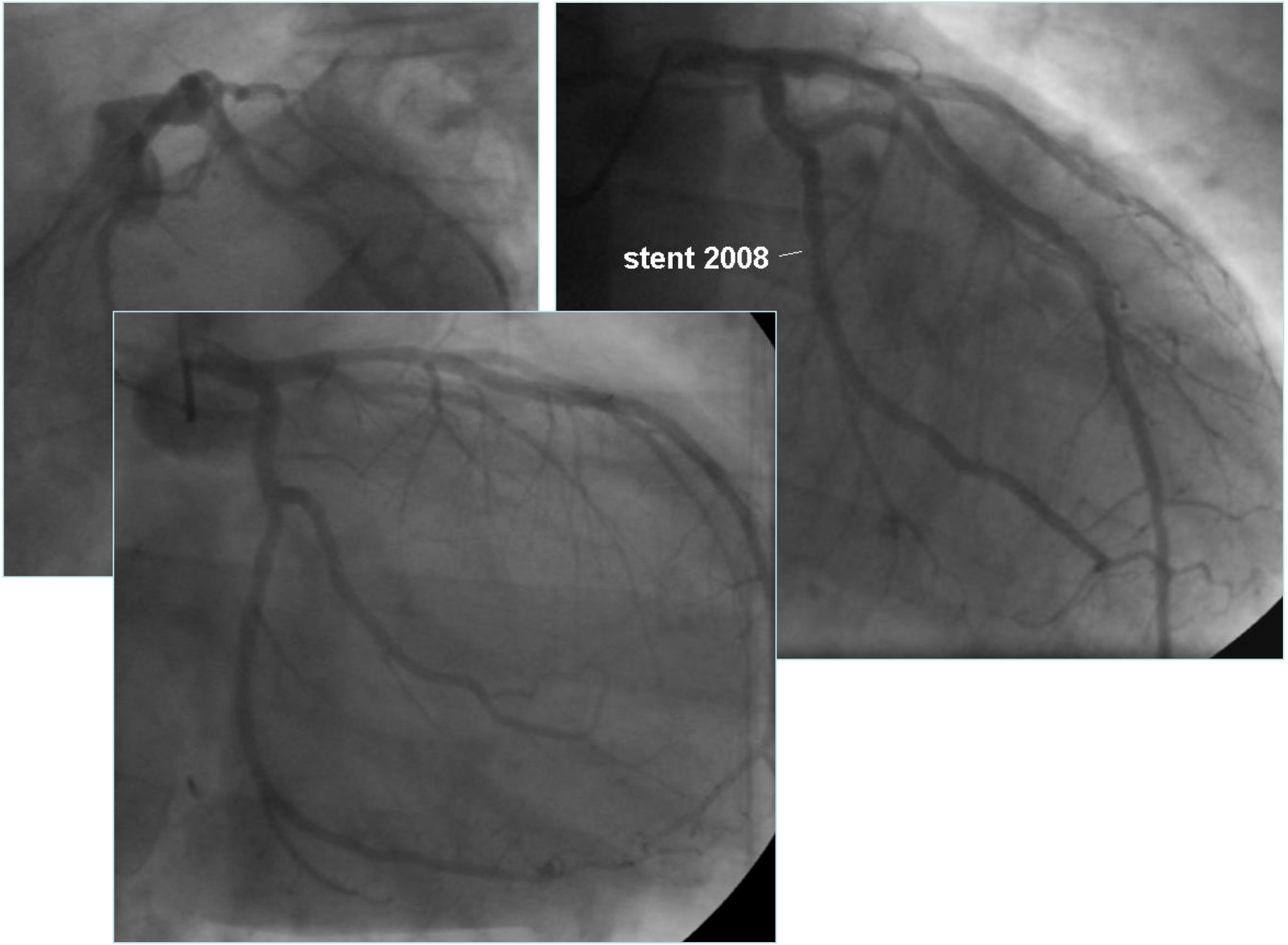
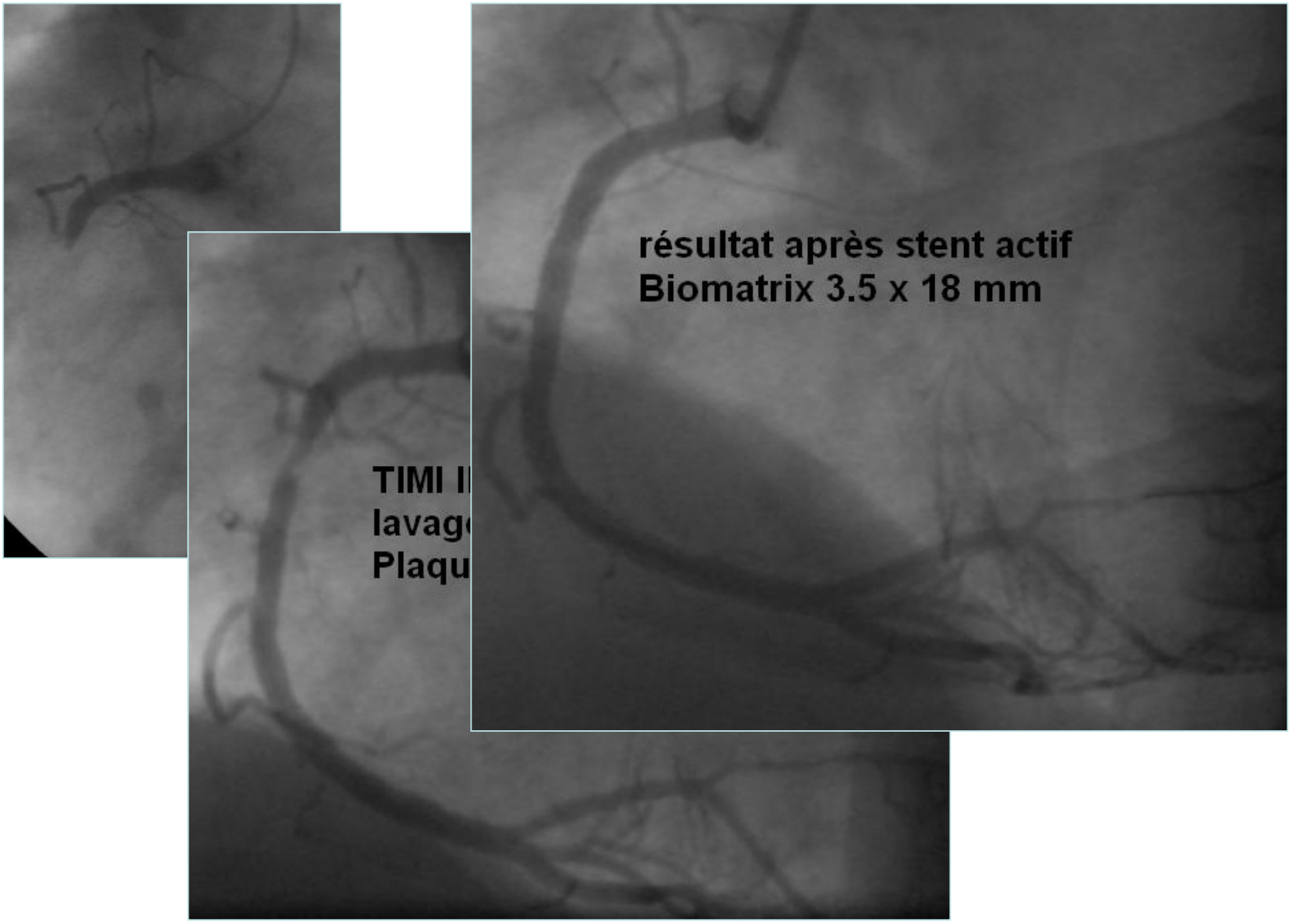
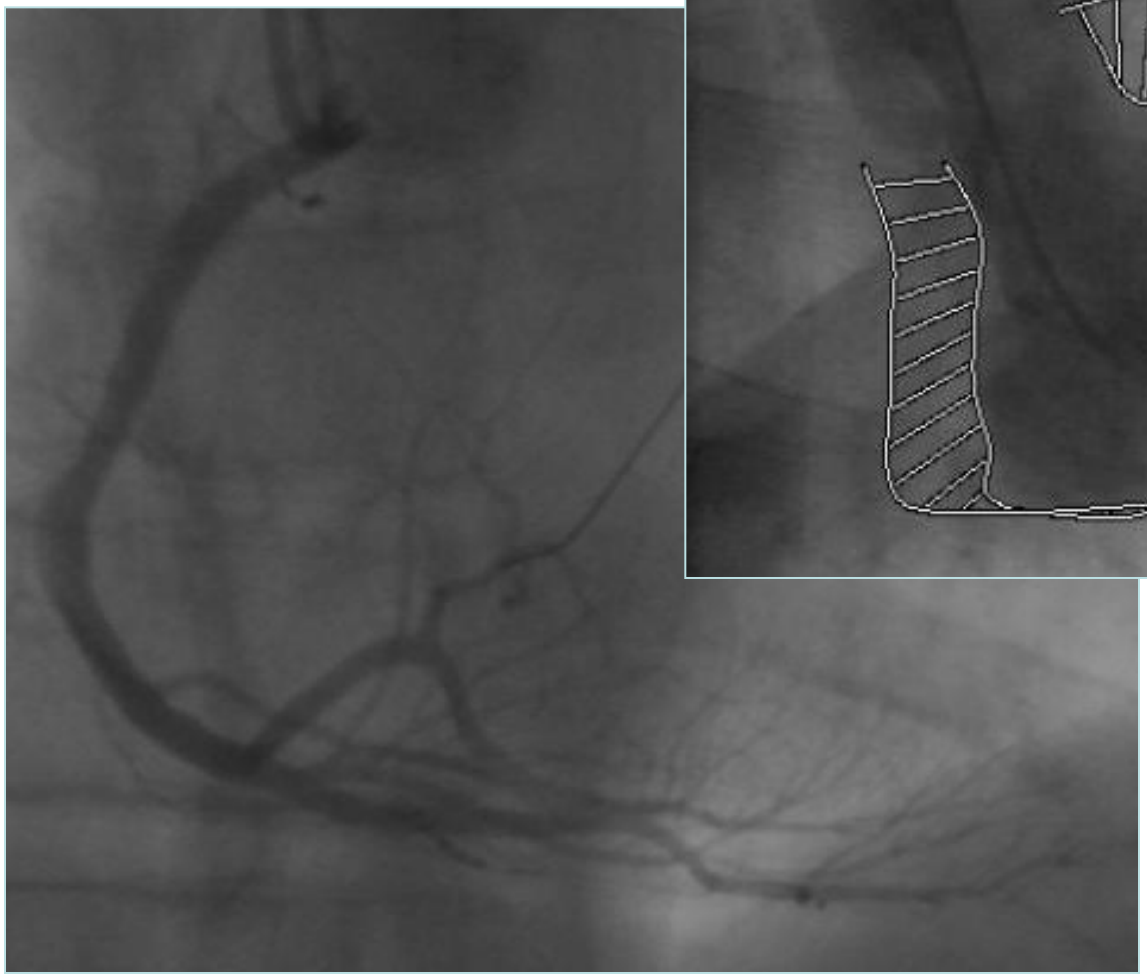
- Alertée par les ATCD, le caractère relativement typique de la douleur, les ECG suspects d'une nécrose larvée postérieure, l'interne monte l'ECG au cath-lab et nous en parle enfin, 1h 45 après l'admission du patient à l'institut et 2h 30 après le début de la douleur….

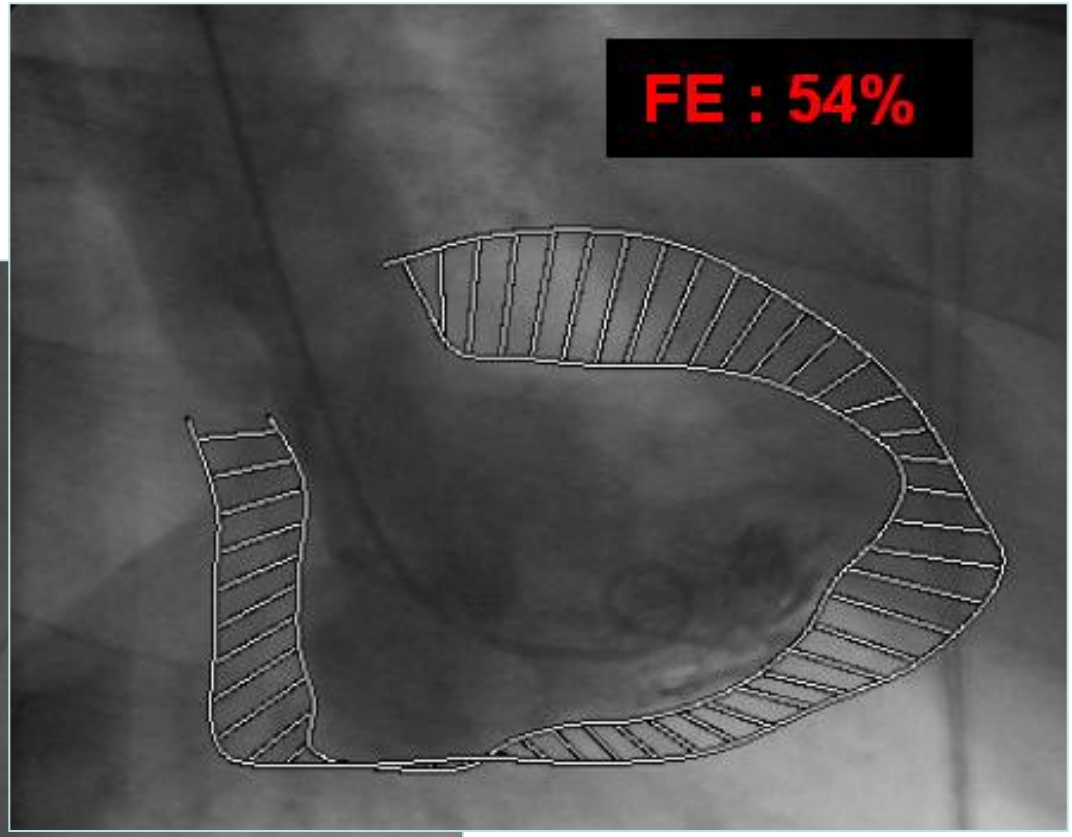
- Monté immédiatement en salle après avoir sorti le patient que nous étions en train d'installer pour un KT programmé.
- Délai porte…ponction : 2 heures !!!
- Exploration par voie radiale droite (introducteur 6F)
- aortographie, normale, puis coronarographie…




stent 2008


résultat après stent actif
Biomatrix 3.5 x 18 mm



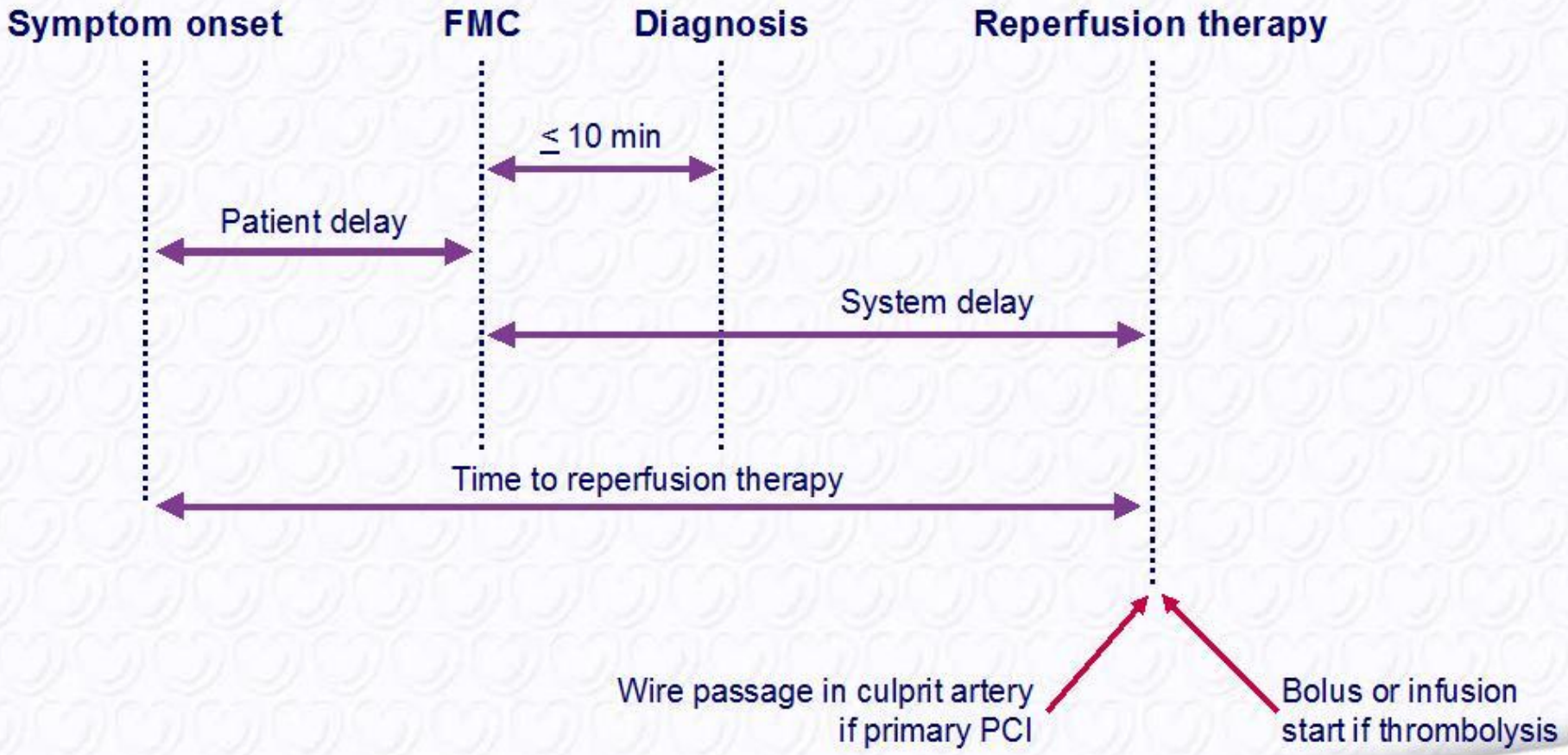

FE : 54%

Ce patient, victime d'un infarctus retardé par ses collatérales, à manifestations électriques atypiques et tardives, a été mis sur la table deux heures après l'admission.

Lorsqu'un patient arrive dans un centre de cathétérisme interventionnel pour une douleur angineuse continue avec sus décalage du segment ST, dans quels délais doit-il idéalement être désobstrué ?

A. l'heure suivant le premier contact médical
B. les 90 minutes suivant le diagnostic d'infarctus
C. les 120mn suivant l'admission
D. 90 mn suivant l'admission le jour, 120 mn la nuit.

Components of delay in STEMI and ideal time intervals for intervention



All delays are related to FMC (first medical contact)

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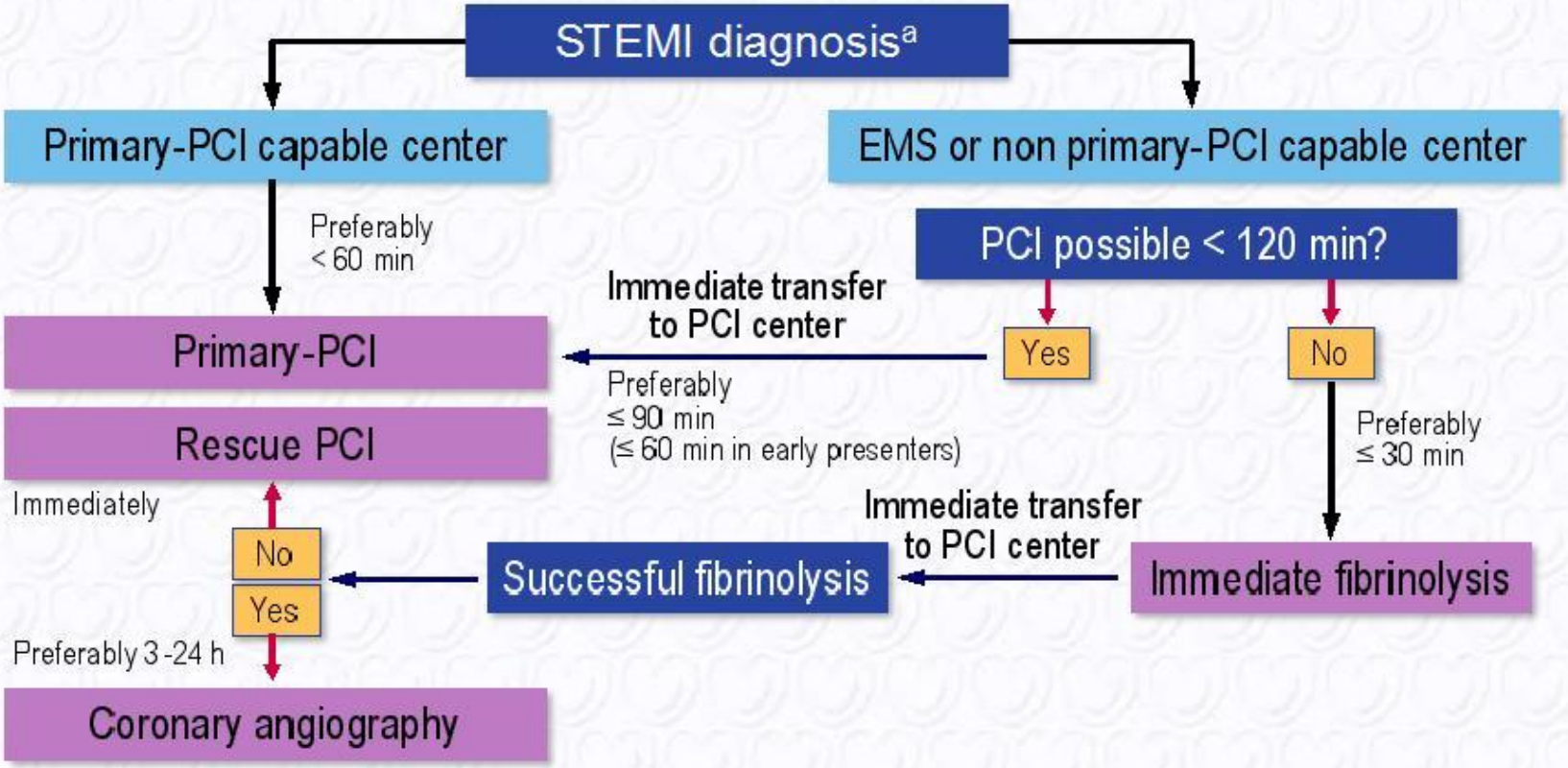
Prehospital and in-hospital management, and reperfusion strategies within 24 h of FMC



[a] The time point the diagnosis is confirmed with patient history and ECG ideally within 10 min from the first medical contact (FMC). All delays are related to FMC (first medical contact).

Cath = catheterization laboratory; EMS = emergency medical system; FMC = first medical contact; PCI = percutaneous coronary intervention; STEMI = ST-segment elevation myocardial infarction.

European Heart Journal (2012) 33, 2569–2619
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Primary PCI

Recommendations	Class	Level
Indications for primary PCI		
Primary PCI is the recommended reperfusion therapy over fibrinolysis if performed by an experienced team within 120 min of FMC.	I	A
Primary PCI is indicated for patients with severe acute heart failure or cardiogenic shock, unless the expected PCI related delay is excessive and the patient presents early after symptom onset.	I	B

FMC = first medical contacts; PCI = percutaneous coronary intervention.

European Heart Journal (2012) 33, 2569–2619
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Reperfusion therapy

Recommendations	Class	Level
Reperfusion therapy is indicated in all patients with symptoms of <12 h duration and persistent ST-segment elevation or (presumed) new LBBB.	I	A
Reperfusion therapy (preferably primary PCI) is indicated if there is evidence of ongoing ischaemia, even if symptoms may have started > 12 h beforehand or if pain and ECG changes have been stuttering.	I	C
Reperfusion therapy with primary PCI may be considered in stable patients presenting 12-24 h after symptom onset.	IIb	B
Routine PCI of a totally occluded artery > 24 h after symptom onset in stable patients without signs of ischaemia (regardless of whether fibrinolysis was given or not) is not recommended.	III	A

ECG = electrocardiogram; i.v. = intravenous; LBBB = left bundle branch block; PCI = percutaneous coronary intervention.

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Procedural aspects of primary PCI

Recommendations	Class	Level
Procedural aspects of primary PCI		
Stenting is recommended (over balloon angioplasty alone) for primary PCI.	I	A
Primary PCI should be limited to the culprit vessel with the exception of cardiogenic shock and persistent ischaemia after PCI of the supposed culprit lesion.	IIa	B
If performed by an experienced radial operator, radial access should be preferred over femoral access.	IIa	B
If the patient has no contraindications to prolonged DAPT (indication for oral anticoagulation, or estimated high long-term bleeding risk) and is likely to be compliant, DES should be preferred over BMS.	IIa	A
Routine thrombus aspiration should be considered.	IIa	B
Routine use of distal protection devices is not recommended.	III	C
Routine use of IABP (in patients without shock) is not recommended.	III	A

BMS = bare-metal stent; DAPT = dual antiplatelet therapy; DES = drug-eluting stent; IABP = intra-aortic balloon pump; PCI = percutaneous coronary intervention.

European Heart Journal 2012 - doi:10.1093/eurheartj/ehs215

EDITORIAL COMMENT

Long-Term Follow-Up of Drug-Eluting Stents Placed in the Setting of ST-Segment Elevation Myocardial Infarction.

Ziada KM, Richard Charnigo R, Moliterno DJ
J. Am. Coll. Cardiol. Intv. 2011;4;39-41

Outcomes of Randomized Trials of DES Versus BMS in Primary PCI With Long-Term Follow-Up (≥3 Years)

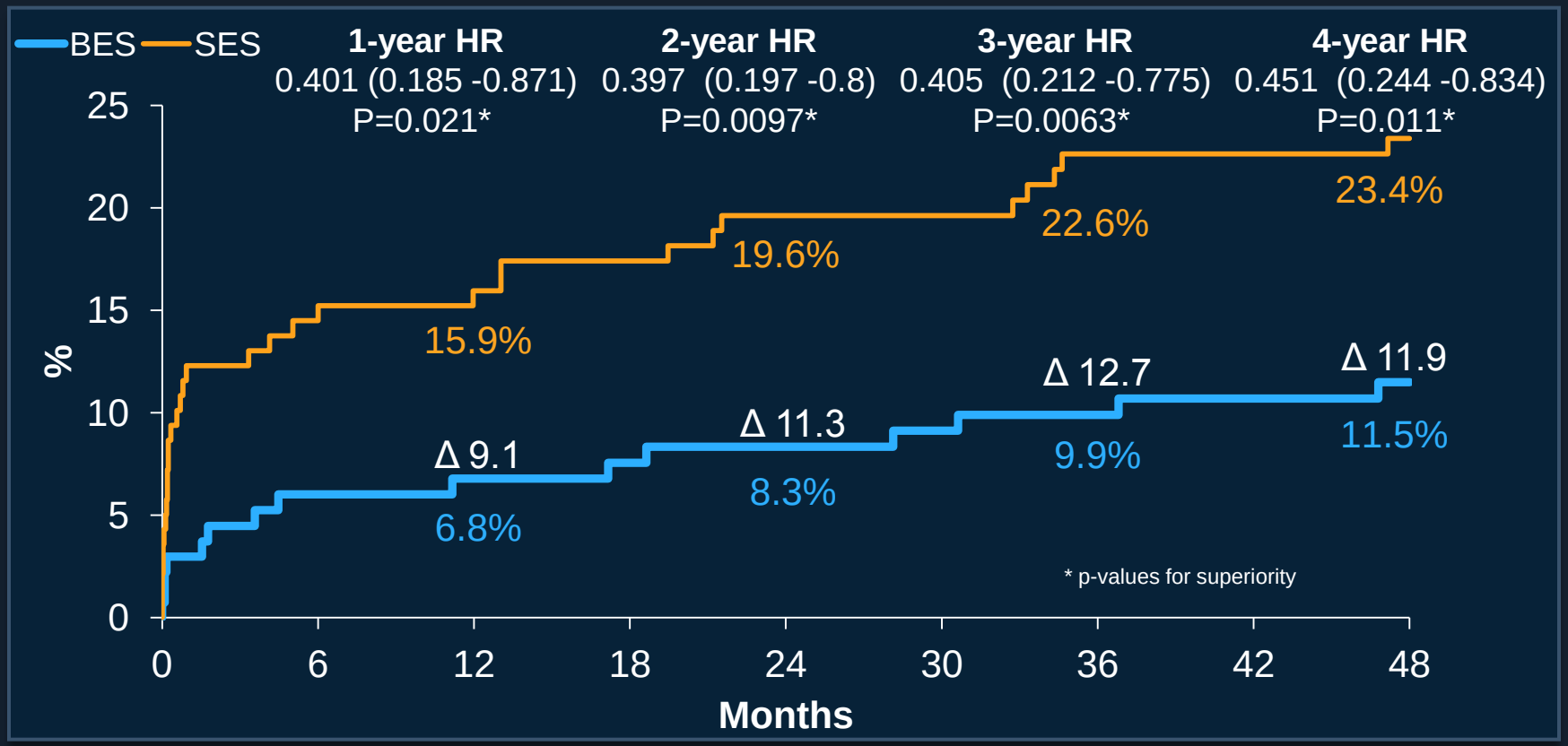
	Death (%)				TVR (%)				ST (%)*			
Study (Ref. #)	DES	BMS	Estimated OR (95% CI)	p Value	DES	BMS	Estimated OR (95% CI)	p Value	DES	BMS	Estimated OR (95% CI)	p Value
DEDICATION (16)	10.5	6.4	1.73 (0.97–3.08)	0.06	8.9	19.8	0.40 (0.25–0.64)	<0.01	2.9	3.2	0.90 (0.36–2.24)	0.82
PASEO (6)	8.3	12.2	0.65 (0.29–1.49)	0.31	6.1	21.1	0.24 (0.11–0.54)	<0.01	1.1	2.2	0.49 (0.07–3.57)	0.48
STRATEGY (19)	18.4	15.9	1.19 (0.54–2.62)	0.66	10.3	26.1	0.33 (0.14–0.75)	0.01	6.9	7.9	0.86 (0.28–2.66)	0.79
SESAMI (17)	3.2	5.0	0.61 (0.20–1.92)	0.40	8.3	16.0	0.46 (0.23–0.92)	0.03	5.1	5.1	1.00 (0.37–2.73)	1.00
MISSION (18)	4.4	6.6	0.69 (0.25–1.85)	0.46	8.9	15.8	0.54 (0.27–1.09)	0.09	3.1	2.0	1.69 (0.40–7.20)	0.48
TYPHOON† (13)	4.0	6.6	0.61 (0.27–1.36)	0.23	11.9	21.5	0.49 (0.30–0.80)	<0.01	5.3	5.5	0.92 (0.42–2.00)	0.83
PASSION (14)	8.9	11.5	0.75 (0.45–1.27)	0.29	7.7	10.5	0.73 (0.42–1.26)	0.26	4.2	3.4	1.19 (0.52–2.69)	0.68
Meta-analysis			0.89 (0.64–1.24)				0.46 (0.36–0.58)				0.99 (0.68–1.45)	

In conclusion,

Randomized trials have demonstrated significant reduction in TVR and no significant increase in Stent Thrombosis or mortality, now even at 3 to 5 years.

LEADERS

MACE @ 4 Years
(Cardiac death, MI, or Clinically-indicated TVR)
STEMI subgroup

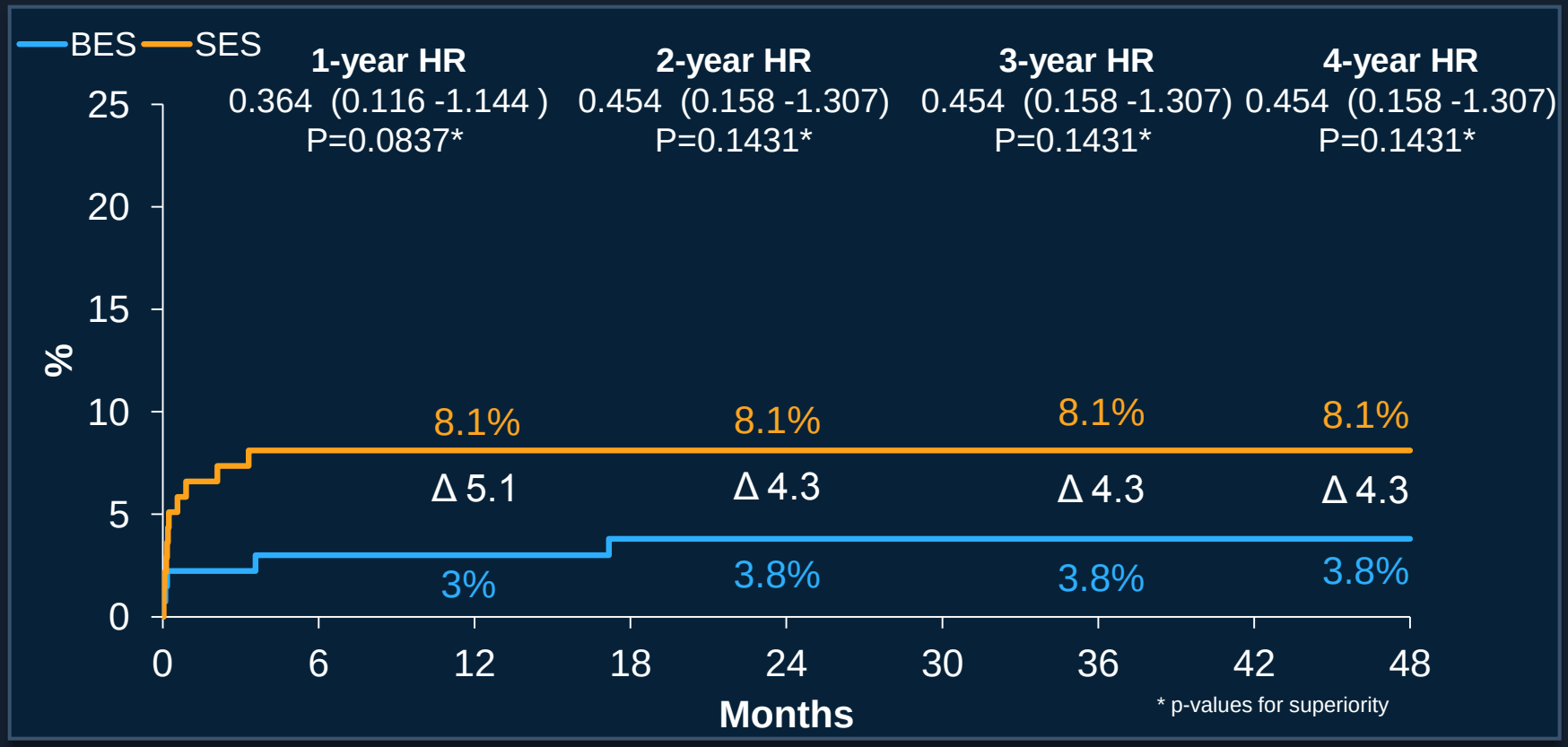


BES	135	122	121	119	118	116	114	113	111
SES	140	116	115	112	108	107	103	103	102

Stefanini G. et al., The Lancet, 2011 - Ischinger et al., oral presentation, TCT 2011

LEADERS - STEMI subgroup

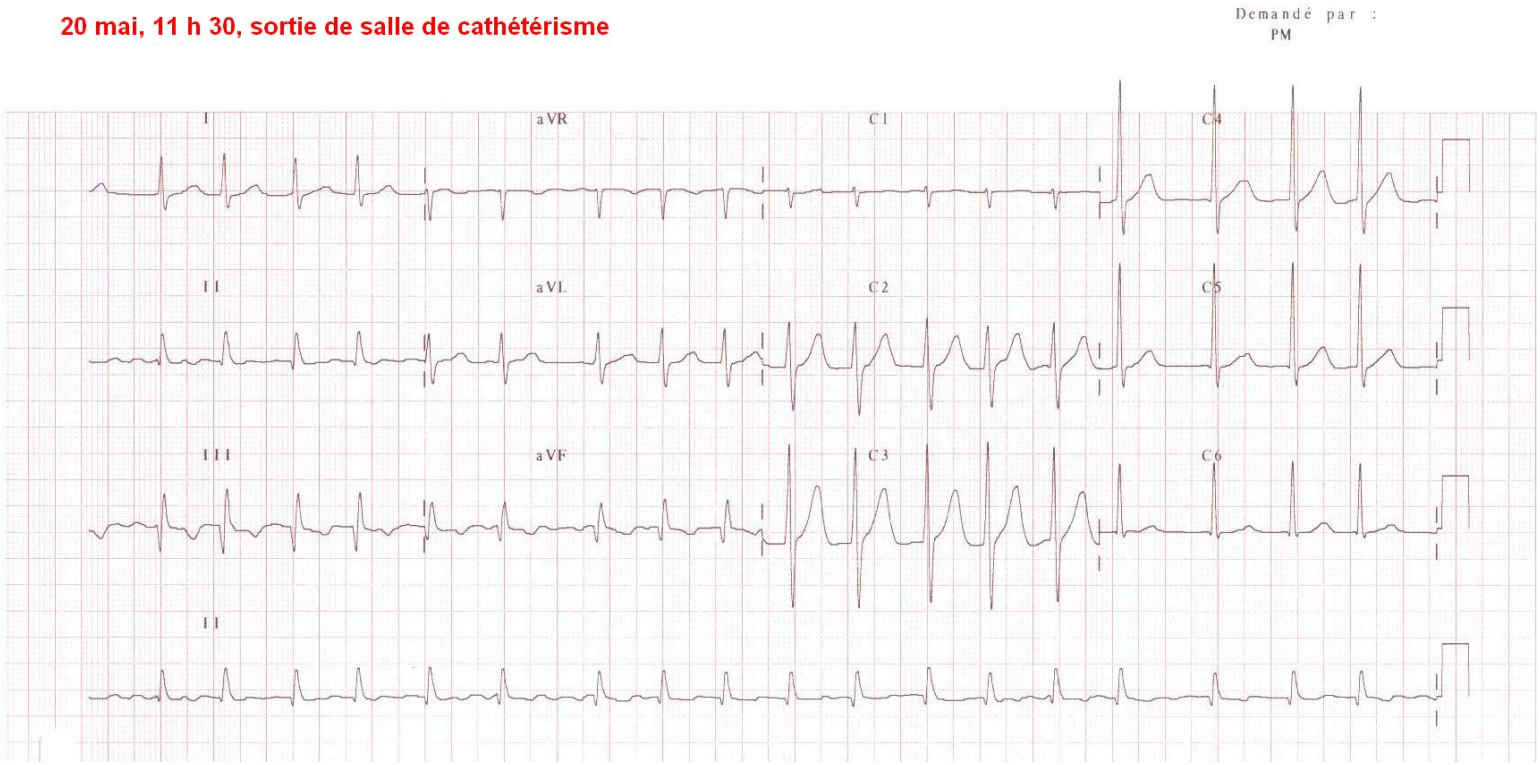
Definite Stent thrombosis (ARC)



BES	135	122	121	119	118	116	114	113	111
SES	140	116	115	112	108	107	103	103	102

Stefanini G. et al., The Lancet, 2011 - Ischinger et al., oral presentation, TCT 2011

Syndrome bradycardie/hypotension de recanalisation régressif sous atropine, favorisant un passage en FA, réduite 4 heures plus tard par une charge en amiodarone.



Suites simples. Faible élévation des CPK à 570 ui

Sorti à J5 sous Efient 10 mg, Kardegic 160, Ramipril 5 mg, Nebivolol 5 mg, Crestor 5 mg et mesures hygiéno-diététiques….

Chez notre patient, la bithérapie Prasugrel/Aspirine :

A. Doit être maintenue 6 mois car il a reçu un stent actif
B. Est recommandée pendant 12 mois, quel que soit le type de stent
C. Peut être relayé dès le 30° jour par AVK aspirine car il fait de la FA
D. Pourrait être interrompue 5 jours avant une chirurgie à haut risque hémorragique
E. Aucune de ces propositions n’est conforme aux recommandations

Routine therapies in the acute, subacute and long term phase of STEMI

Recommendations	Class	Level
Active smokers with STEMI must receive counselling and be referred to a smoking cessation programme	I	B
Each hospital participating in the care of STEMI patients must have a smoking cessation protocol.	I	C
Exercise-based rehabilitation is recommended	I	B
Antiplatelet therapy with low dose aspirin (75-100 mg) is indicated indefinitely after STEMI.	I	A
In patients who are intolerant to aspirin, clopidogrel is indicated as an alternative to aspirin.	I	B
DAPT with a combination of aspirin and prasugrel or aspirin and ticagrelor is recommended (over aspirin and clopidogrel) in patients treated with PCI	I	A
DAPT with aspirin and an oral ADP receptor antagonist must be continued for up to 12 months after STEMI, with a strict minimum of:	I	C
• 1 month for patients receiving BMS;	I	C
• 6 months for patients receiving DES.	IIb	B

European Heart Journal (2012) 33, 2569–2619
doi:10.1093/eurheartj/ehs215

Routine therapies in the acute, subacute and long term phase of STEMI

Recommendations	Class	Level
In patients with left ventricular thrombus, anticoagulation should be instituted for a minimum of 3 months.	IIa	B
In patients with a clear indication for oral anticoagulation (e.g. atrial fibrillation with CHA_2DS_2-VASc Score ≥ 2 or mechanical valve prosthesis), oral anticoagulation must be implemented in addition to antiplatelet therapy.	I	C
In patients require triple antithrombotic therapy, combining DAPT and OAC, e.g. because of stent placement and an obligatory indication for OAC, the duration of dual antiplatelet therapy should be minimized to reduce bleeding risk.	I	C
In selected patients who receive aspirin and clopidogrel, low-dose rivaroxaban (2.5 mg twice daily) may be considered if the patient is at low bleeding risk.	IIb	B
DAPT should be used up to 1 year in patients with STEMI who did not receive a stent.	IIa	C
Gastric protection with a proton pump inhibitor should be considered for the duration of DAPT therapy in patients at high risk of bleeding.	IIa	C

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$P2Y_{12}$ inhibitors

	Clopidogrel	Prasugrel	Ticagrelor
Class	Thienopyridine	Thienopyridine	Triazolopyrimidine
Reversibility	Irreversible	Irreversible	Reversible
Activation	Prodrug, limited by metabolization	Prodrug, not limited by metabolization	Active drug
Onset of effect[a]	2–4 h	30 min	30 min
Duration of effect	3–10 days	5–10 days	3–4 days
Withdrawal before major surgery	5 days	7 days	5 days

[a]50% inhibition of platelet aggregation.

Summary of novel aspects

- Importance of recognizing atypical ECG presentations.
- Immediate angiography with a view to PCI in survivors of cardiac arrest and STEMI or high suspicion of AMI.
- A delay of < 90 min from FMC to P-PCI is the target but a maximum of 120 min is acceptable for primary PCI rather than fibrinolysis.
- Delays must be recorded and monitored:
  - FMC to ECG: ≤ 10 min;
  - FMC to lysis: ≤ 30 min;
  - FMC to PPCI: ≤ 90 min (60 min in PCI hospitals or for early presenters).
- Primary PCI is indicated if there is evidence of ongoing ischaemia, even if symptoms may have started > 12 h.
- After fibrinolysis:
  - Transfer to a PCI-capable center is indicated in all patients;
  - Angio with a view to revascularization indicated after successful lysis (optimal timing 3-24 h).

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Summary of novel aspects

- DES preferred over BMS for P-PCI.
- Prasugrel or Ticagrelor preferred over clopidogrel as adjunct to ASA in P-PCI.
- DAPT is recommended for 12 months, with minimum of 1 for BMS, 6 for DES).
- Bivalirudin preferred as anticoagulant for P-PCI, or enoxaparin, over UFH.
- Routine use of GPIIb/IIIa blockers is downgraded in P-PCI.
- β-blockers downgraded after STEMI without CHF or LV dysfunction.
- Guidelines for managing hyperglycemia in the acute phase.

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