ASPECAV 17/11/2017
40 ans PCI

Mise à jour 2017 des recommandations thérapeutiques du

1. **Traitement de l’infarctus aigu**
2. **Traitement des artériopathies**
3. **Traitement antiplaquettaire**

Prise en charge de l’infarctus du myocarde de type STEMI

- Mise à jour des recommandations de 2012

Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/ is indicated.
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	*Weight of evidence/opinion is in favour of usefulness/efficacy.*	Should be considered.
Class IIb	*Usefulness/efficacy is less well established by evidence/opinion.*	May be considered.
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended.

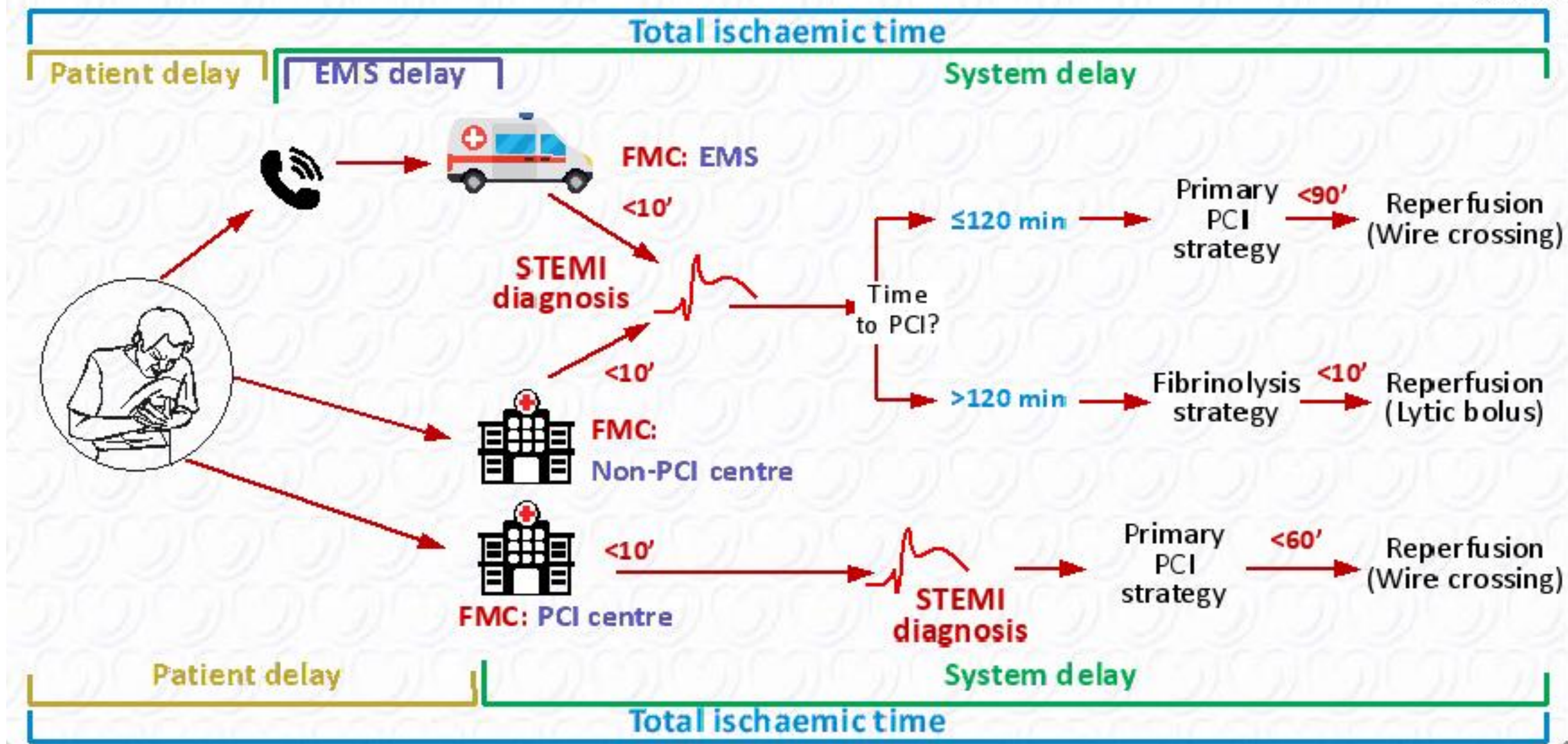
Prise en charge de l'infarctus du myocarde de type STEMI

- Mise à jour des recommandations de 2012

Level of evidence A	Data derived from multiple randomized clinical trials or meta-analyses.
Level of evidence B	Data derived from a single randomized clinical trial or large non-randomized studies.
Level of evidence C	Consensus of opinion of the experts and/or small studies, retrospective studies, registries.

159 recommandations, dont 58% de classe I
MAIS
50% d'entre elle sont d'évidence C et 25% d'évidence A

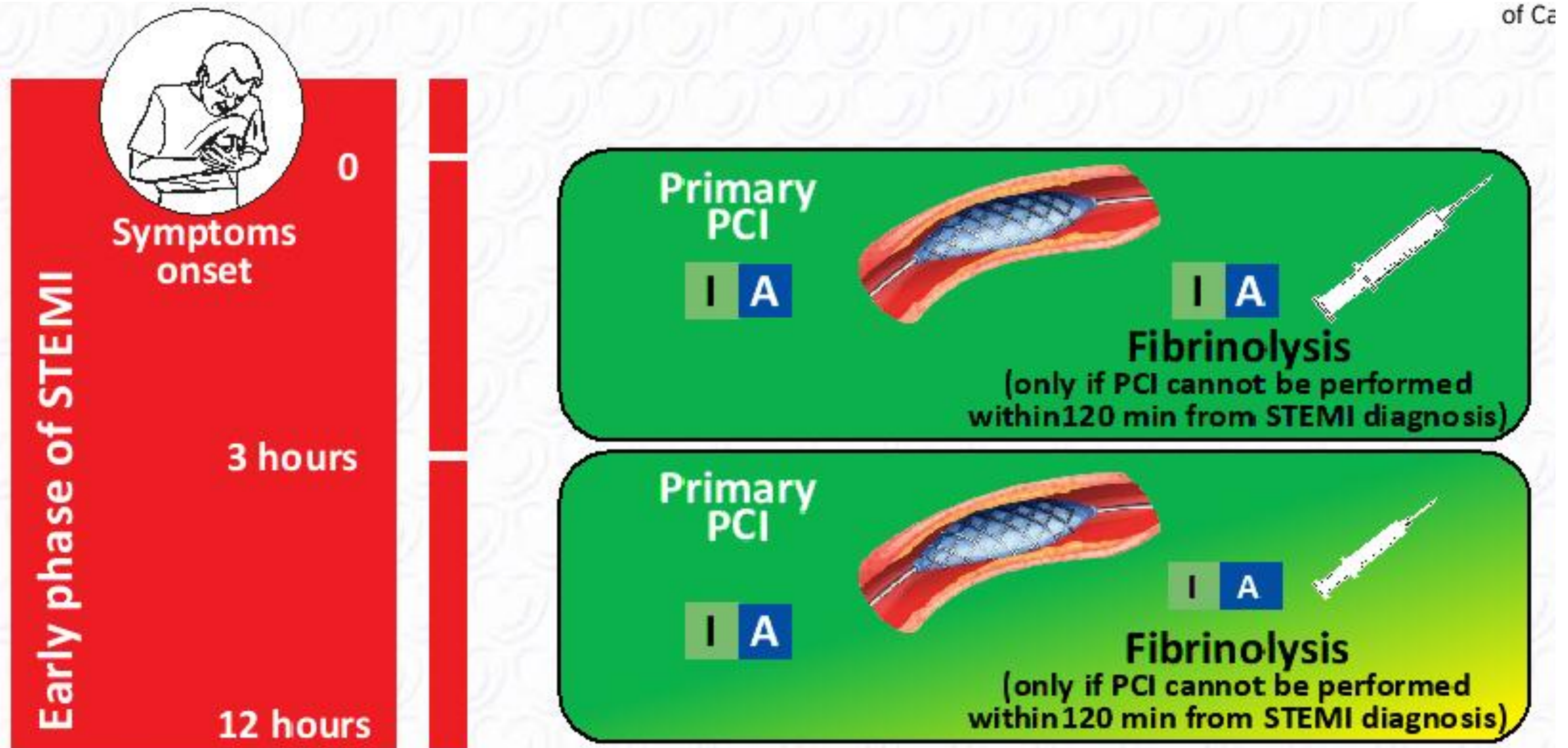
Révision de la démarche diagnostique



1. **ECG doit être réalisé endéans les 10 minutes, l'ECG est le temps 0:00**
2. **Approche invasive en moins de 120 minutes (centre A, non interventionnel) ou en moins de 60 minutes (centre B, interventionnel)**
3. **Suppression du terme « door to balloon »**

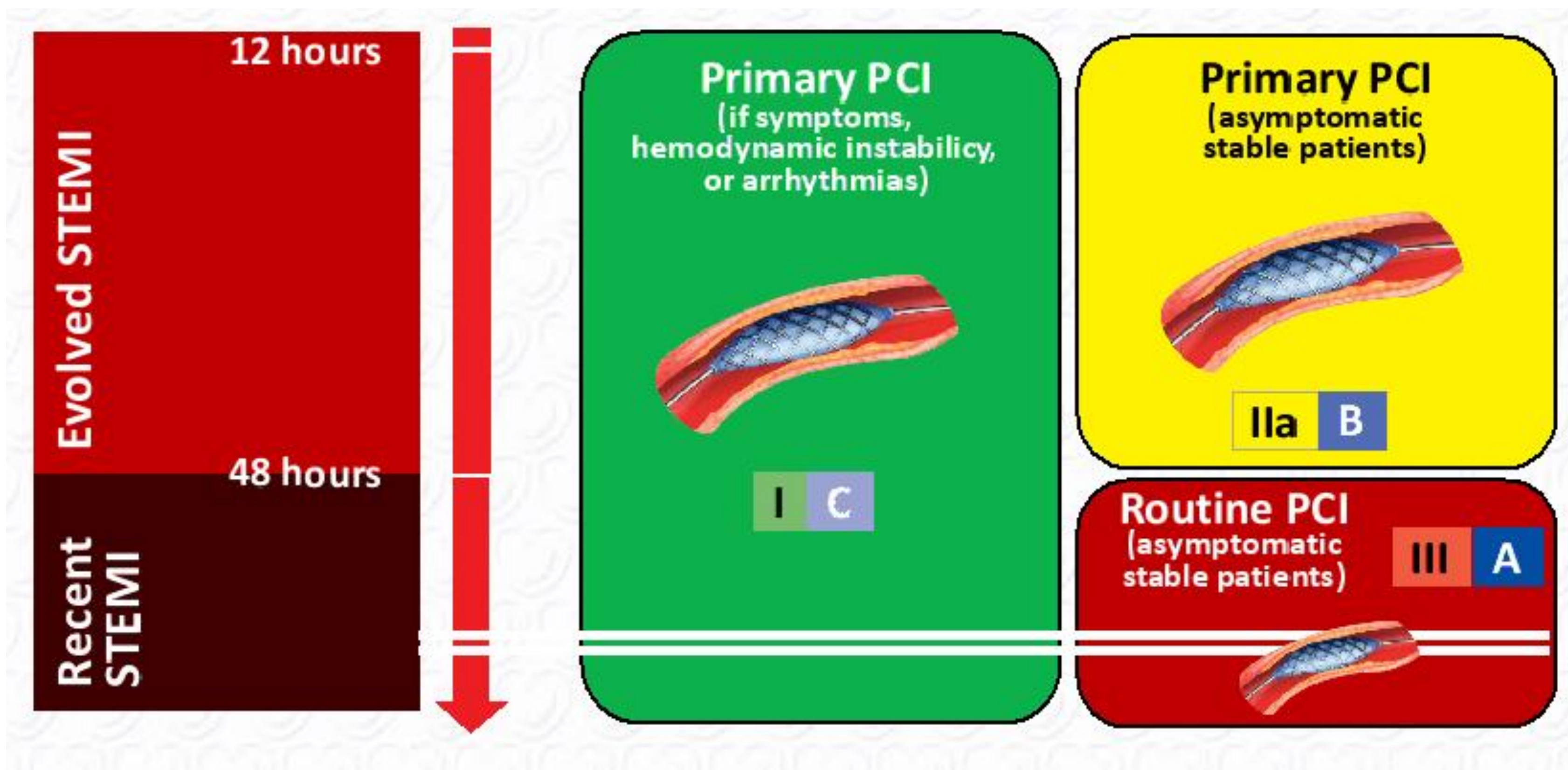
Indication de revascularisation basé sur le début des symptômes

Toujours PCI (ou thrombolyse) si < 12 heures



Indication de revascularisation basé sur le début des symptômes

Jamais PCI (ou thrombolyse) si stable > 48 heures



Elargissement des indications pour des présentations ECG « atypiques »

- Bloc de branche Gauche ou Droit
- Rythme électro-entraîné
- Sus décalage ST > 0.5mm en V7-V9 et V3r-V4r
- Sous décalage dans 8+ dérivations avec sus décalage en aVr

Quelle sont les thérapeutiques à modifier ?

CHANGE IN RECOMMENDATIONS

2012		2017
	Radial access	MATRIX
	DES over BMS	EXAMINATION, COMFORTABLE-AMI, NORSTENT
	Complete Revascularisation	PRAMI, DANAMI-3-PRIMULTI, CVLPRIT, Compare-Acute
	Thrombus Aspiration	TOTAL, TASTE
	Bivalirudin	MATRIX, HEAT-PPCI
	Enoxaparin	ATOLL, Meta-analysis
	Early Hospital Discharge	Small trials & observational data
Oxygen when SaO2 <95%	OXYGEN	Oxygen when SaO2 <90% AVOID, DETO2X
Same dose i.V in all patients	TNK-tPA	Half dose i.v. in Pts ≥75 years STREAM

Relief of hypoxaemia and symptoms

ESC
Europea
of Cardi

Recommendations	Class	Level
Hypoxia		
Oxygen is indicated in patients with hypoxaemia (SaO2 <90% or PaO2 <60 mmHg).	I	C
Routine oxygen is not recommended in patients with SaO2 ≥90%.	III	B
Symptoms		
Titrated i.v. opioids should be considered to relieve pain.	IIa	C
A mild tranquillizer (usually a benzodiazepine) should be considered in very anxious patients.	IIa	C

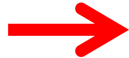
Procedural aspects of the primary percutaneous coronary intervention strategy

ESC
European of Cardio

Recommendations	Class	Level
IRA strategy		
Primary PCI of the IRA is indicated.	I	A
New coronary angiography with PCI if indicated is recommended in patients with symptoms or signs of recurrent or remaining ischaemia after primary PCI.	I	C
IRA technique		
Stenting is recommended (over balloon angioplasty) for primary PCI.	I	A
Stenting with new-generation DES is recommended over BMS for primary PCI.	I	A
Radial access is recommended over femoral access if performed by an experienced radial operator.	I	A

Procedural aspects of the primary percutaneous coronary intervention strategy

ESC
Europea
of Cardi



Recommendations	Class	Level
IRA technique *(continued)*		
Routine use of thrombus aspiration is not recommended.	III	A
Routine use of deferred stenting is not recommended.	III	B
Non-IRA strategy		
Routine revascularization of non-IRA lesions should be considered in STEMI patients with multivessel disease before hospital discharge.	IIa	A
Non-IRA PCI during the index procedure should be considered in patients with cardiogenic shock.	IIa	C
CABG should be considered in patients with ongoing ischaemia and large areas of jeopardized myocardium if PCI of the IRA cannot be performed.	IIa	C

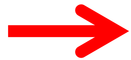
Periprocedural and postprocedural antithrombotic therapy in patients undergoing primary percutaneous coronary intervention

ESC
Europea
of Cardi

Recommendations	Class	Level
Anticoagulant therapy		
Anticoagulation is recommended for all patients in addition to antiplatelet therapy during primary PCI.	I	C
Routine use of UFH is recommended.	I	C
In patients with heparin-induced thrombocytopenia, bivalirudin is recommended as the anticoagulant agent during primary PCI.	I	C
Routine use of enoxaparin i.v. should be considered.	IIa	A
Routine use of bivalirudin should be considered.	IIa	A
Fondaparinux is not recommended for primary PCI.	III	B

Periprocedural and postprocedural antithrombotic therapyc in patients undergoing primary percutaneous coronary intervention

ESC European Society of Cardiology



Recommendations	Class	Level
Antiplatelet therapy		
A potent $P2Y_{12}$ inhibitor (prasugrel or ticagrelor), or clopidogrel if these are not available or are contra-indicated, is recommended before (or at latest at the time of) PCI and maintained over 12 months unless there are contra-indications such as excessive risk of bleeding.	I	A
Aspirin (oral or i.v, if unable to swallow) is recommended as soon as possible for all patients without contra-indications.	I	B
GP IIb/IIIa inhibitors should be considered for bailout if there is evidence of no-reflow or a thrombotic complication.	IIa	C
Cangrelor may be considered in patients who have not received $P2Y_{12}$ receptor inhibitors.	IIb	A

Logistical issues for hospital stay *(continued)*

ESC
Europear
of Cardio

Recommendations	Class	Level
Monitoring		
It is indicated that all STEMI patients have ECG monitoring for a minimum of 24 hours.	I	C
Length of stay in the CCU		
It is indicated that patients with successful reperfusion therapy and uncomplicated clinical course are kept in the CCU/ICCU for a minimum of 24 hours whenever possible, after which they may be moved to a step-down monitored bed for an additional 24-48 hours.	I	C
Hospital discharge		
Early discharge (within 48-72 hours) should be considered appropriate in selected low-risk patients if early rehabilitation and adequate follow-up are arranged.	IIa	A

Quelle sont les nouvelles recommandations thérapeutiques ?

2017 NEW RECOMMENDATIONS

- Additional lipid lowering therapy if LDL >1.8 mmol/L (70 mg/dL) despite on maximum tolerated statins. ***IMPROVE-IT, FOURIER***
- Complete revascularization during index primary PCI in STEMI patients in shock. Expert opinion

- Cangrelor if $P2Y_{12}$ inhibitors have not been given. ***CHAMPION***
- Switch to potent $P2Y_{12}$ inhibitors 48 hours after fibrinolysis. Expert opinion
- Extend Ticagrelor up to 36 months in high-risk patients. ***PEGASUS-TIMI 54***
- Use of polypill to increase adherence. ***FOCUS***

- Routine use of deferred stenting. ***DANAMI 3-DEFER***

I

IIa

IIb

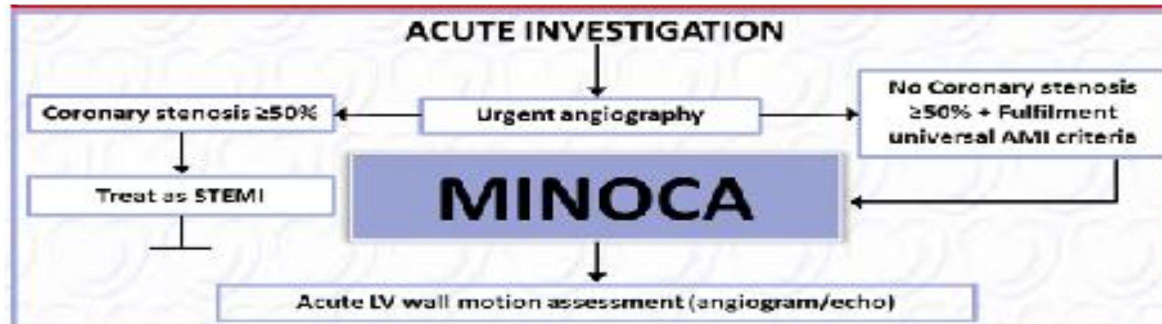
III

Routine therapies in the acute, subacute and long-term phases *(continued)*

ESC European of Cardio

Recommendations	Class	Level
Lipid lowering therapies		
It is recommended to start high-intensity statin therapy as early as possible, unless contra-indicated, and maintain it long term.	I	A
An LDL-C goal of < 1.8 mmol/L (70 mg/dL) or a reduction of at least 50% if the baseline LDL-C is between 1.8 and 3.5 mmol/L (70 and 135 mg/dL) is recommended.	I	B
It is recommended to obtain a lipid profile in all STEMI patients as soon as possible after presentation.	I	C
In patients with LDL-C ≥1.8 mmol/L (≥70 mg/dL) despite a maximally tolerated statin dose who remain at high risk, further therapy to reduce LDL-C should be considered.	IIa	A

Myocardial **I**nfarction with **N**on **O**bstructive **C**oronary **A**rteries



SUSPECTED DIAGNOSIS AND FURTHER DIAGNOSTIC TESTS

	Non-invasive	Invasive
Myocarditis	**TTE Echo** (Pericardial effusion) **CMR** (Myocarditis, pericarditis)	**Endomyocardial biopsy** (myocarditis)
Coronary (epicardial/ microvascular)	**TTE Echo** (Regional wall motion abnormalities, embolic source) **CMR** (small infarction) **TOE/Bubble Contrast Echo** (Patent foramen ovale, atrial septal defect)	**IVUS/OCT** (Plaque disruption/dissection) **Ergonovine/Ach test** (Spasm) **Pressure/Doppler wire** (Microvascular dysfunction)
Myocardial disease	**TTE Echo** **CMR** (Takotsubo, others)	
Pulmonary Embolism	**D-dimer**(Pulmonary embolism) **CT scan** (Pulmonary embolism) **Thrombophilia screen**	
Oxygen supply/ demand imbalance- Type 2 MI	**Blood test,** **Extracardiac investigation**	

Diagnostic et Traitement des Artériopathies Périphériques

- **Sténose de carotide:**

1. Sténose sévère, asymptomatique: chirurgie si risque d’AVC élevé, stenting si risque chirurgical élevé
2. Pas de revascularisation prophylactique avant chirurgie de pontage

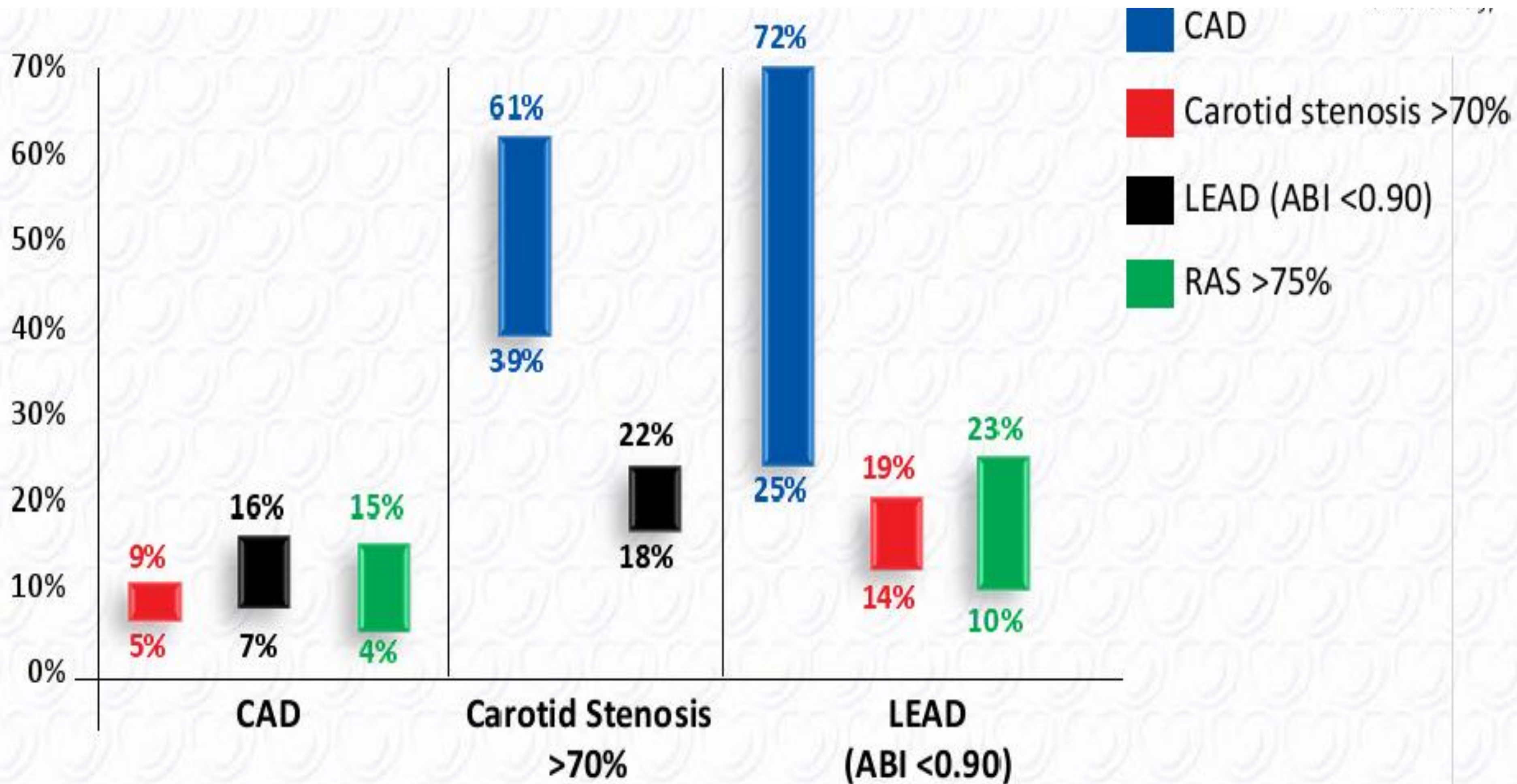
- **Sténose d’artère rénale:**

1. Pas de stenting indiqué en cas de sténose sur athérosclérose
2. Angioplastie au ballon avec stent en back-up en cas de dysplasie fibromusculaire

- **Artériopathie des mbres inférieurs:**

1. Statines pour améliorer le périmètre de marche
2. (NO)AC si FA et CHA^2DS^2-Vasc>2
3. Chirurgie en cas d’occlusion aorto-iliaque ou aorto-bifémorale
4. Angioplastie pour lésions aorto-iliaque ou fémoro-poplitées <25cm

Fréquence des atteintes vasculaires sur d'autres territoires selon la présentation clinique initiale



Indication des examens complémentaires à la recherche d’atteintes vasculaires sur d’autres territoires

Leading disease \ Screened disease	CAD	LEAD	Carotid	Renal
CAD				
Scheduled for CABG		**IIa**	I / **IIb**	U
Not scheduled for CABG		**IIb**	NR	U
LEAD				
Scheduled for surgery	**I**		NR	U
Not scheduled for surgery	NR		NR	U
Carotid stenosis				
Scheduled for CEA/CAS	**IIb**	NR		U
Not scheduled for CEA/CAS	NR	NR		U

Recommandations thérapeutiques des traitements antiaggrégants

1. *Après angioplastie*

- Toujours évaluer la balance entre risque thrombo-embolique et risque hémorragique
- Monothérapie (+/-AC) si risque hémorragique +++
- Bi thérapie (+/-AC) si risque hémorragique - - -

2. *Artériopathies périphériques (sauf carotides):*

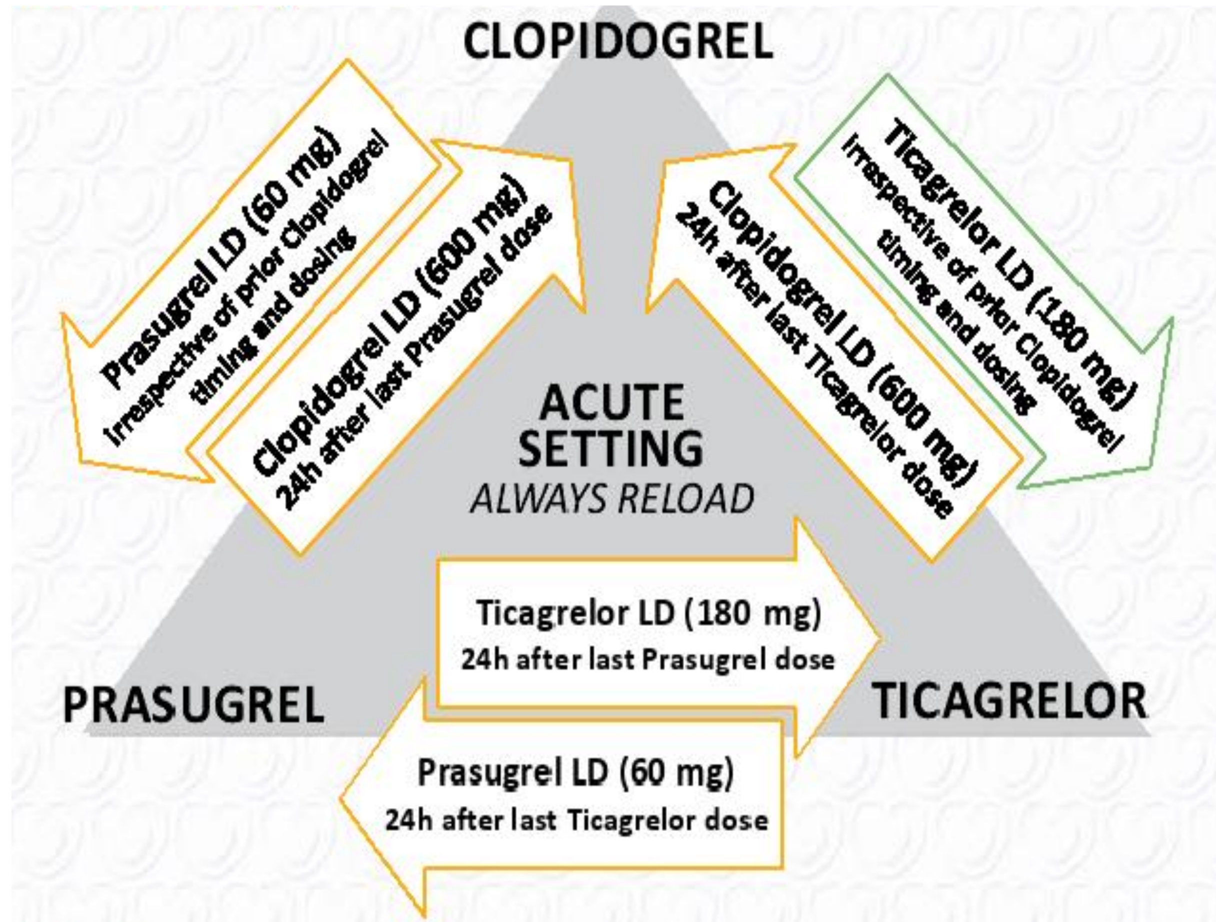
pas de traitement antiaggrégant si asymptomatique

3. *Post chirurgie vasculaire:* ASA ou Clop ou AC

Recommandations thérapeutiques des traitements antiaggrégants

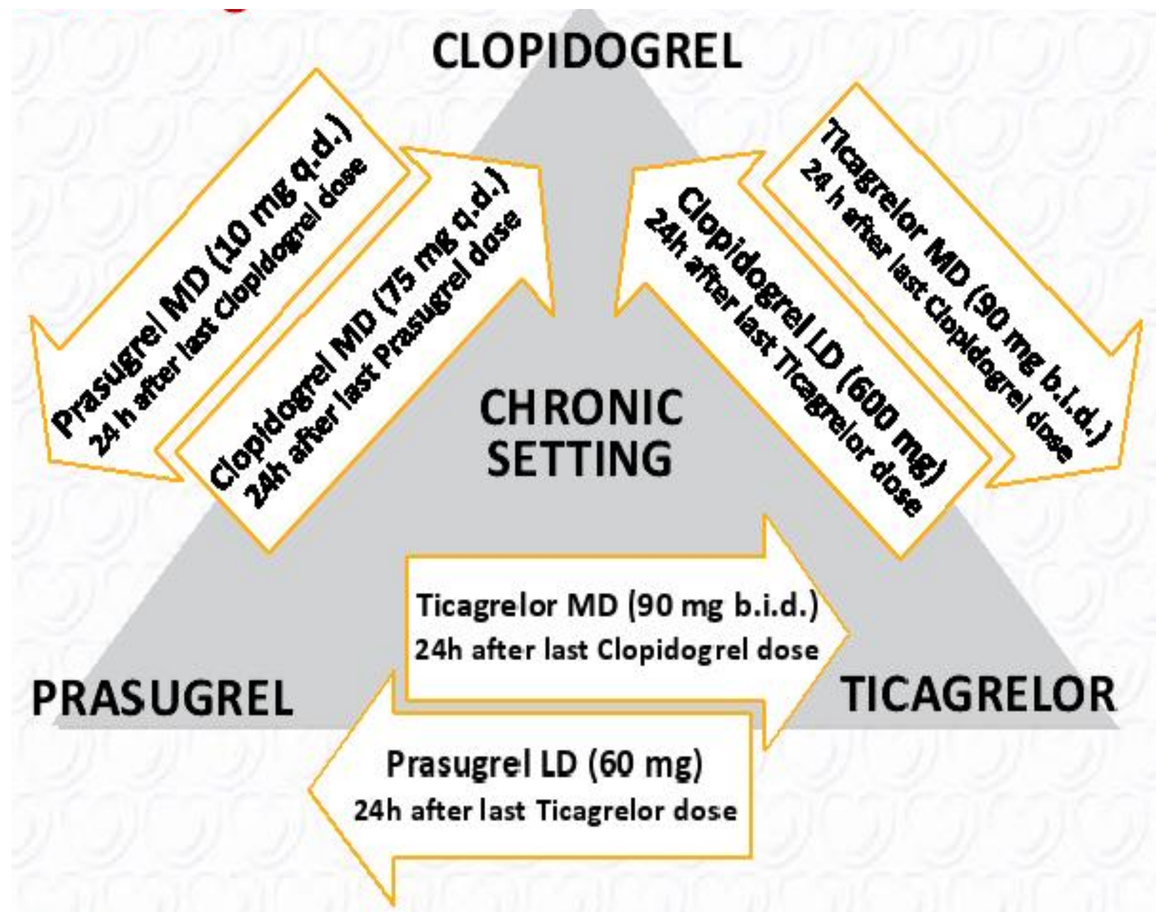
1. La durée du traitement ne se base plus sur le type de stent (DES vs BMS) mais doit être individualisée (stable vs instable; risque hémorragique).
2. Patients instables: a priori 12 mois de DAPT
3. Patients sous AC: max 6 mois, éviter ticagrelor et prasugrel
4. Réduire les risques d'hémorragie (radial vs femoral; IPP; dose ASA 75 à 100mg

Substitution d'un antiaggrégant plaquettaire dans les cas instables



Clopi. vers Prasu. ou Tica. : toujours dose de charge immédiate de Prasu./Tica

Substitution d’un antiaggrégant plaquettaire dans les cas stables



Clopi. vers Prasu. ou Tica. : pas de dose de charge de Prasu./Tica, le lendemain

Angioplastie coronaire

Treatment indication
- Stable Coronary Artery Disease
- Acute Coronary Syndrome

Device used
- DES/BMS or DCB

High Bleeding Risk: No / Yes

Time: 1 mo. – 3 mo. – 6 mo. – 12 mo. – 30 mo.

Stable Coronary Artery Disease
- High Bleeding Risk – No: A C – 6 mo. DAPT – *Class I A*; then A C – Continue DAPT >6 mo. – *Class IIb A*
- High Bleeding Risk – Yes: A C – 1 mo. DAPT – *Class IIb C*; 3 mo. DAPT – *Class IIa B*

Acute Coronary Syndrome
- High Bleeding Risk – No: A P, A T OR A C[2] – 12 mo. DAPT – *Class I A*; then A T OR A P[4], A C[4] – Continue DAPT >12 mo. in pts with prior MI – *Class IIb B*
- High Bleeding Risk – Yes: A C OR A T – 6 mo. DAPT – *Class IIa B*

A = Aspirin C = Clopidogrel P = Prasugrel T = Ticagrelor

Angor instable adressé à une chirurgie de pontage

High Bleeding Risk

Time from treatment initiation

1 mo.

3 mo.

6 mo.

Time from treatment initiation

6 mo.

12 mo.

30 mo.

No

A P | A T
OR
A C [1]

12 mo. DAPT
Class I C

A T
OR
A P | A C

Continue DAPT >12 mo. In pts with prior MI
Class IIb B

Yes

A C OR A T

6 mo. DAPT
Class IIa C

A = Aspirin

C = Clopidogrel

P = Prasugrel

T = Ticagrelor

Treatments presented within the same line a sorted in alphabetic order, no preferential recommendation unless clearly stated otherwise.

Angor instable maintenu sous traitement médical

High Bleeding Risk

Time from treatment initiation	No	Yes
	A T OR A C [1]	A C
1 mo.		≥1 mo. DAPT *Class IIa C*
3 mo.	12 mo. DAPT *Class I A*	
6 mo.		
6 mo.		
12 mo.	A T OR A C [1]	
30 mo.	Continue DAPT >12 mo. In pts with prior MI *Class IIb B*	

A = Aspirin

C = Clopidogrel

T = Ticagrelor

Treatments preser
within the same li
sorted in alphabet
order, no preferen
recommendation
unless clearly stat
otherwise.

Patient traité par anticoagulants

ESC
European Soci
of Cardiology

Concerns about ischaemic risk prevailing

Concerns about bleeding risk prevailing

Time from treatment initiation

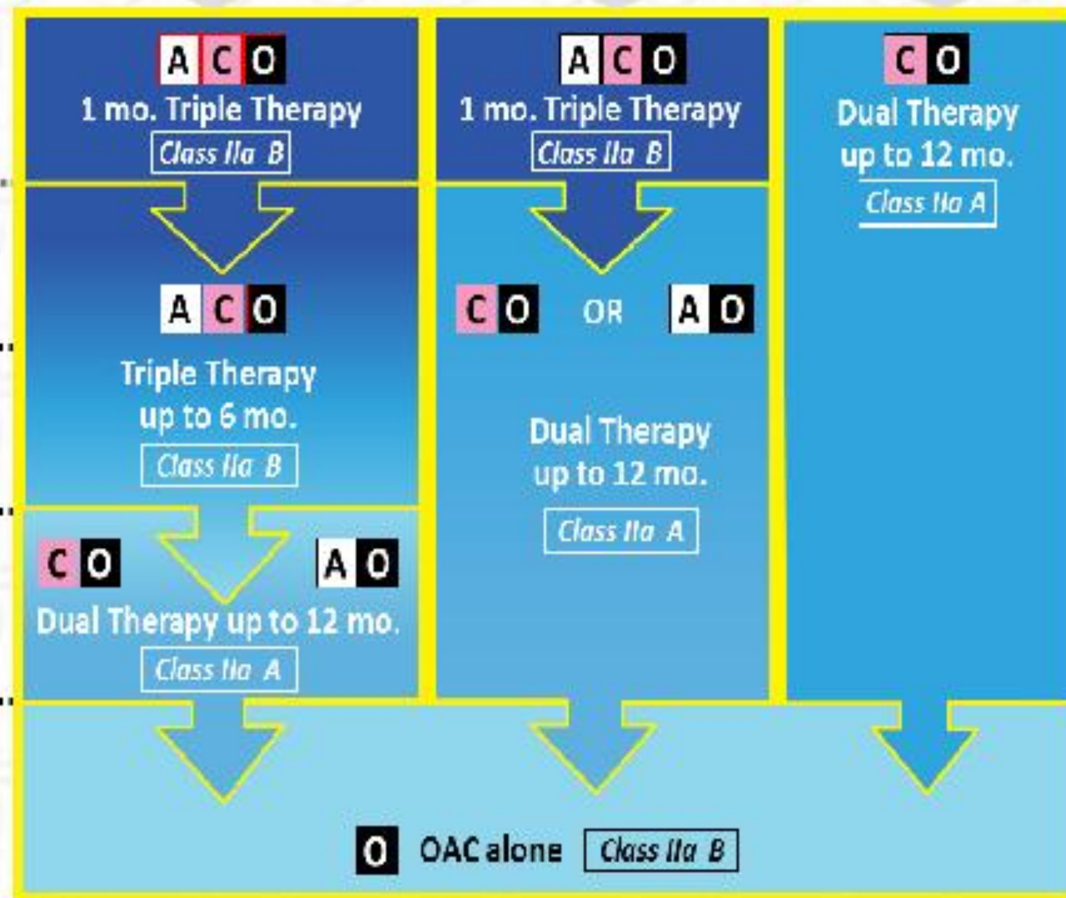
1 mo.

3 mo.

6 mo.

12mo.

Beyond 12 mo.

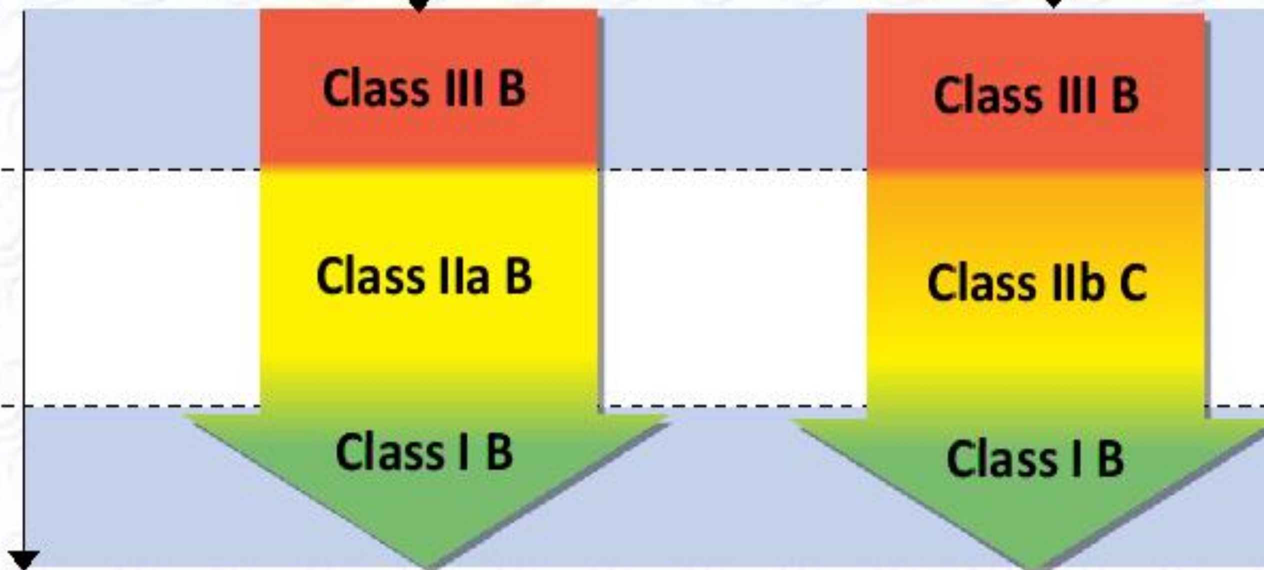


A = Aspirin

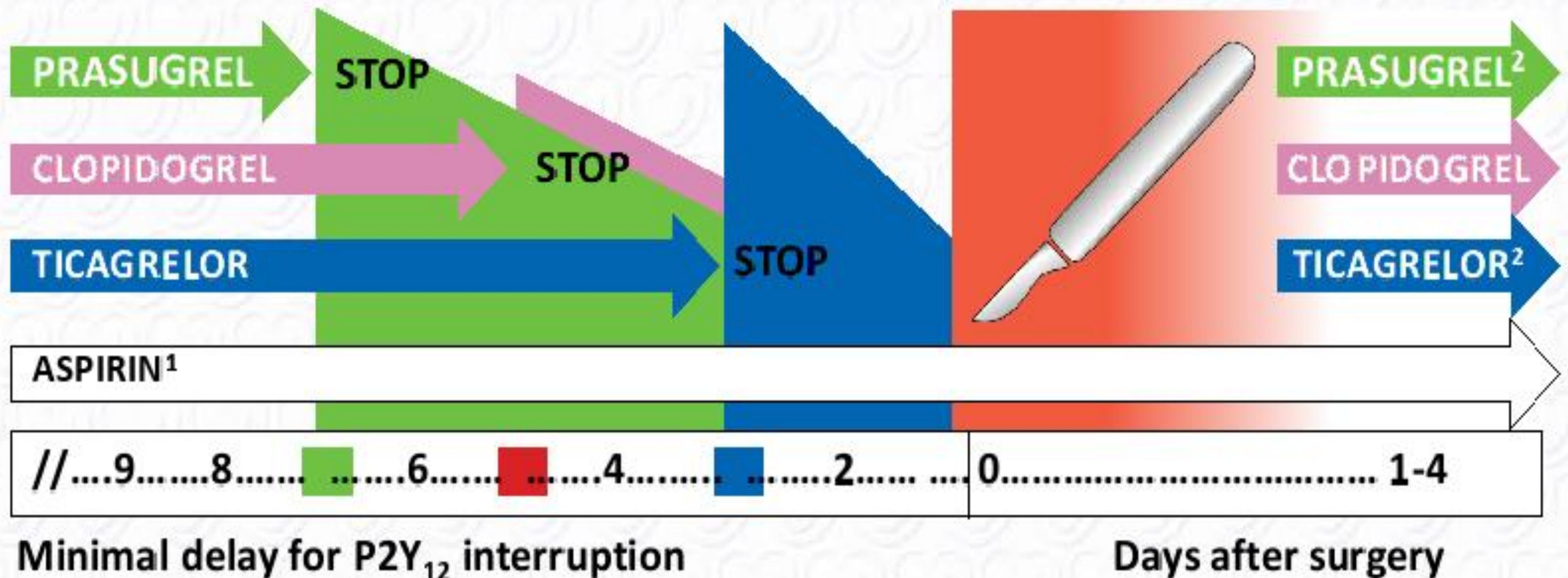
C = Clopidogrel

O = Oral anticoagulation

Quand programmer une intervention chirurgicale ?



Comment interrompre/ reprendre le traitement antiaggrégant avant chirurgie



Merci pour votre attention!