Cas clinique
Le point de vue du chirurgien

PR IMED FRIKHA


BRAVO!


ITALIA

Plan

1-CAS CLINIQUE.

2-TRIALS ET GUIDELINES.

3-CONDUITE CHIRURGICALE.

4-COMMENTAIRES.

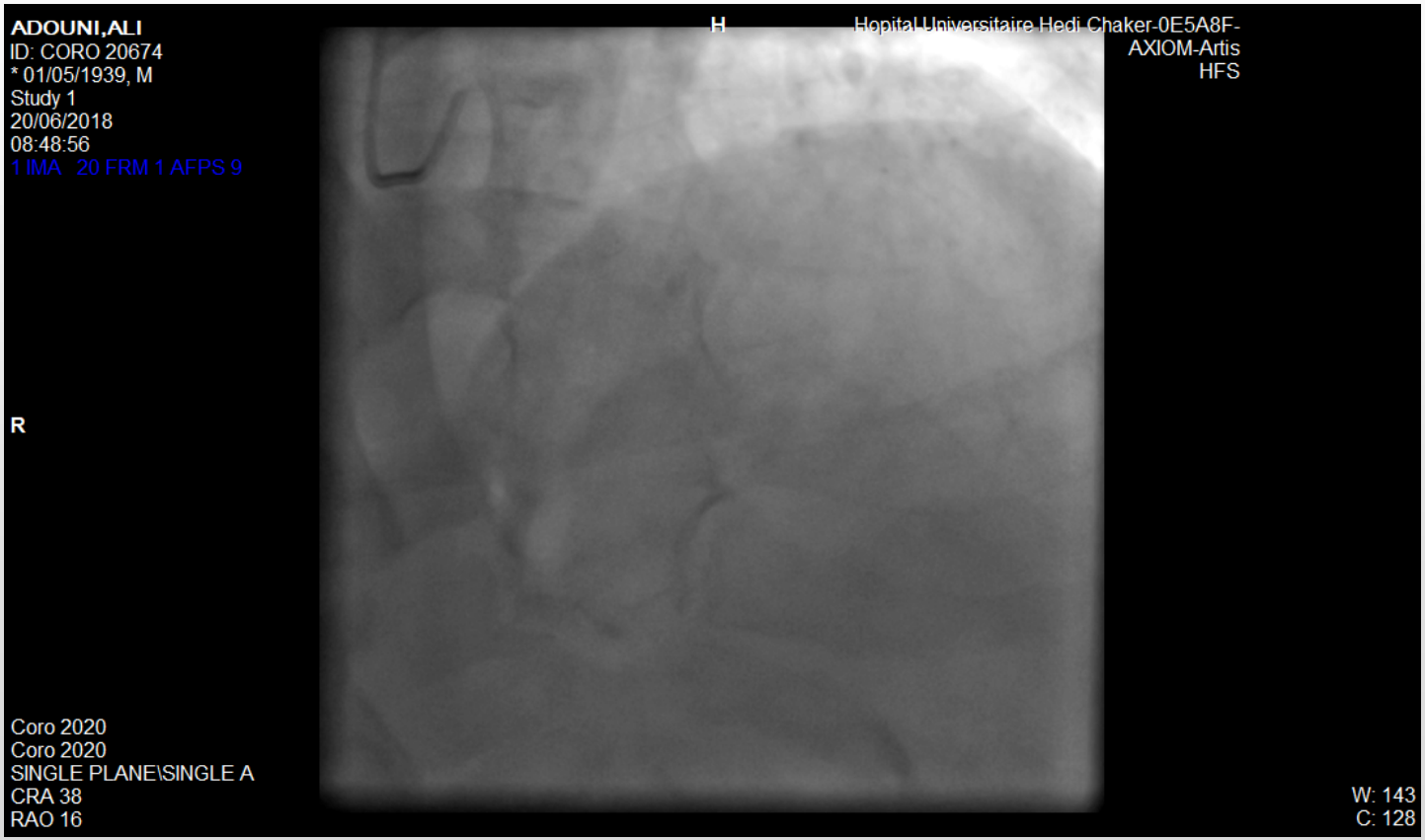
Observation

SCA ST- Tropo-

- Homme 79 ans
- Diabète-BPCO-IRC
- Dysfonction VG : FE 38%

Marginale ++ Bissectrice+/-

IVA++


ADOUNI,ALI
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* 01/05/1939, M
Study 1
20/06/2018
08:48:56
1 IMA 20 FRM 1 AFPS 9
H
Hopital Universitaire Hedi Chaker-0E5A8F-
AXIOM-Artis
HFS
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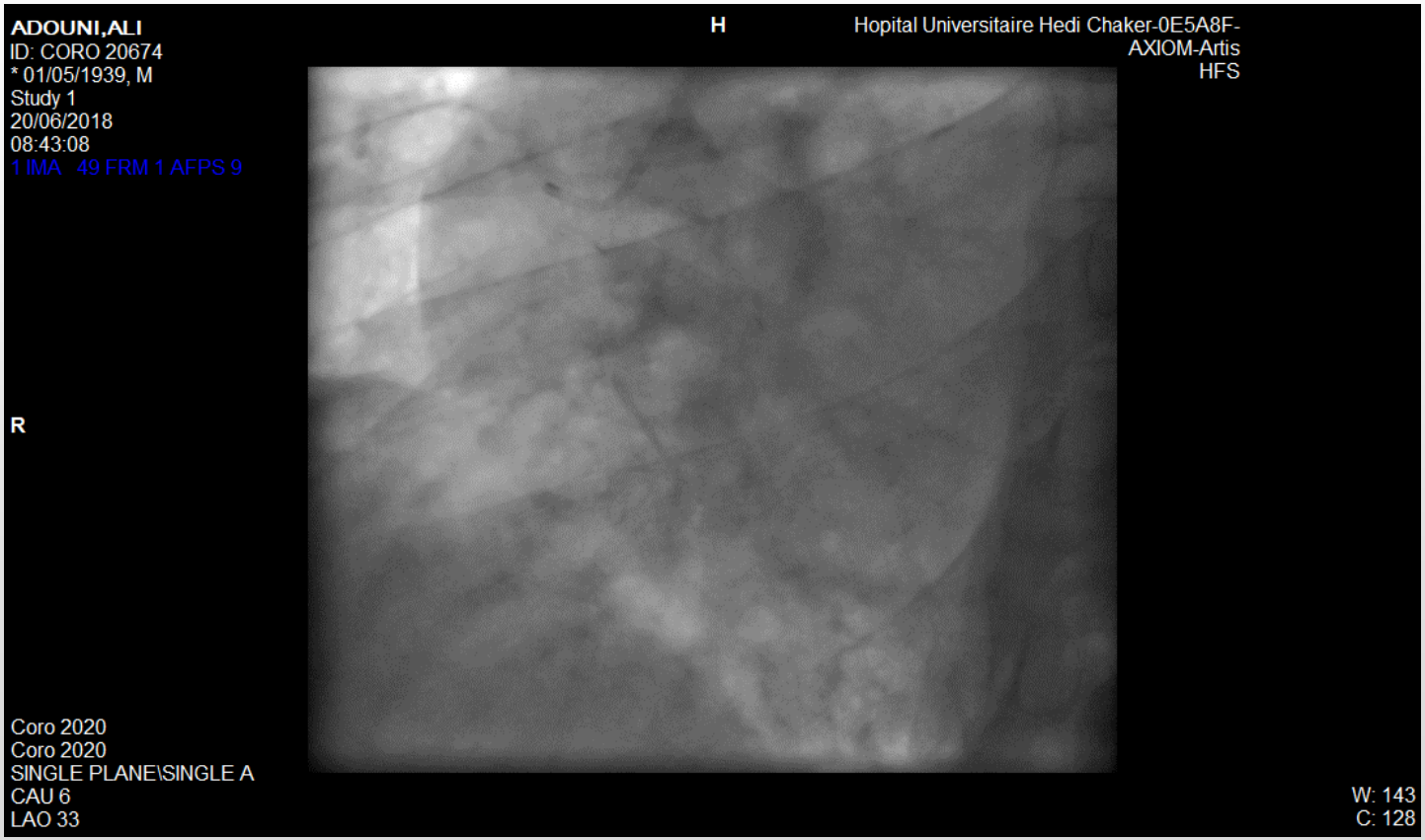
Coro 2020
Coro 2020
SINGLE PLANE\SINGLE A
CRA 38
RAO 16
W: 143
C: 128

CD2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Study 1
20/06/2018
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1 IMA 49 FRM 1 AFPS 9
H
Hopital Universitaire Hedi Chaker-0E5A8F-
AXIOM-Artis
HFS
R
Coro 2020
Coro 2020
SINGLE PLANE\SINGLE A
CAU 6
LAO 33
W: 143
C: 128

Evaluation

Syntax Score I: 30

Recommendations on criteria for the choice between coronary artery bypass grafting and percutaneous coronary intervention

Recommendations	Class[a]	Level[b]
Assessment of surgical risk[c]		
It is recommended that the STS score is calculated to assess in-hospital or 30 day mortality, and in-hospital morbidity after CABG.[112,114,138]	I	B
Calculation of the EuroSCORE II score may be considered to assess in-hospital mortality after CABG.[112]	IIb	B
Assessment of CAD complexity		
In patients with LM or multivessel disease, it is recommended that the SYNTAX score is calculated to assess the anatomical complexity of CAD and the long-term risk of mortality and morbidity after PCI.[117–124]	I	B
When considering the decision between CABG and PCI, completeness of revascularization should be prioritized.[131,132,134–136]	IIa	B

SYNTAX Score I

Lesion 1	
segment number(s)	
(segment 2): 1x5=	5
Age T.O. is yes	1
+ Bridging	1
the first segment beyond the T.O. visualized by contrast: 3	0
+ sidebranch: Yes, all sidebranches <1.5mm	1
Heavy calcification	2
Sub total lesion 1	*10*
Lesion 2	
(segment 5): 5x2=	10
Trifurcation 1 diseased segment(s) involved	3
Aorto Ostial lesion	1
Length >20 mm	1
Heavy calcification	2
Sub total lesion 2	*17*
Lesion 3	
(segment 12): 1x2=	2
Length >20 mm	1
Sub total lesion 3	*3*
TOTAL:	*30*

Syntax score II

SYNTAX Score II

SYNTAX II

Decision making -between CABG and PCI- guided by the SYNTAX Score II to be endorsed by the Heart Team.

PCI

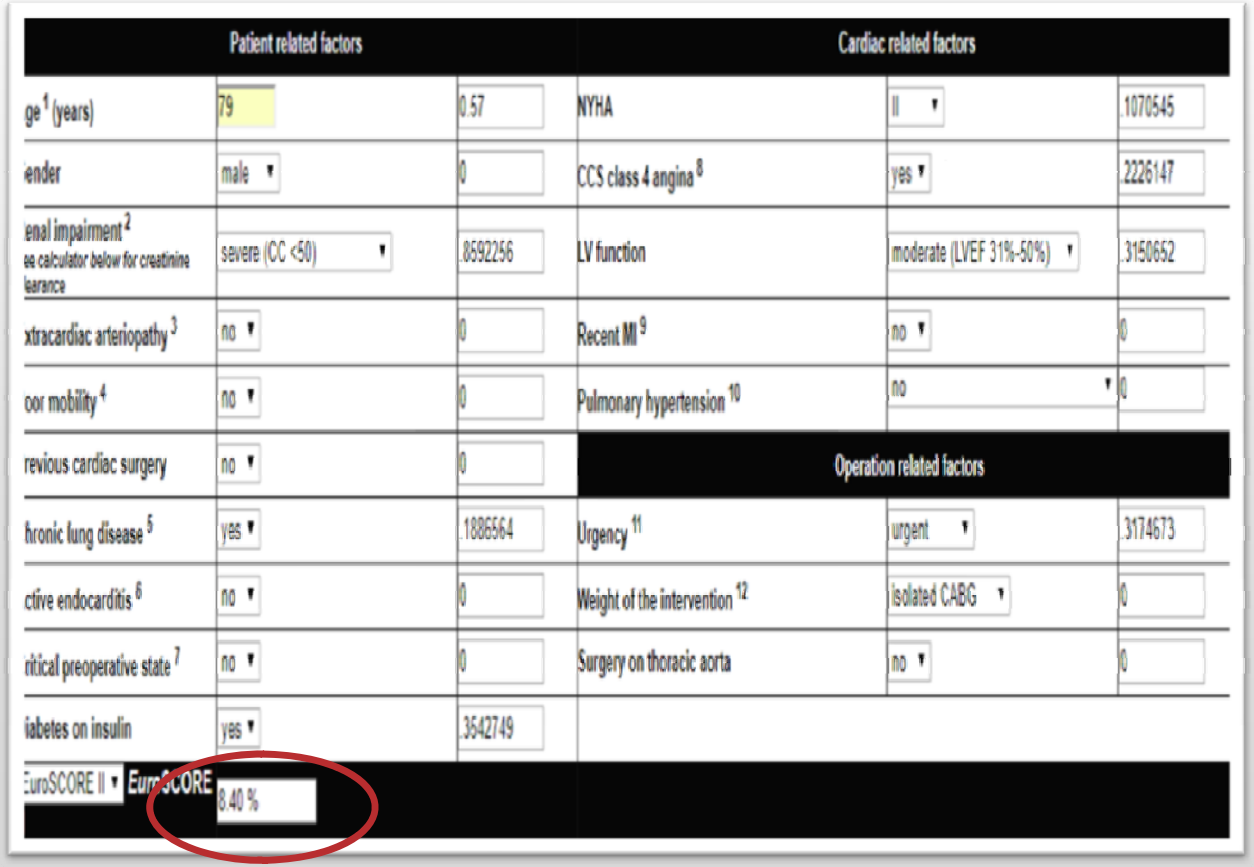
SYNTAX Score II:	49.7
PCI 4 Year Mortality:	30.9 %

CABG

SYNTAX Score II:	58.2
CABG 4 Year Mortality:	53.0 %

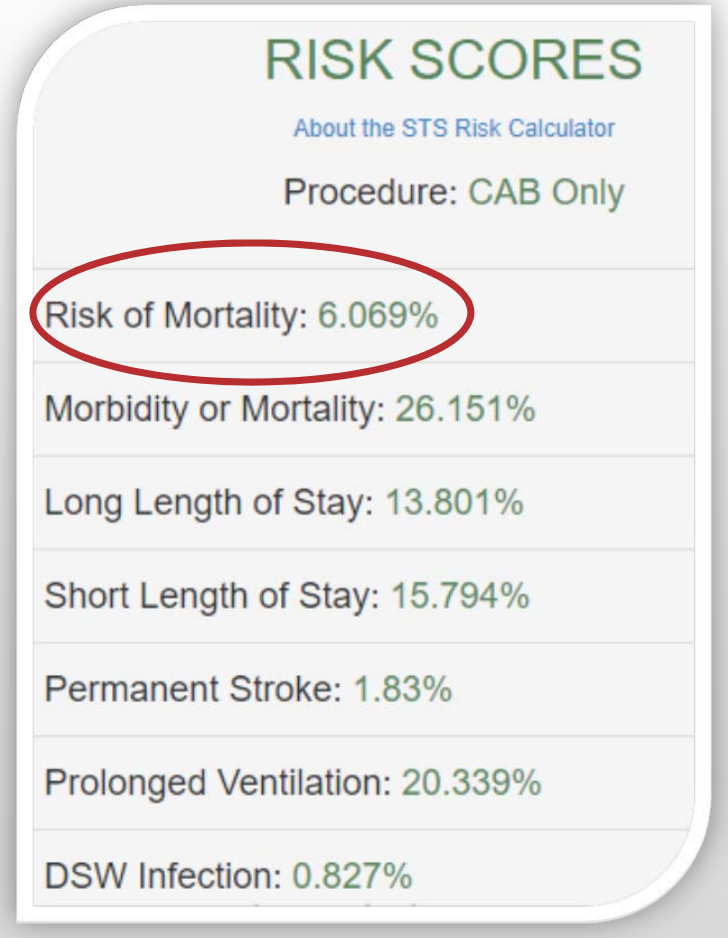
Treatment recommendation : *CABG or PCI*

Euroscore II: 8,4%



Patient related factors			Cardiac related factors		
ge [1] (years)	79	0.57	NYHA	II	.1070545
ender	male	0	CCS class 4 angina [8]	yes	.2226147
enal impairment [2] ee calculator below for creatinine learance	severe (CC <50)	.8592256	LV function	moderate (LVEF 31%-50%)	.3150652
xtracardiac arteriopathy [3]	no	0	Recent MI [9]	no	0
oor mobility [4]	no	0	Pulmonary hypertension [10]	no	0
revious cardiac surgery	no	0	**Operation related factors**		
hronic lung disease [5]	yes	.1886564	Urgency [11]	urgent	.3174673
ctive endocarditis [6]	no	0	Weight of the intervention [12]	isolated CABG	0
ritical preoperative state [7]	no	0	Surgery on thoracic aorta	no	0
iabetes on insulin	yes	.3642749			
EuroSCORE II	EuroSCORE	8.40 %			

STS score


RISK SCORES
About the STS Risk Calculator
Procedure: CAB Only
Risk of Mortality: 6.069%
Morbidity or Mortality: 26.151%
Long Length of Stay: 13.801%
Short Length of Stay: 15.794%
Permanent Stroke: 1.83%
Prolonged Ventilation: 20.339%
DSW Infection: 0.827%

Au total

Stenting

PAC

Trials Guidelines

European Heart Journal (2014) **35**, 2541–2619
doi:10.1093/eurheartj/ehu278

2014 ESC/EACTS Guidelines on myocardial revascularization

Recommendations according to extent of CAD	CABG		PCI	
	Class[a]	Level[b]	Class[a]	Level[b]
One or two-vessel disease without proximal LAD stenosis.	IIb	C	I	C
One-vessel disease with proximal LAD stenosis.	I	A	I	A
Two-vessel disease with proximal LAD stenosis.	I	B	I	C
Left main disease with a SYNTAX score ≤ 22.	I	B	I	B
Left main disease with a SYNTAX score 23–32.	I	B	IIa	B
Left main disease with a SYNTAX score >32.	I	B	III	B
Three-vessel disease with a SYNTAX score ≤ 22.	I	A	I	B
Three-vessel disease with a SYNTAX score 23–32.	I	A	III	B
Three-vessel disease with a SYNTAX score >32.	I	A	III	B

ESC 2018

Recommendation for the type of revascularization in patients with stable coronary artery disease with suitable coronary anatomy for both procedures and low predicted surgical mortality[d]

Recommendations according to extent of CAD	CABG		PCI	
	Class[a]	Level[b]	Class[a]	Level[b]
One-vessel CAD				
Without proximal LAD stenosis.	IIb	C	I	C
With proximal LAD stenosis.[68,101,139–144]	I	A	I	A
Two-vessel CAD				
Without proximal LAD stenosis.	IIb	C	I	C
With proximal LAD stenosis.[68,70,73]	I	B	I	C
Left main CAD				
Left main disease with low SYNTAX score (0 - 22).[69,121,122,124,145–148]	I	A	I	A
Left main disease with intermediate SYNTAX score (23 - 32).[69,121,122,124,145–148]	I	A	IIa	A
Left main disease with high SYNTAX score (≥33).[c 69,121,122,124,146–148]	I	A	III	B

Diabète

Specific recommendations for revascularization in patients with diabetes

Recommendations	Class[a]	Level[b]	Ref[c]
In patients presenting with STEMI, primary PCI is recommended over fibrinolysis if it can be performed within recommended time limits.	I	A	363
In patients with NSTE-ACS, an early invasive strategy is recommended over non-invasive management.	I	A	180,338, 364–366
In stable patients with multivessel CAD and/or evidence of ischaemia, revascularization is indicated in order to reduce cardiac adverse events.	I	B	93,367
In patients with stable multivessel CAD and an acceptable surgical risk, CABG is recommended over PCI.	I	A	106,175,349
In patients with stable multivessel CAD and SYNTAX score ≤22, PCI should be considered as alternative to CABG.	IIa	B	346,350
New-generation DES are recommended over BMS.	I	A	351,352
Bilateral mammary artery grafting should be considered.	IIa	B	368
In patients on metformin, renal function should be carefully monitored for 2 to 3 days after coronary angiography/PCI.	I	C	

Dysfonction VG

Recommendations on revascularizations in patients with chronic heart failure and systolic left ventricular dysfunction (ejection fraction ≤35%)

Recommendations	Class[a]	Level[b]
In patients with severe LV systolic dysfunction and coronary artery disease suitable for intervention, myocardial revascularization is recommended.[81,250]	I	B
CABG is recommended as the first revascularization strategy choice in patients with multivessel disease and acceptable surgical risk.[68,81,248,255]	I	B
In patients with one- or two-vessel disease, PCI should be considered as an alternative to CABG when complete revascularization can be achieved.	IIa	C
In patients with three-vessel disease, PCI should be considered based on the evaluation by the Heart Team of the patient's coronary anatomy, the expected completeness of revascularization, diabetes status, and comorbidities.	IIa	C

Chirurgie

Options

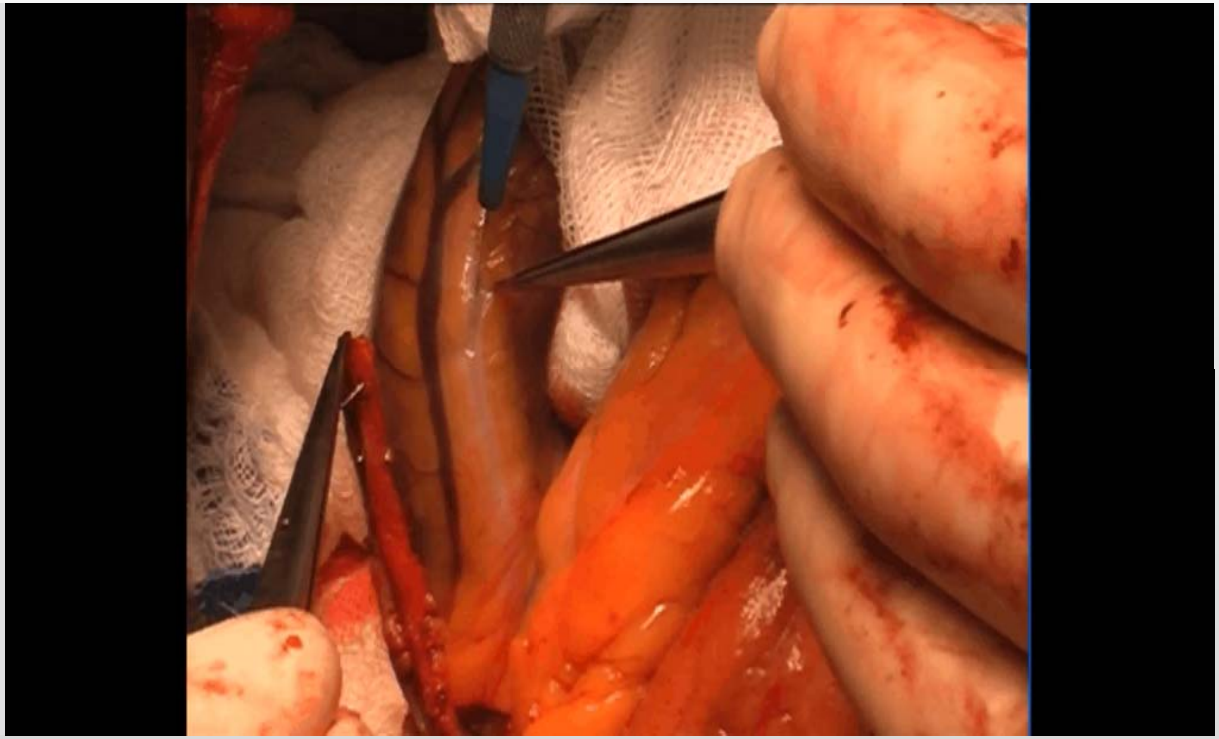
- CEC
- Cœur battant
- Approche hybride

CEC

- Revascularisation complète.

Recommendations on procedural aspects of coronary artery bypass grafting

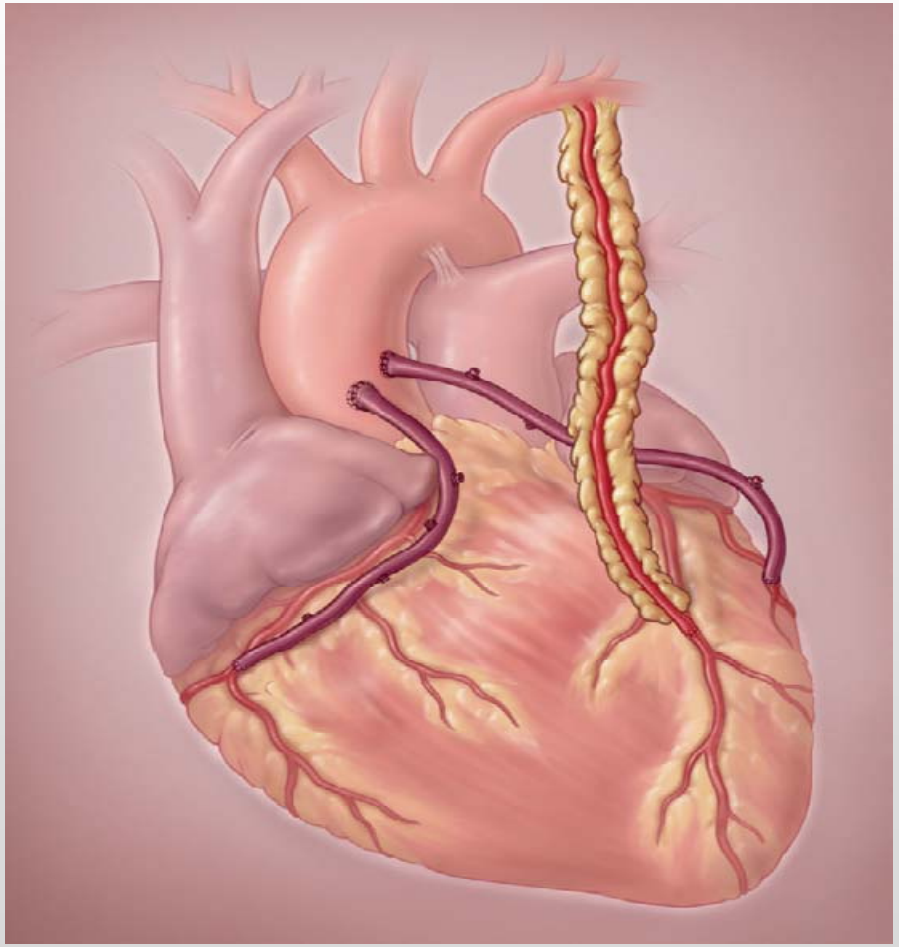
Recommendations	Class[a]	Level[b]
General considerations		
Complete myocardial revascularization is recommended.[c 131,132]	I	B
Minimization of aortic manipulation is recommended.[508,509,544,545]	I	B
Routine intraoperative graft flow measurement should be considered.[516,517]	IIa	B
CT scans of the ascending aorta should be considered in patients over 70 years of age and/or with signs of extensive generalized atherosclerosis.	IIa	C
Prior to aortic manipulation, epiaortic ultrasound should be considered to identify atheromatous plaques and select the optimal surgical strategy.	IIa	C



Choix des greffons ?

AMIG/IVA

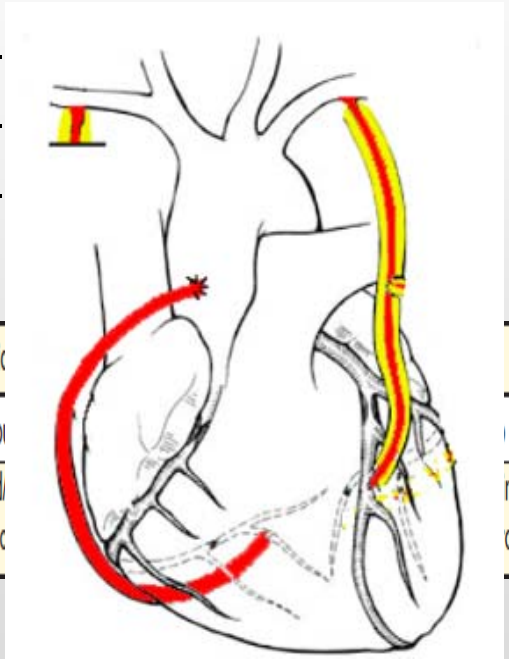
Gold standard



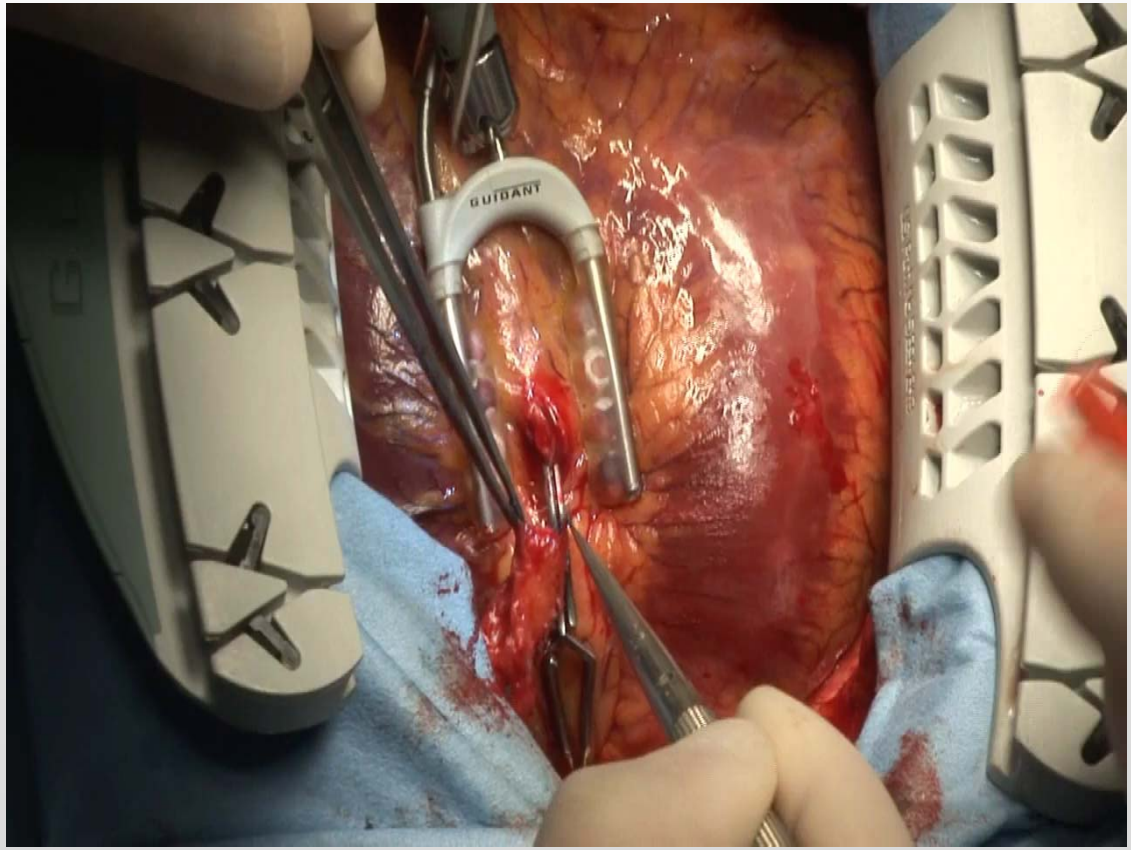
Conduit selection		
Arterial grafting with IMA to the LAD system is recommended.[453,454,546]	I	B
An additional arterial graft should be considered in appropriate patients.[467,492,547-551]	IIa	B
The use of the radial artery is recommended over the saphenous vein in patients with high-grade coronary artery stenosis.[c 482,549,550,552,553]	I	B
BIMA grafting should be considered in patients who do not have a high risk of sternal wound infection.[c 467,547,548,551]	IIa	B
Vessel harvesting		
Skeletonized IMA dissection is recommended in patients with a high risk of sternal wound infection.[471,484,485]	I	B
Endoscopic vein harvesting, if performed by experienced surgeons, should be considered to reduce the incidence of wound complications.[490,493,494,500,554]	IIa	A
No-touch vein harvesting should be considered when an open technique is used.[506,507,555,556]	IIa	B

CB

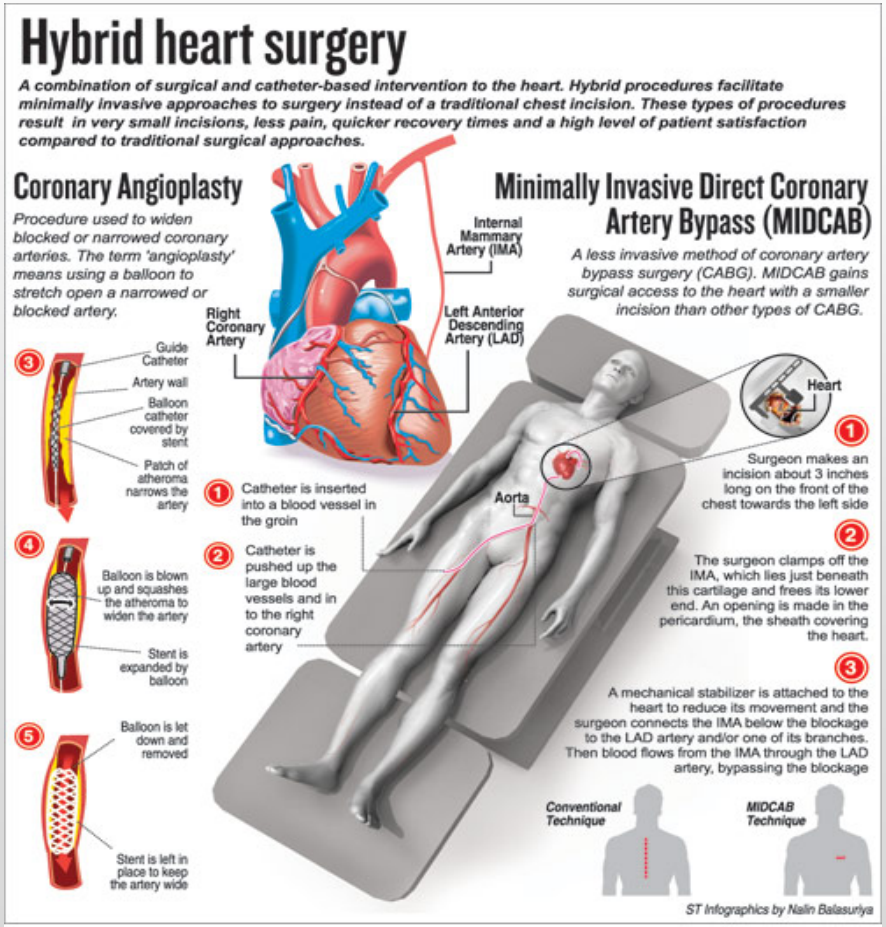
Patients à haut risque :



Minimization of aortic	I	B
Off-pump CABG shou centres.	IIa	B
Off-pump CABG and n patients with significant athero oke.	I	B



Approche hybride



Minimally invasive techniques		
Off-pump CABG and preferably no-touch techniques on the ascending aorta, by experienced operators, are recommended in patients with significant atherosclerotic aortic disease.[508,509,544,557–559]	I	B
Off-pump CABG should be considered for subgroups of high-risk patients by experienced off-pump teams.[525,557–560]	IIa	B
Where expertise exists, minimally invasive CABG through limited thoracic access should be considered in patients with isolated LAD lesions or in the context of hybrid revascularization.[143,534,535,561]	IIa	B
Hybrid procedures, defined as consecutive or combined surgical and percutaneous revascularization, may be considered in specific patient subsets at experienced centres.[536,561–563]	IIb	B

PAC IVA CB

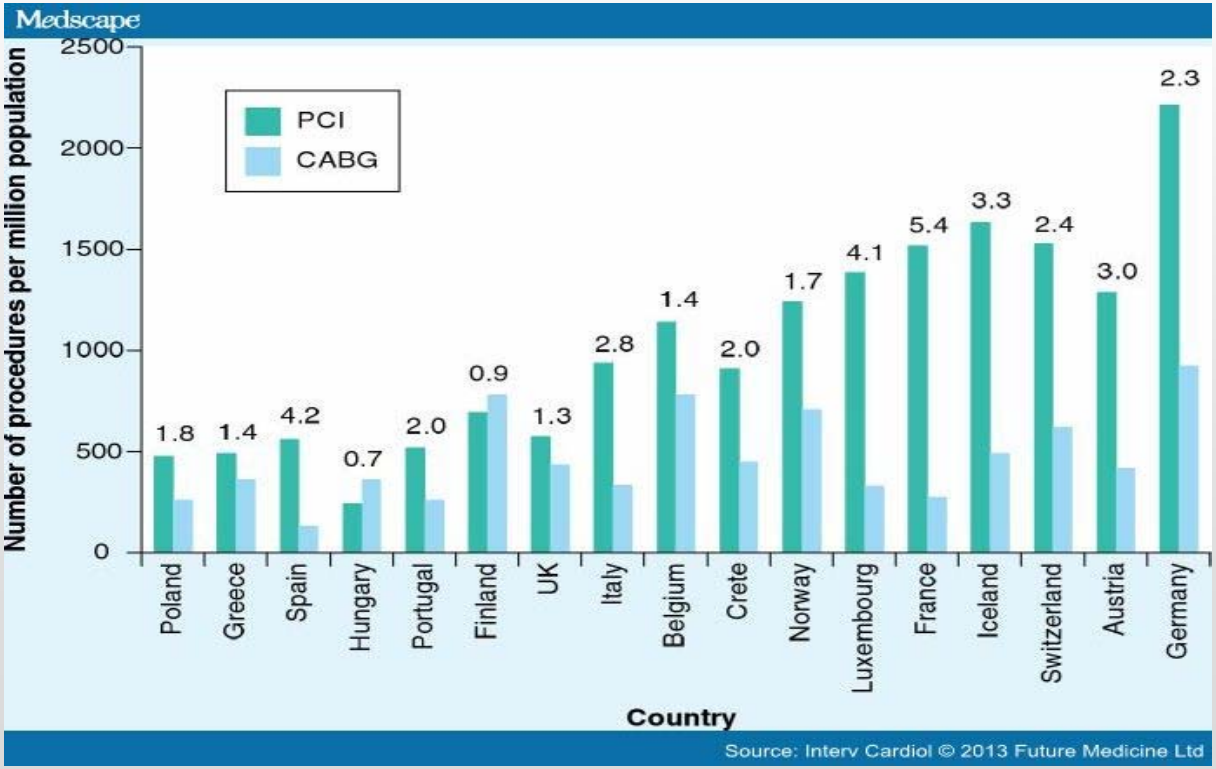
ATL TC protégé - CD

MIDCAB SFAX


CHU Habib Bourguiba Sfax
Service de chirurgie Cardiovasculaire

Commentaires

PCI vs CABG


Medscape
Number of procedures per million population
2500
2000
1500
1000
500
0
PCI
CABG
1.8
1.4
4.2
0.7
2.0
0.9
1.3
2.8
1.4
2.0
1.7
4.1
5.4
3.3
2.4
3.0
2.3
Poland
Greece
Spain
Hungary
Portugal
Finland
UK
Italy
Belgium
Crete
Norway
Luxembourg
France
Iceland
Switzerland
Austria
Germany
Country
Source: Interv Cardiol © 2013 Future Medicine Ltd


6x

RealLife™

Cardiologue, cardiologue, cardiologue .....

- Consultation.
- Diagnostic.
- Indication.
- Traitement interventionnel.
- Suivi.

Heart team +++

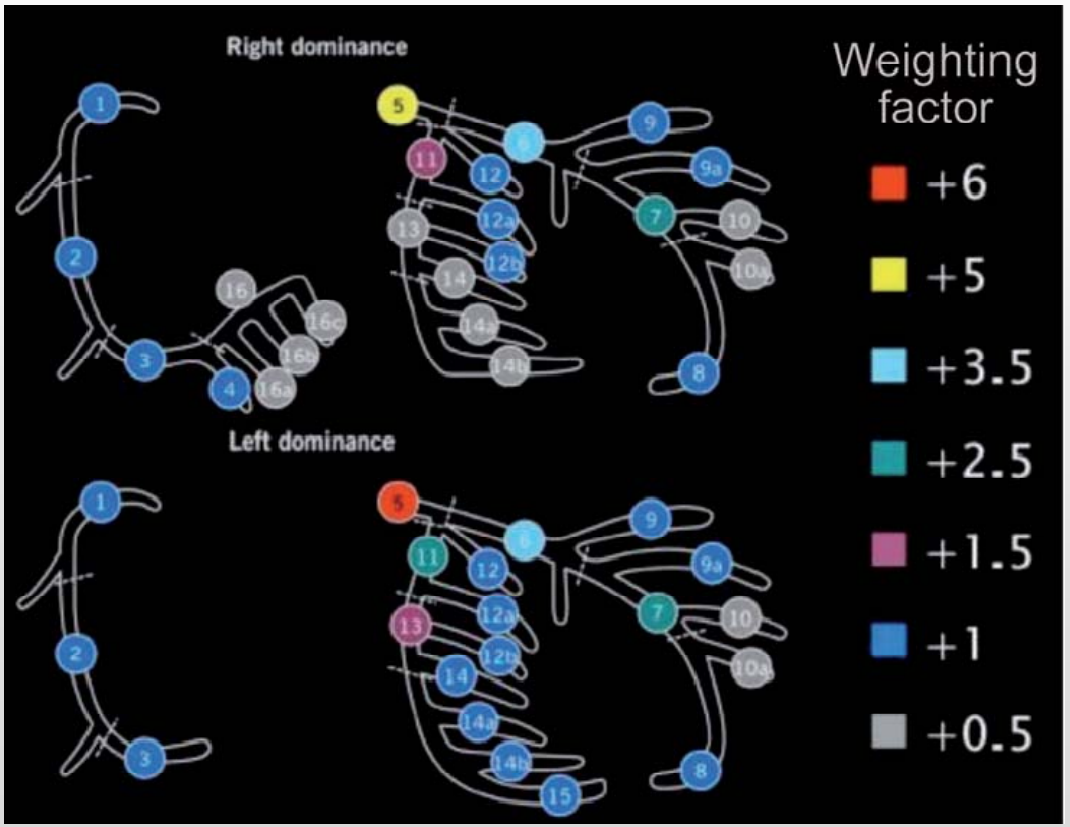
Recommendations	Class[a]	Level[b]	Ref.[c]
It is recommended to perform procedures in a hospital structure and by a team specialized in cardiac surgery, using written protocols.	I	B	635,636

Summary & Conclusions

- The final 5-year results of the SYNTAX trial demonstrate that surgery remains the gold standard for patients with complex multivessel disease
- In patients with less complex disease, PCI is an acceptable alternative treatment
- Treatment decisions for an individual patient should continue to be made in consultation between the patient and the Heart Team, while considering the risks and benefits of the respective treatment options

Thank you to the SYNTAX Steering Committee and Investigators

Syntax Score

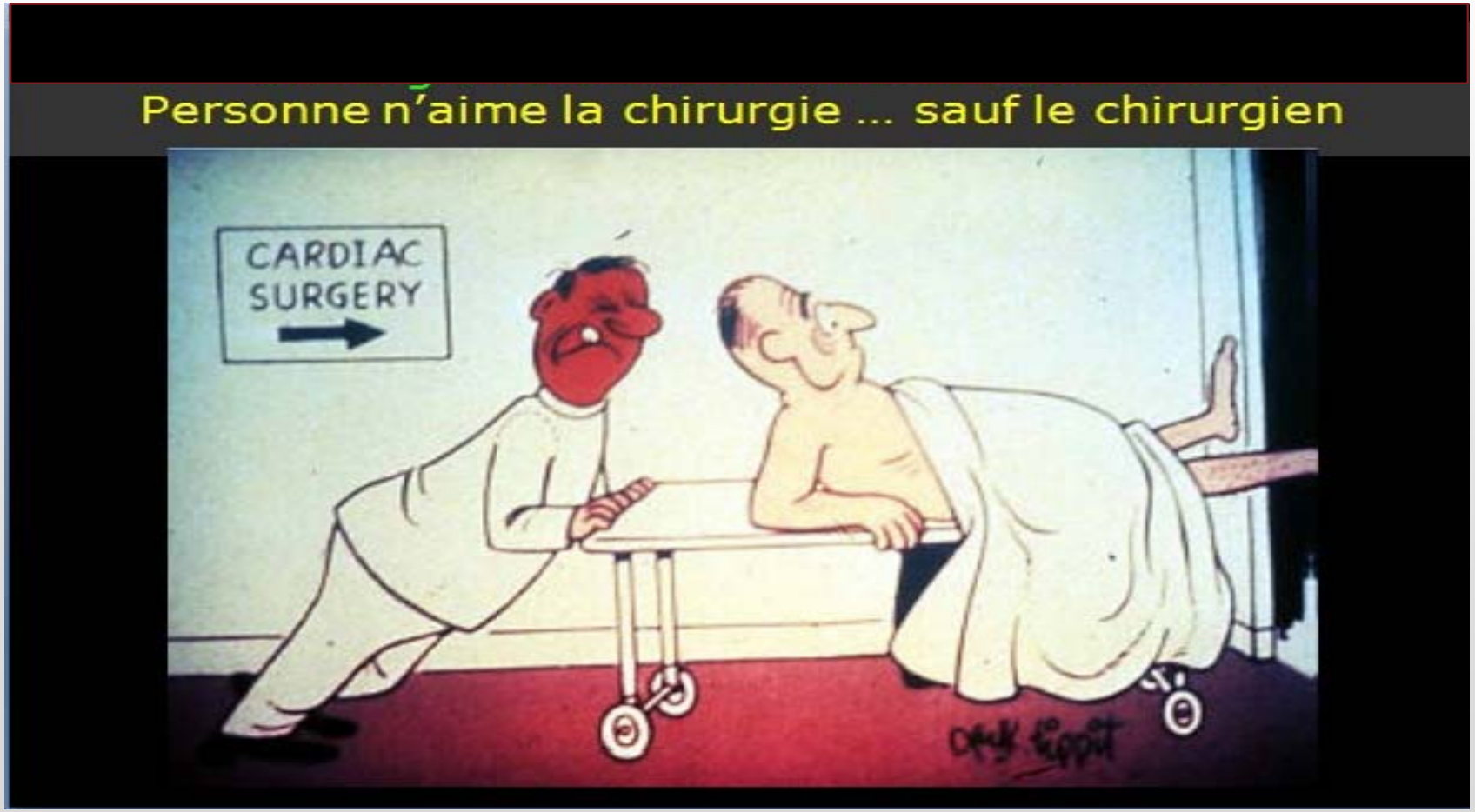


Les scores ne sont pas tout dans la vie.....

The « eyeball test » ou le test visuel

The « *Art of Medicine* » can't be captured in scores. *E. Grube*

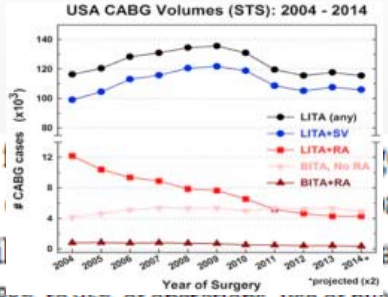
Refus de la chirurgie !



Refus de la chirurgie !

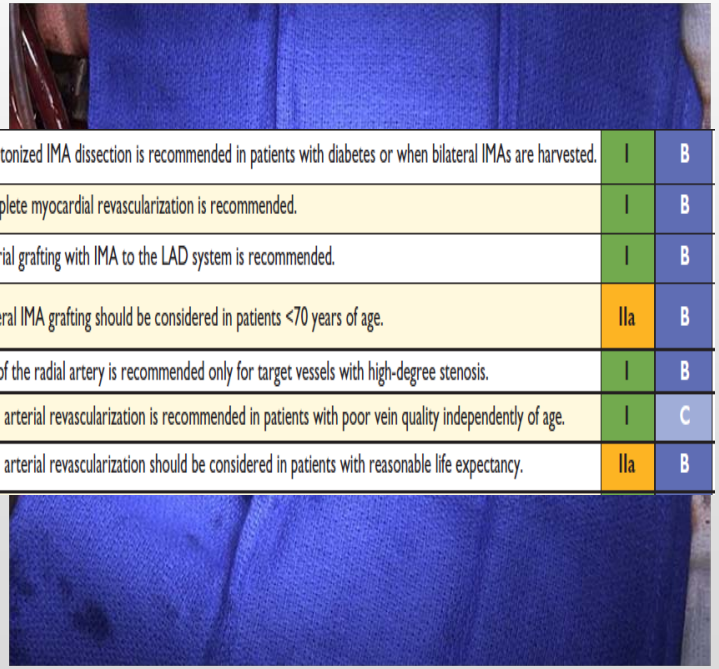
Double mammaire ! Oui /Mais

ART



surgery (CABG) [illegible] geons adult cardiac surgery [illegible] last decade (2000–2009), whil [illegible] artery (ITA) increased from 86% to 95% of operations, use of bilateral ITA's increased minimally from 3.5% to 4.1%, while use of the radial artery actually declined from 10.8% to 5.5% [1]. A purely American phenomenon? Not really. A 2009 report from the Australasian Society of Cardiac Surgery recorded a 12.6% rate of BITA grafting [2], while the carefully selected, to a large extent, European investigators of the SYNTAX (Synergy Between Percutaneous Coronary Intervention With Taxus and Cardiac Surgery) trial used a second arterial graft in only 26.2% of registry patients and 35.3% of those in the randomized portion [3]. Perhaps equally perplexing, both European

10 ⟶ 70%



Skeletonized IMA dissection is recommended in patients with diabetes or when bilateral IMAs are harvested.	I	B
Complete myocardial revascularization is recommended.	I	B
Arterial grafting with IMA to the LAD system is recommended.	I	B
Bilateral IMA grafting should be considered in patients <70 years of age.	IIa	B
Use of the radial artery is recommended only for target vessels with high-degree stenosis.	I	B
Total arterial revascularization is recommended in patients with poor vein quality independently of age.	I	C
Total arterial revascularization should be considered in patients with reasonable life expectancy.	IIa	B

- **Diabète** : squelettisation.
- **BPCO** . Radiothérapie.
- Obésité.
- **Age > 70ans.**
- Séquentiel :
  - montage en Y : 1seul axe porteur.
  - compétitivité des flux (70 % ghe et 90 % dte).
- Greffon pédiculé : sinus de Theile.

Endoscopic Vein-Graft Harvesting

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 JULY 16, 2009 VOL. 361 NO. 3

Endoscopic versus Open Vein-Graft Harvesting in Coronary-Artery Bypass Surgery

Outcome†	Total	Open Harvesting	Endoscopic Harvesting
Patients			
Total no.	1817	822	995
Vein-graft failure (%)	42.8	38.0	46.7
Vein-graft occlusion (%)	38.6	33.8	42.6
Grafts			
Total no.	4290	1969	2321
Vein-graft failure (%)	25.1	22.6	27.2
Vein-graft occlusion (%)	22.0	19.4	24.2

Morbi-mortalité !

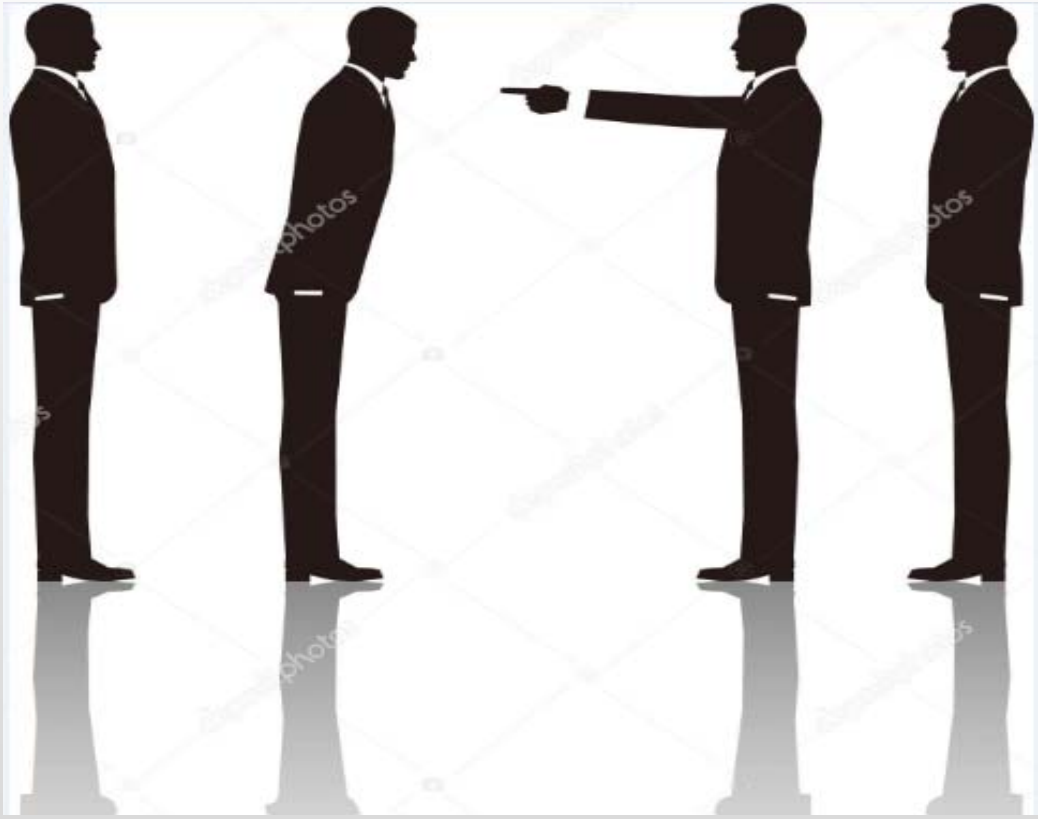
Global Risk Classification

EuroScore	SyntaxScore		
	≤22	23-32	≥33
0-2	LOW	LOW	MED
3-5	LOW	LOW	MED
≥6	MED	MED	HIGH

LOW: SyntaxSc <33 & EuroScore <6
MED: Either SyntaxSc<33 & EuroScore ≥6 or EuroScore <6 & SyntaxScore≥33
HIGH: SyntaxSc≥33 and EuroSc ≥6

Morbi-mortalité !

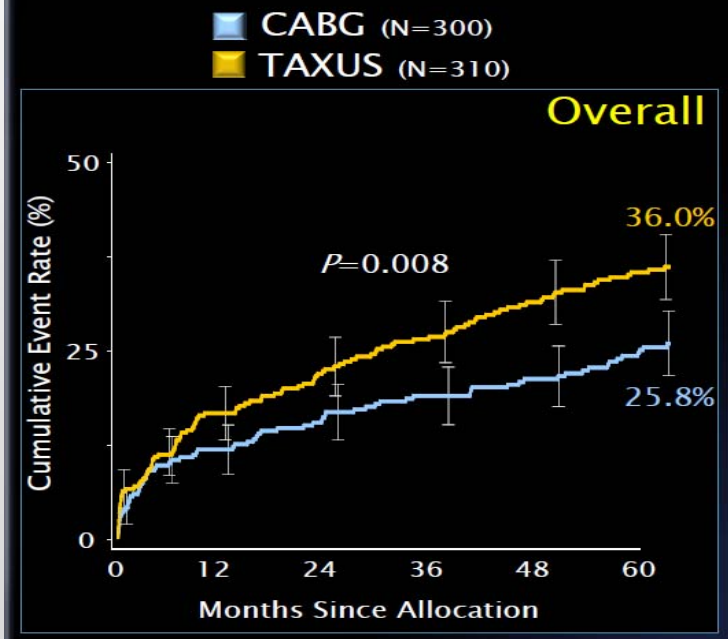
Cardiologues/Chirurgiens



MACCE

MACCE to 5 Years by SYNTAX Score Tercile *Intermediate Scores (23–32)*

SYNTAX

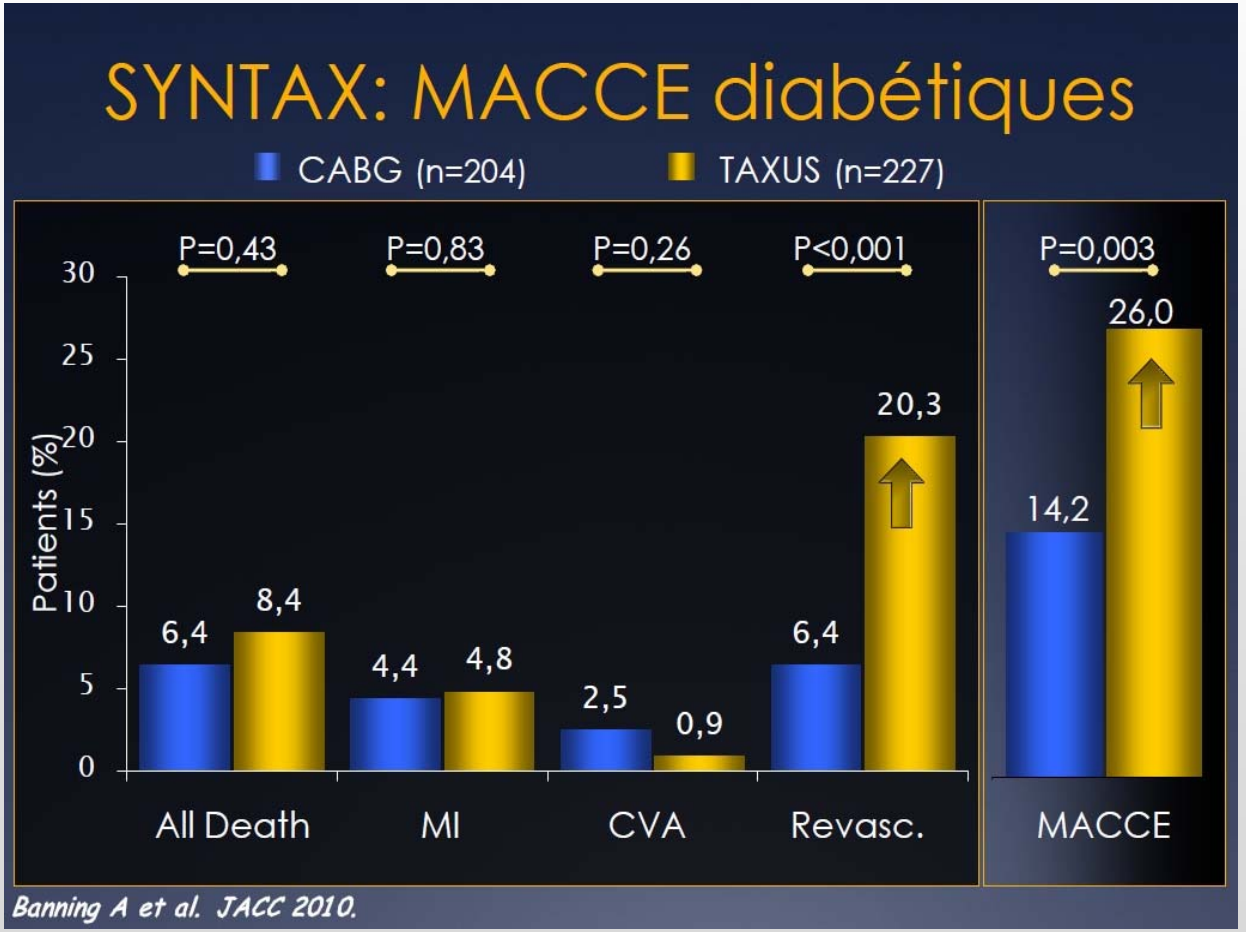


	CABG	PCI	*P* value
Death	12.7%	13.8%	0.68
CVA	3.6%	2.0%	0.25
MI	**3.6%**	**11.2%**	**<0.001**
Death, CVA or MI	18.0%	20.7%	0.42
Revasc.	**12.7%**	**24.1%**	**<0.001**

Cumulative KM Event Rate ± 1.5 SE; log-rank *P* value

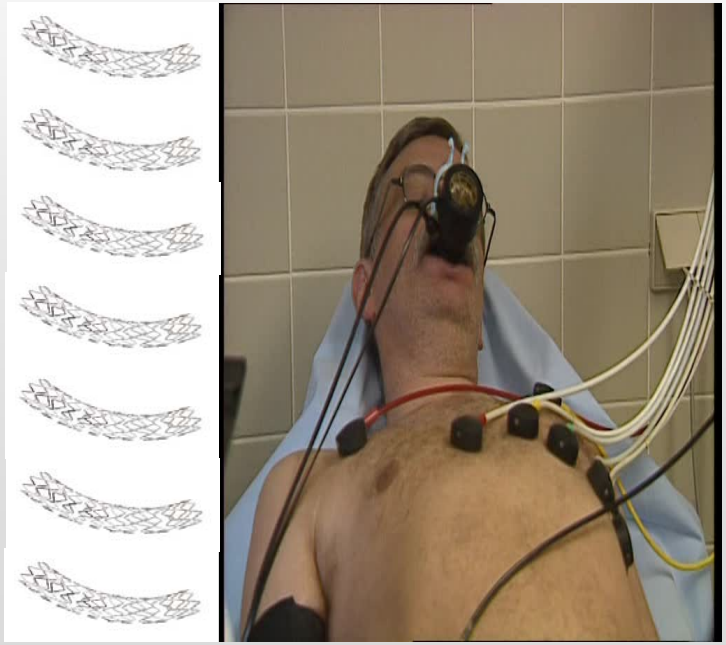
Core lab–reported Data; ITT population

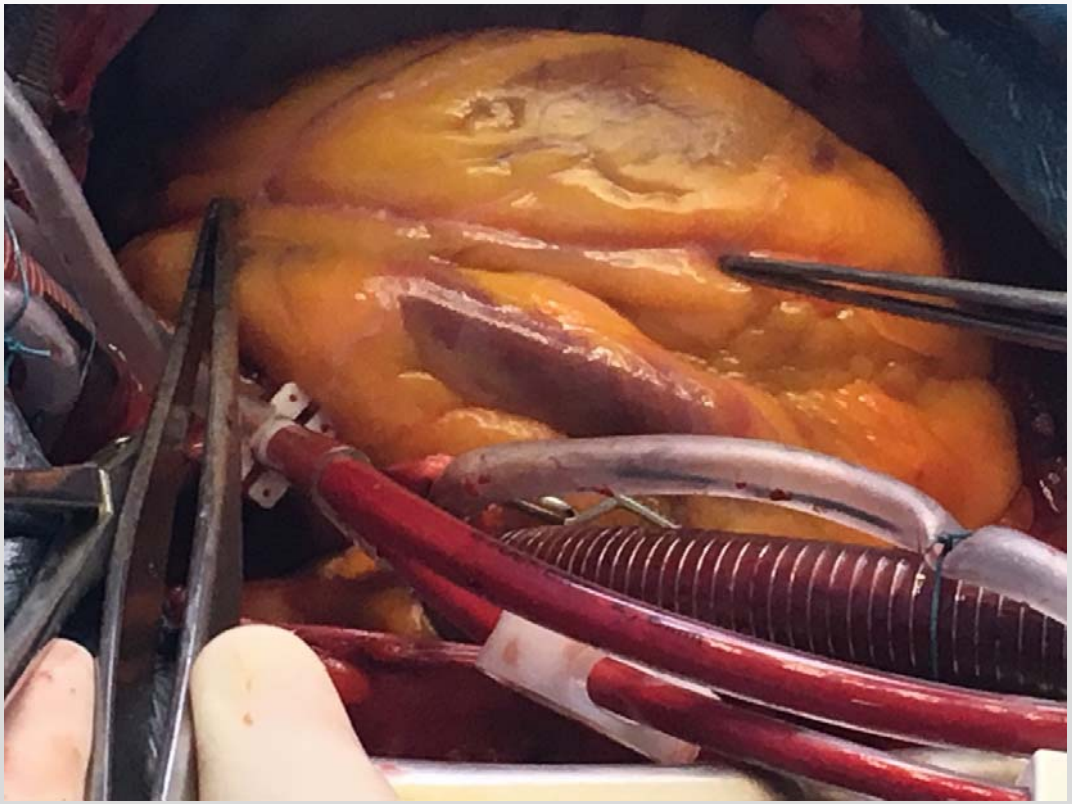
Diabète

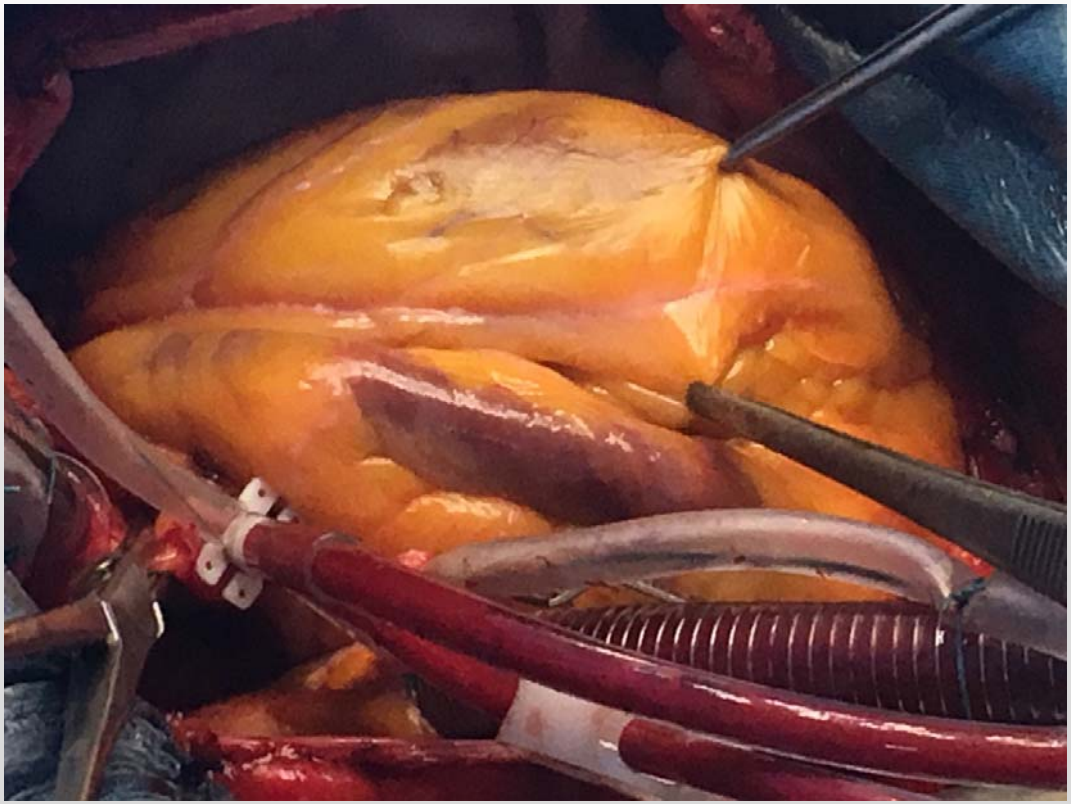

SYNTAX: MACCE diabétiques
CABG (n=204)
TAXUS (n=227)
Patients (%)
30
25
20
15
10
5
0
P=0,43
P=0,83
P=0,26
P<0,001
P=0,003
6,4
8,4
4,4
4,8
2,5
0,9
6,4
20,3
14,2
26,0
All Death
MI
CVA
Revasc.
MACCE
Banning A et al. JACC 2010.

« Malade de seconde main »

> 50 %







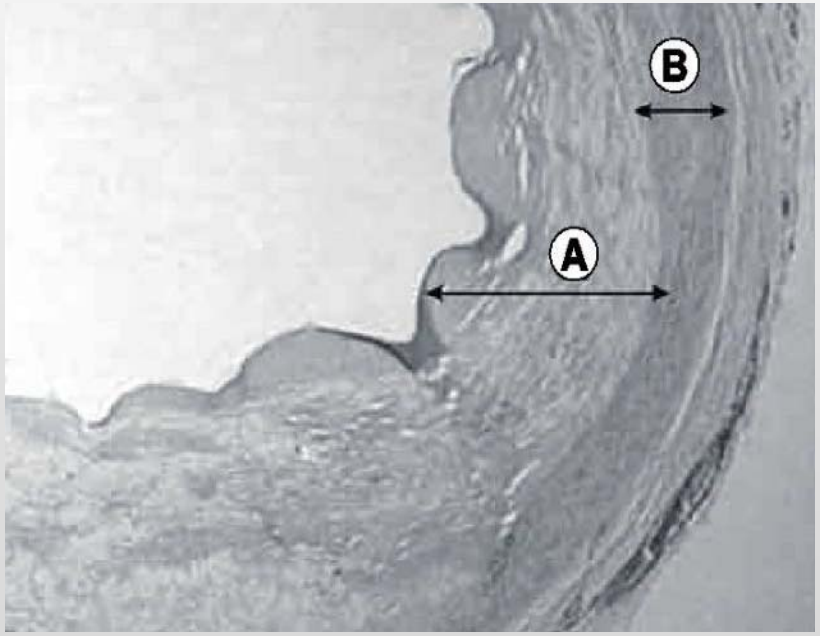
Interventional Cardiology

Does Prior Coronary Stenting Compromise Future Coronary Surgery?

Lazar Velicki

DISCLOSURES | Interv Cardiol. 2013;5(1):93-100.

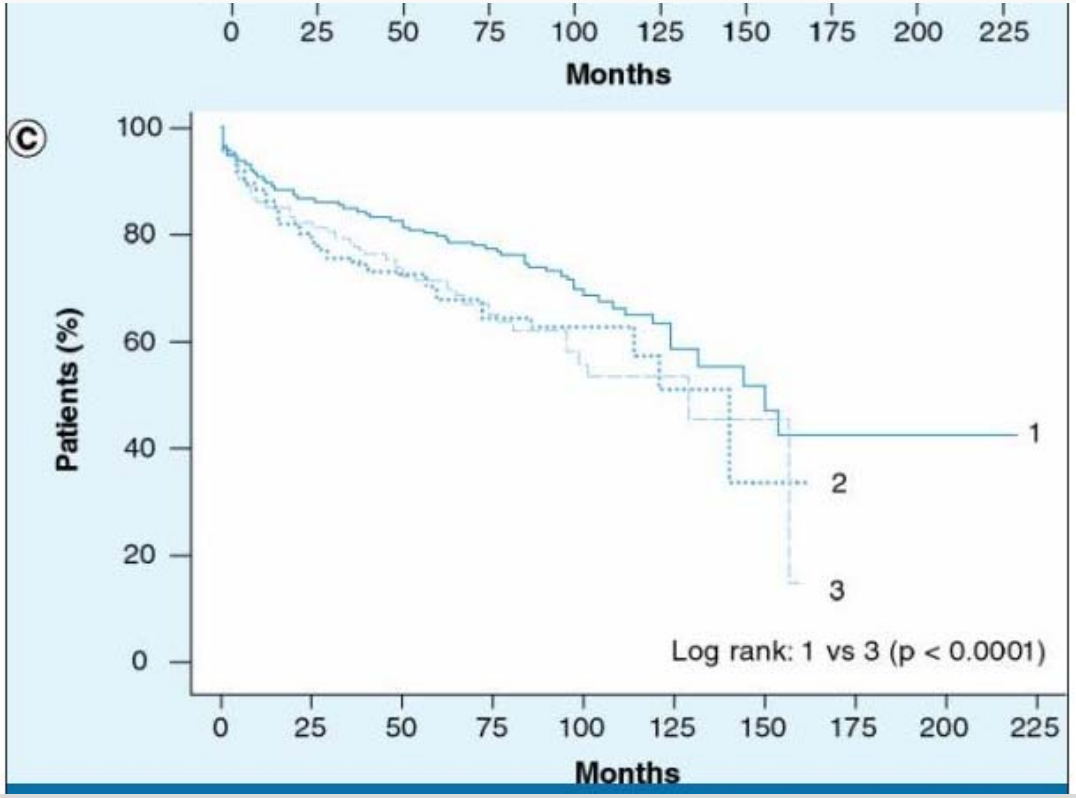
future medicine



[5] This proinflammatory state, coupled with the presence of denuded coronary endothelium, activates cytokines and the complement system, subsequently leading to accumulation of platelets and neutrophils, causing microvascular thrombotic obstruction and/or distal microembolization.[20,30]

who are referred to cardiac surgeons.[38] Coronary side-branch obstruction or occlusion resulting from multiple and overlapping stents may lead to compromised collateral flow causing focal infarctions.[39] It has been estimated that, on average, 5% of the total left ventricular mass may undergo irreversible myocardial injury due to focal infarctions related to stent implantation.[40] As a result of this, the patient's risk profile may change, converting him/her to a higher risk patient subgroup that could lead to a higher mortality rate in CABG patients with a history of previous PCIs.[24]

The most recent multicenter study on the subject from Mannacio *et al.* investigated the impact of previous PCI on postoperative outcome and 5-year survival after subsequent CABG.[23] A total of 7855 consecutive patients from four cardiac surgical centers were enrolled, 1021 (13%) of them with a history of previous PCI. The authors identified history of previous PCI to be significantly associated with an increased hospital mortality (OR: 2.8, 95% CI: 1.4–4.8; p = 0.003) and MACE (OR: 2.1, 95% CI: 1.2–3.6; p < 0.0001). Survival at 3 and 5 years was lower in patients with previous PCI compared with the non-PCI patients (97.4 ± 0.01% vs 96.5 ± 0.02% and 94.2 ± 0.03% vs 92.1 ± 0.05%; log-rank test: p = 0.03).



Artère mammaire

Methods of Coronary Revascularization — Things May Not Be as They Seem

Bernard J. Gersh, M.B., Ch.B., D.Phil., and Robert L. Frye, M.D.

N ENGL J MED 352;21 WWW.NEJM.ORG MAY 26, 2005

- ATC traite une lésion isolée de L'artère proximale.
- Le pontage traite toute l'artère au-delà de la lésion coupable et protège cette artère des lésions futures.

NO

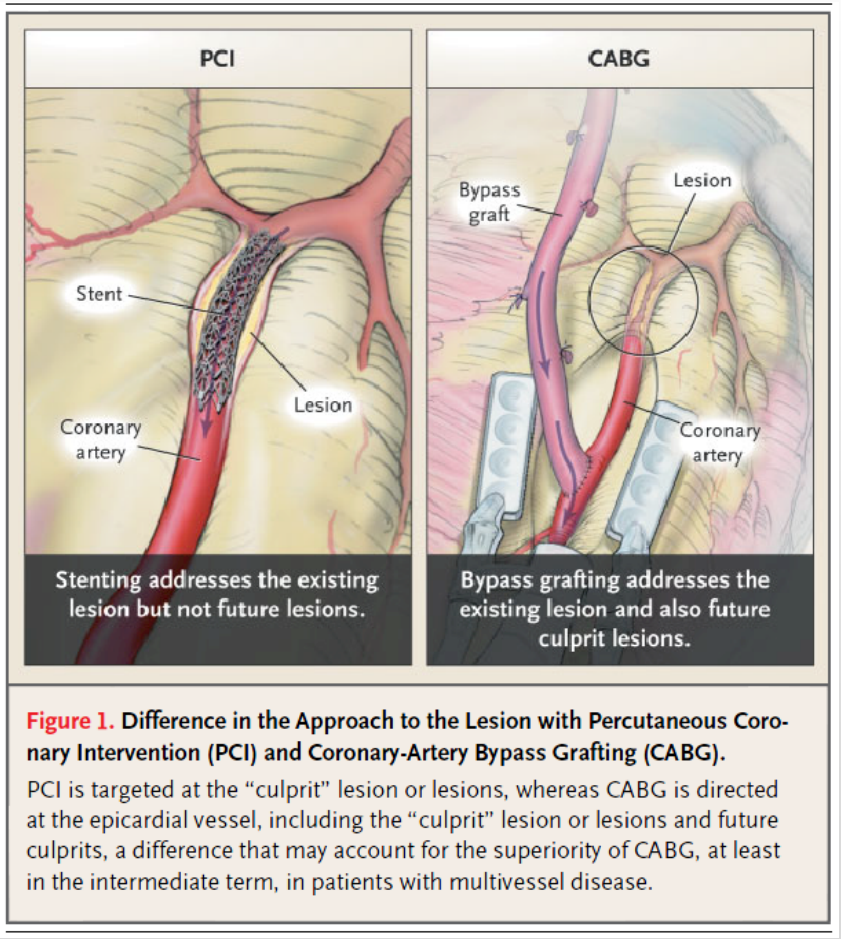
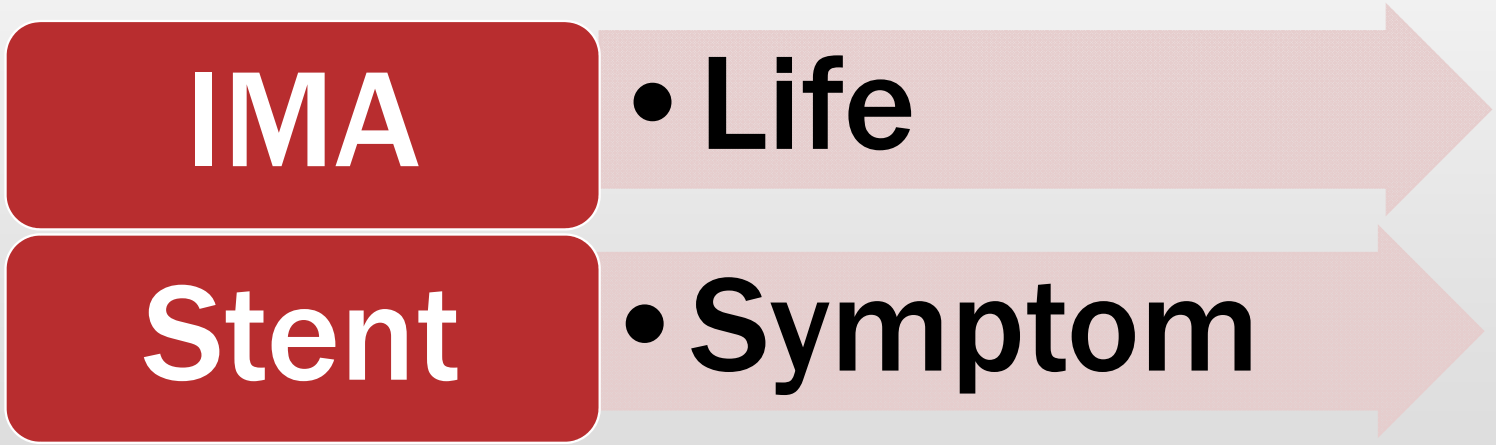


Figure 1. Difference in the Approach to the Lesion with Percutaneous Coronary Intervention (PCI) and Coronary-Artery Bypass Grafting (CABG).

PCI is targeted at the "culprit" lesion or lesions, whereas CABG is directed at the epicardial vessel, including the "culprit" lesion or lesions and future culprits, a difference that may account for the superiority of CABG, at least in the intermediate term, in patients with multivessel disease.


IMA
• Life
Stent
• Symptom

Finances

Conflit d'intérêt

Cout

- PAC 6000 dinars.
- ATL 8300 dinars.

  +TTT médical

  +réinterventions.

Registre national

Winner ?

Cardiologue § Chirurgien

Collaboration

Amitié

Complémentarité

Merci