



AP-HP. Centre
Université
de Paris



Université
de Paris

Revascularisation de(s) l'artère(s) non coupable(s)

Etienne PUYMIRAT

Département de Cardiologie
Hôpital européen Georges Pompidou
Université de Paris

DÉCLARATION DE LIENS D'INTÉRÊT AVEC LA PRÉSENTATION

Nom de l'orateur : Etienne PUYMIRAT, Paris

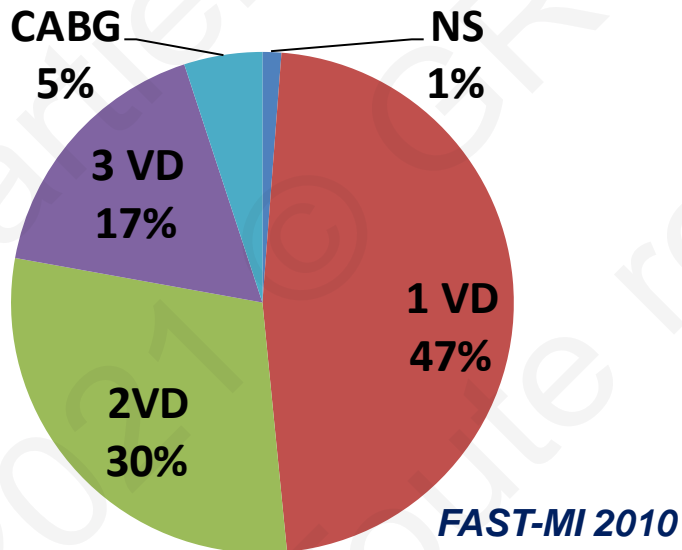
- **Bourses de recherche** : Abbott, Astra-Zeneca, Bayer
- **Honoraires (orateur ou consultant)** : Abbott, Amgen, Astra-Zeneca, BMS, Bayer, Biotronik, Boehringer Ingelheim, Daiichi-Sankyo, Lilly, MSD, Novartis, Pfizer, Sanofi, Servier

Infarctus et lésions pluri tronculaires

STEMI patients

MVD = 30-50%

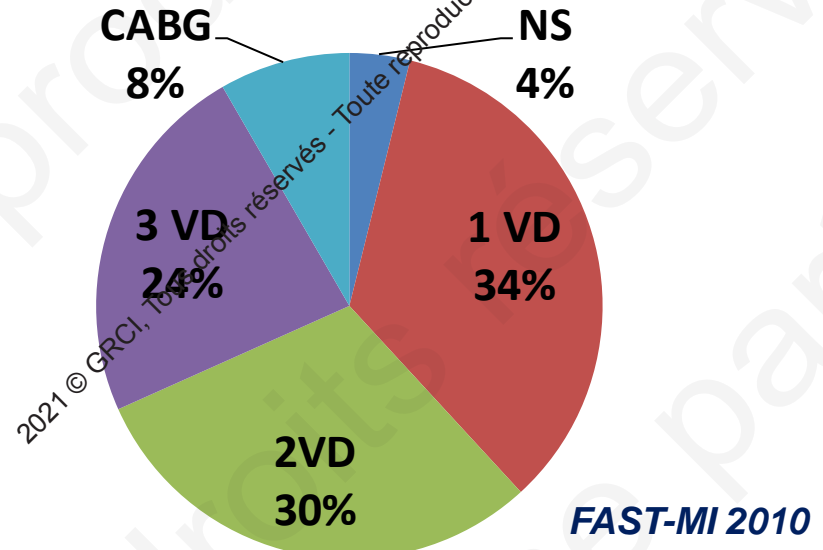
Leksan A et al. Kardiol Pol 2011
Dziwierz A et al. Am J Cardiol 2010



NSTEMI patients

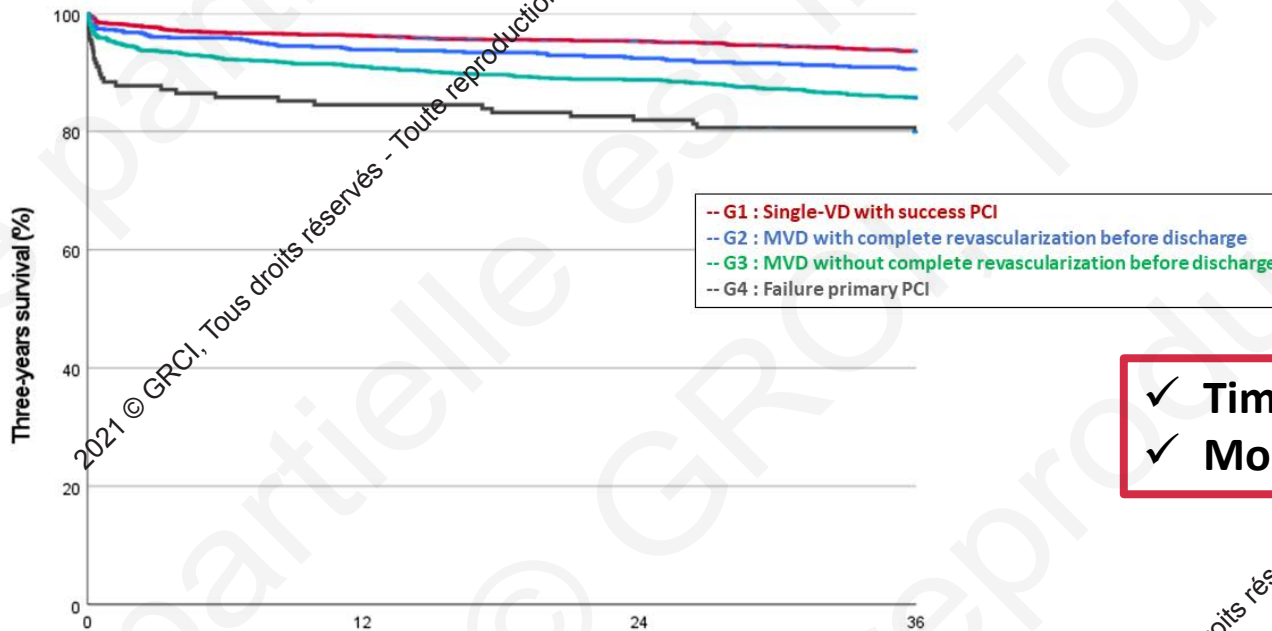
MVD = 30-59%

Dellavalle A et al. Ital Herat J 2000
TIMI IIIB. Circulation 1994
FRISC II. Lancet 1999



Infarctus et revascularisation complète

FAST MI. Survie à 3 ans



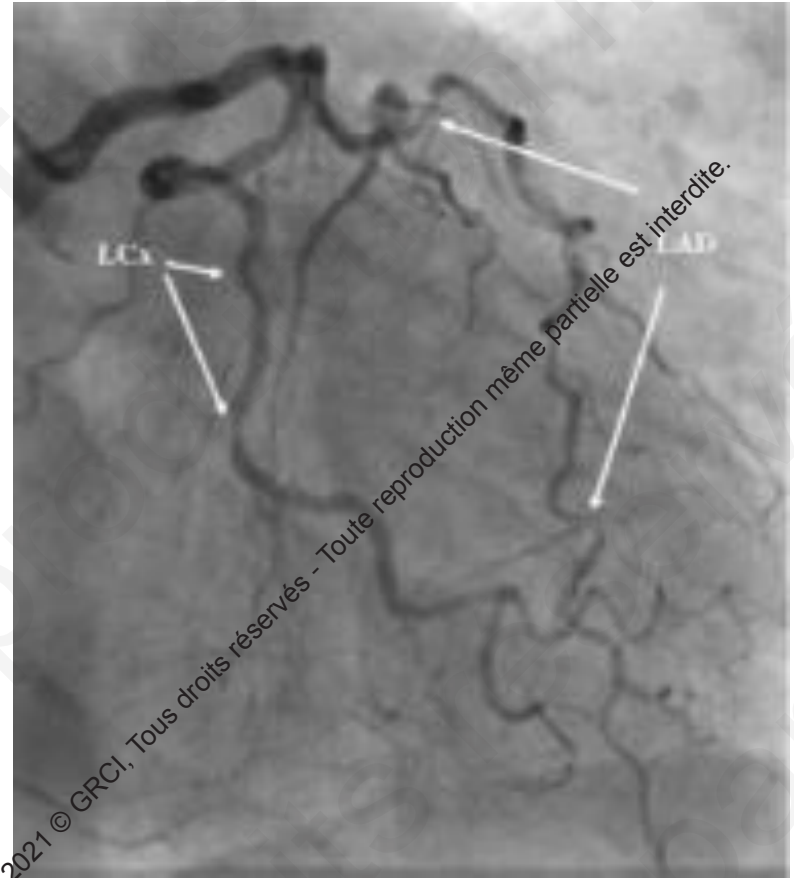
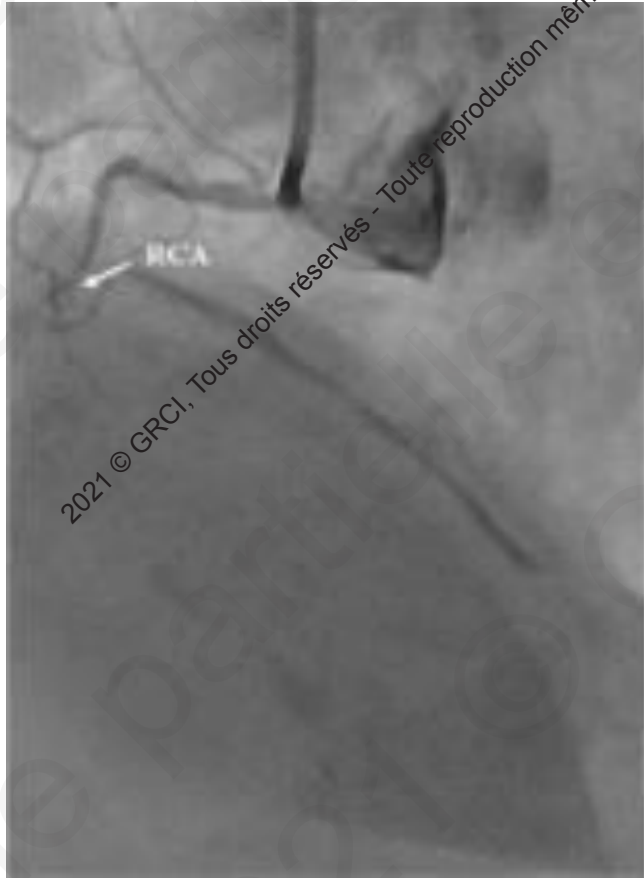
✓ Timing ?
 ✓ Mode revascularisation ?

Number at risk	0	12	24	36
G1	1796	1723	1646	1580
G2	649	607	567	535
G3	936	850	811	769
G4	155	131	127	122

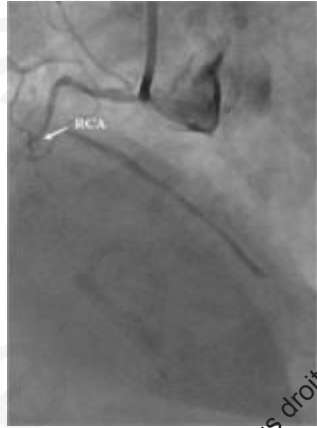
www.escardio.org/guidelines

Brunet T et al. Arch Cardiovasc Dis 2021
 2017 ESC Guidelines for the Management of AMI-STEMI. EHJ 2017
 ESC Guidelines for the management of NSTEMI-ACS. EHJ 2020

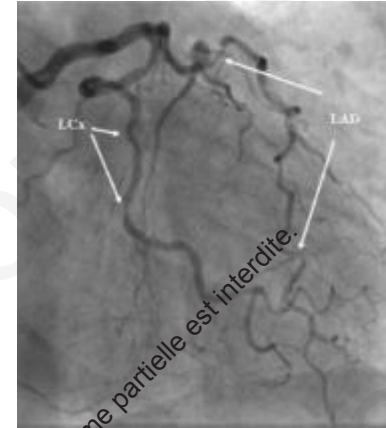
SCA avec ST+ (STEMI)



SCA avec ST+ (STEMI)



PREMIER OBJECTIF :
Revasculariser la lésion coupable
(“culprit lesion”)



Revascularisation complémentaire:
3 stratégies

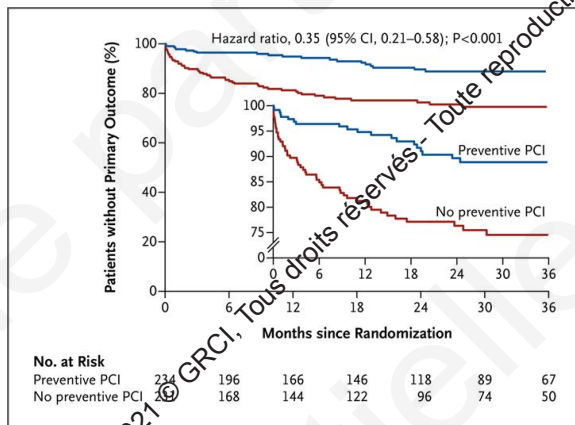
MULTIPLE PCI

STAGED PCI

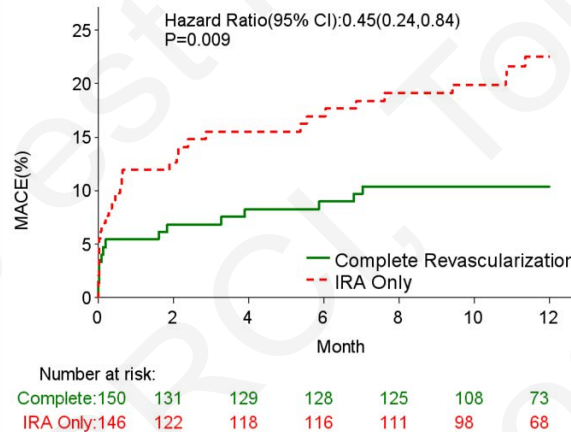
**CULPRIT LESION
ALONE**

SCA avec ST+ (STEMI)

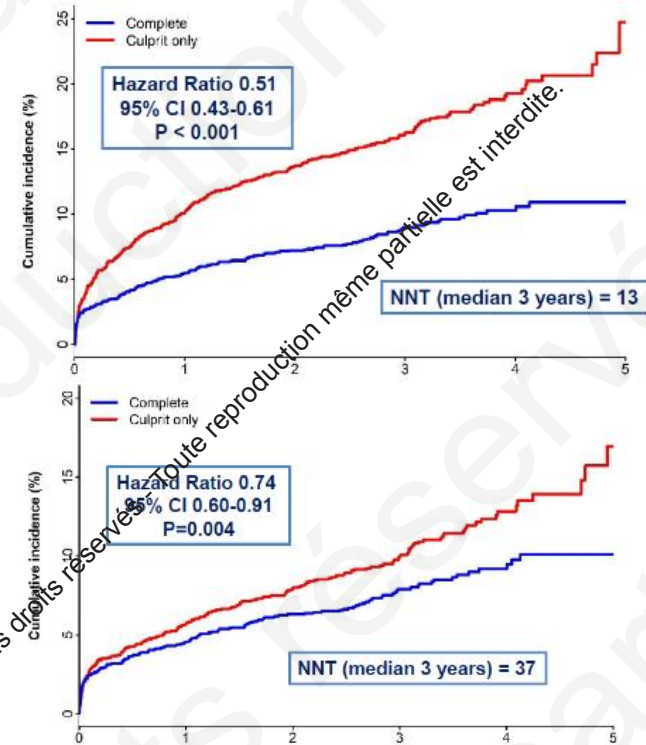
PRAMI



CULPRIT



COMPLETE

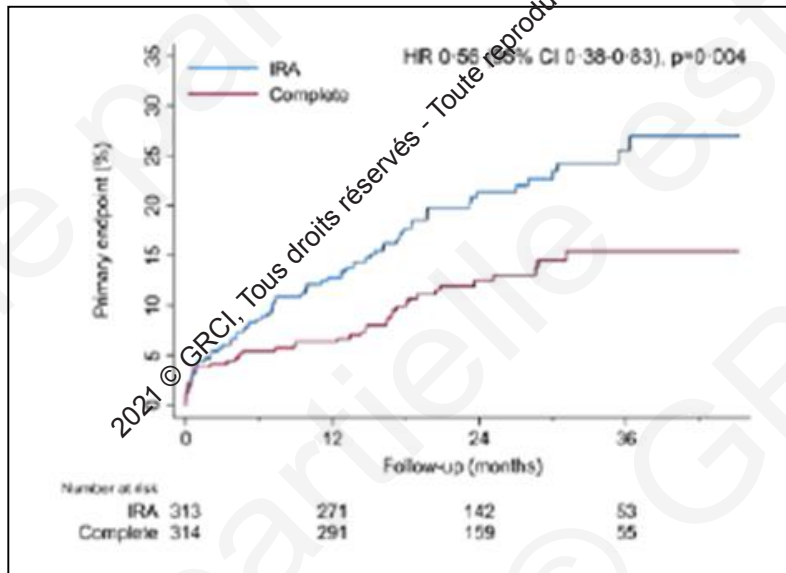


Revascularisation complète > Revascularisation de la lésion coupable seule

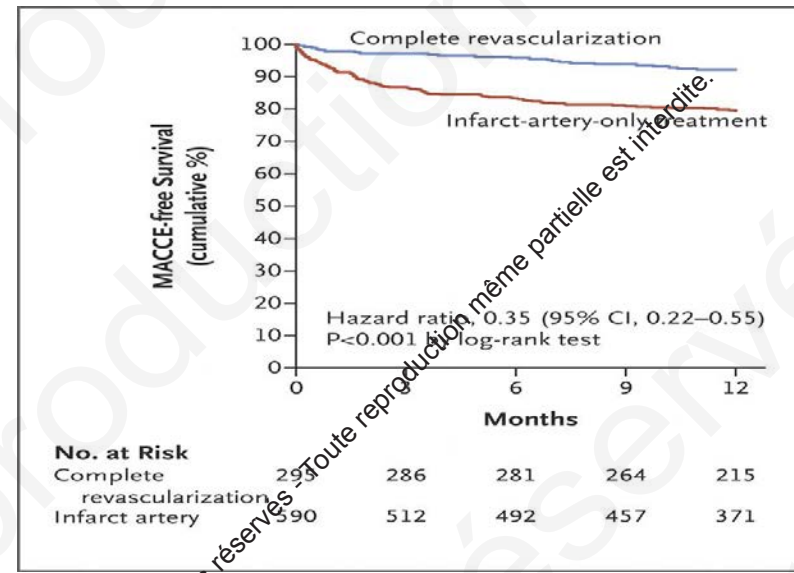
Wald DS et al. NEJM 2013
Gershlick AH et al. JACC 2015
Mehta SR et al. NEJM 2019

SCA avec ST+ (STEMI)

DANAMI 3



COMPARE ACUTE



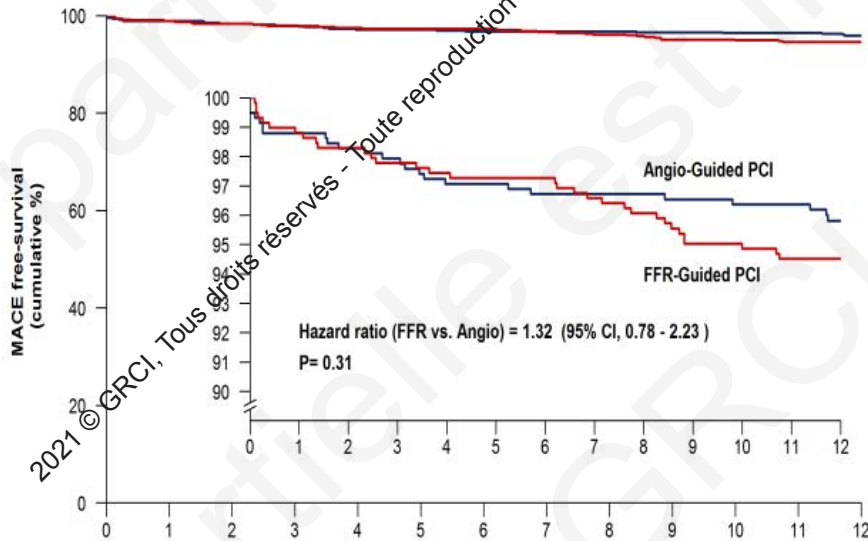
**Revascularisation complète guidée par la FFR >
Revascularisation de la lésion coupable seule**

Engstrøm T et al. Lancet 2015

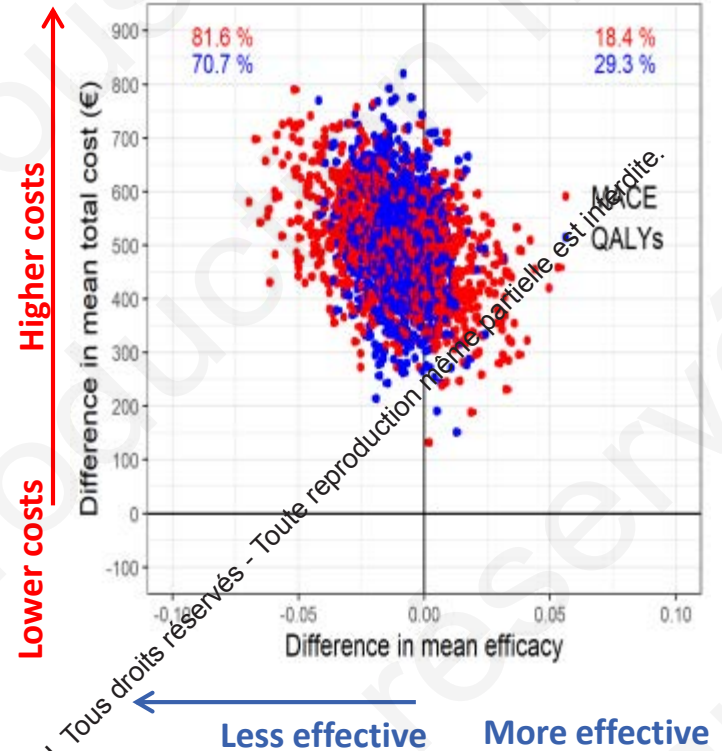
Smits PC et al. NEJM 2017

SCA avec ST+ (STEMI)

FLOWER-MI



Angio-Guided PCI	577	570	567	565	560	560	557	555	555	554	552	548	371
FFR-Guided PCI	586	577	573	570	567	566	566	562	559	553	553	549	385

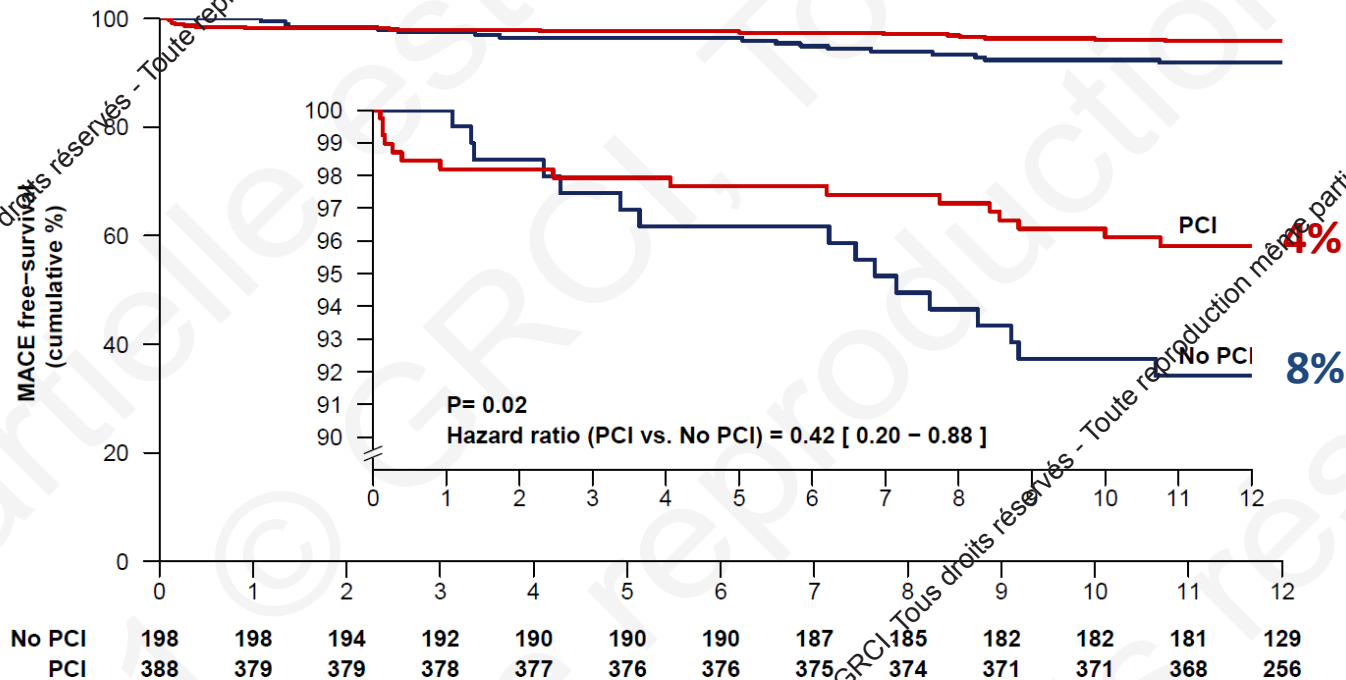


Revascularisation complète guidée par la FFR non supérieure à celle guidée par l'angiographie

Puymirat E et al. NEJM 2021

SCA avec ST+ (STEMI)

FLOWER-MI : groupe FFR



Denormandie P et al. Circ Cardiovasc Interv 2021

openheart Fractional flow reserve in acute coronary syndrome: a meta-analysis and systematic review

Kevin P Liou,^{1,2,3} Sze-Yuan M Ooi,^{2,3} Stephen P Hoole,¹ Nick E J West¹

ABSTRACT

Background The utility of fractional flow reserve (FFR) to guide revascularisation in the management of acute coronary syndrome (ACS) remains unclear.

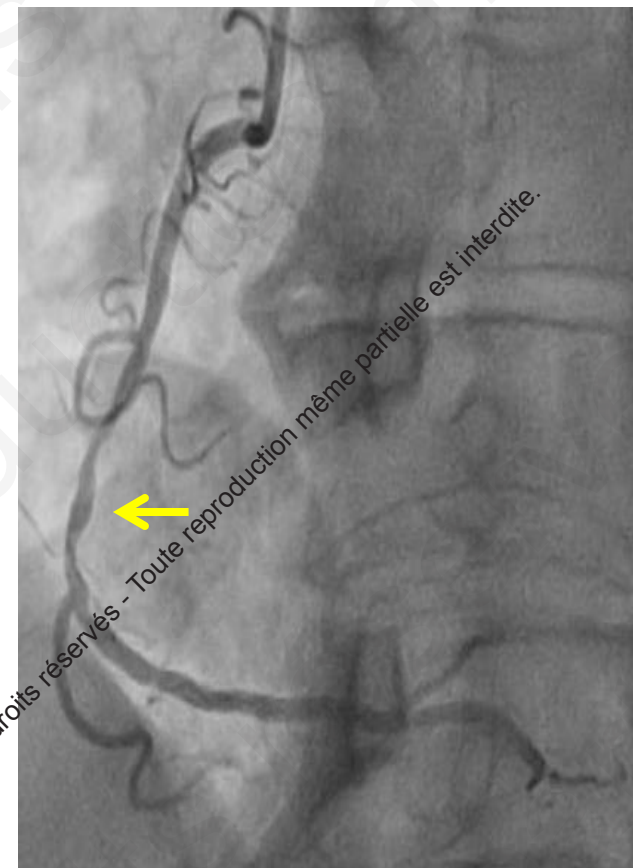
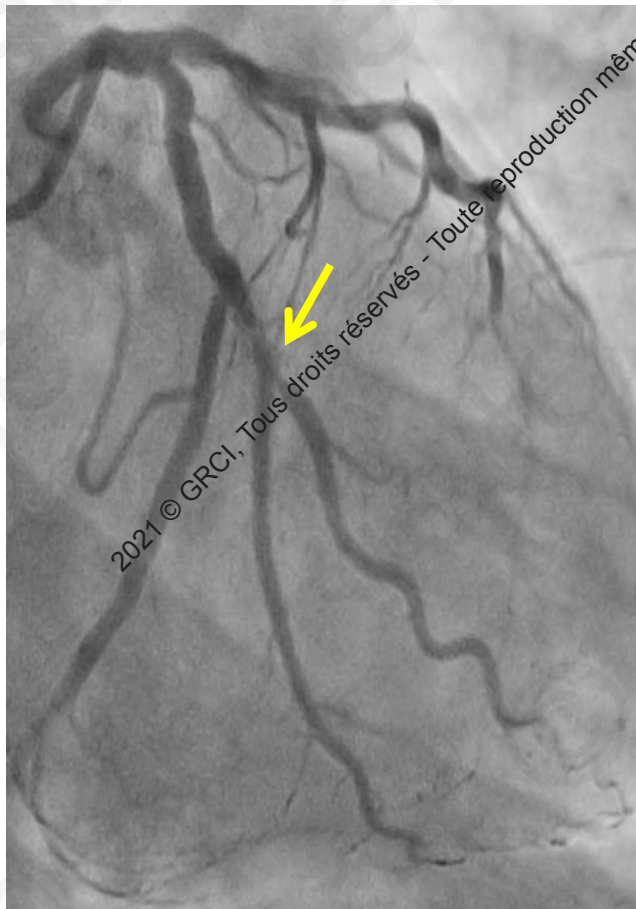
Objective This study aims to compare the clinical outcomes of patients following FFR-guided revascularisation for either ACS or stable angina (SA) and in particular focuses on the outcome of those with deferred revascularisation after FFR.

Methods A meta-analysis of existing literature was performed. Outcomes including the rate of major adverse cardiovascular events (MACE), recurrent myocardial infarction (MI), mortality and unplanned revascularisation were analysed.

Results A review of 937 records yielded 9 studies comparing 5457 patients, which were included in the analyses. Patients with ACS had a higher rate of recurrent MI (OR 1.81, $p=0.02$) and a strong trend towards more MACE and all-cause mortality compared with patients with SA when treated by an FFR-guided revascularisation strategy. Deferral of invasive therapy on the basis of FFR led to a higher rate of MACE (17.6% vs 7.3%; $p=0.004$), recurrent MI (5.3% vs 1.5%, $p=0.001$) and target vessel revascularisation (16.4% vs 5.6%; $p=0.02$) in patients with ACS, and a strong trend towards a higher cardiovascular mortality at follow-up when compared with patients with SA.

Conclusion The event rate in patients with ACS is much higher than SA despite following an FFR-guided revascularisation strategy. Deferring revascularisation does not appear to be as safe for ACS as it is for SA using contemporary FFR cut-offs validated in SA. Refinement of the therapeutic strategy for patients with ACS with multivessel disease is needed to redress the balance.

SCA non ST+ (NSTE-ACS)



SCA non ST+ (NSTE-ACS)

Invasive treatment

An early invasive strategy within 24 h is recommended in patients with any of the following high-risk criteria:

- Diagnosis of NSTEMI.
- Dynamic or presumably new continuous ST/T-segment changes suggesting ongoing ischaemia.
- Transient ST-segment elevation.
- GRACE risk score >140.

A selective invasive strategy after appropriate ischaemia testing or detection of obstructive CAD by CCTA is recommended in patients considered at low risk.

Delayed, as opposed to immediate, angiography should be considered in haemodynamically stable patients without ST-segment elevation successfully resuscitated after an out-of-hospital cardiac arrest.

Complete revascularization should be considered in NSTE-ACS patients without cardiogenic shock and with multivessel CAD.

Complete revascularization during index PCI may be considered in NSTE-ACS patients with multivessel disease.

FFR-guided revascularization of non-culprit NSTE-ACS lesions may be used during index PCI.

- **Revascularisation complète : OUI**
- **Timing : selon la sévérité des lésions**
- **Mode de revascularisation : chirurgicale ou percutanée**

Place de la FFR
LESION CULPABLE : NON
Risque de sous estimer la lésion

LESIONS ASSOCIEES : OUI
Evaluation fonctionnelle des lésions intermédiaires (40-90%) sans ischémie documentée (soin courant)

ESC Guidelines for the management of NSTE-ACS. EHJ 2020

Conclusions

- Revascularisation des lésions non coupables chez les patients présentant un SCA permet d'améliorer leur pronostic
- Le timing de la revascularisation est plus controversé (« *staged procedure* »)
- L'utilisation de la FFR n'est pas supérieure à l'angiographie pour guider la revascularisation des lésions non coupables dans le STEMI

2021 © GRCI, Tous droits réservés - Toute reproduction même partielle est interdite.

2021 © GRCI, Tous droits réservés - Toute reproduction même partielle est interdite.