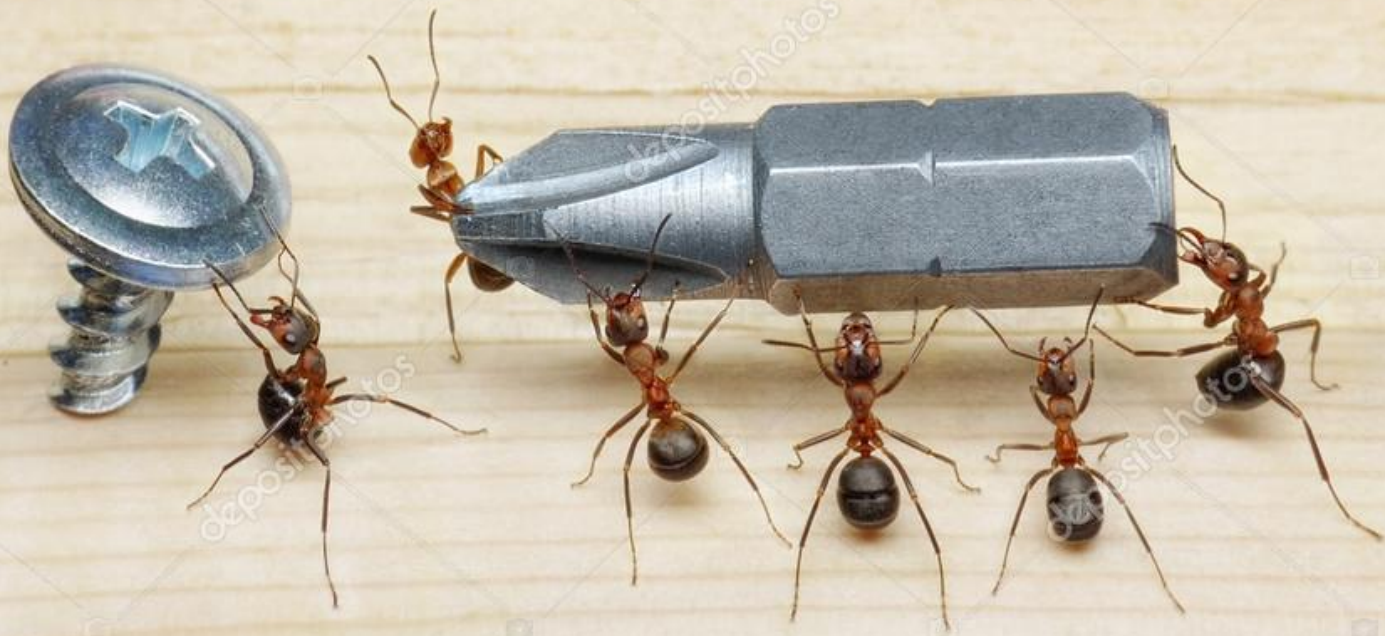


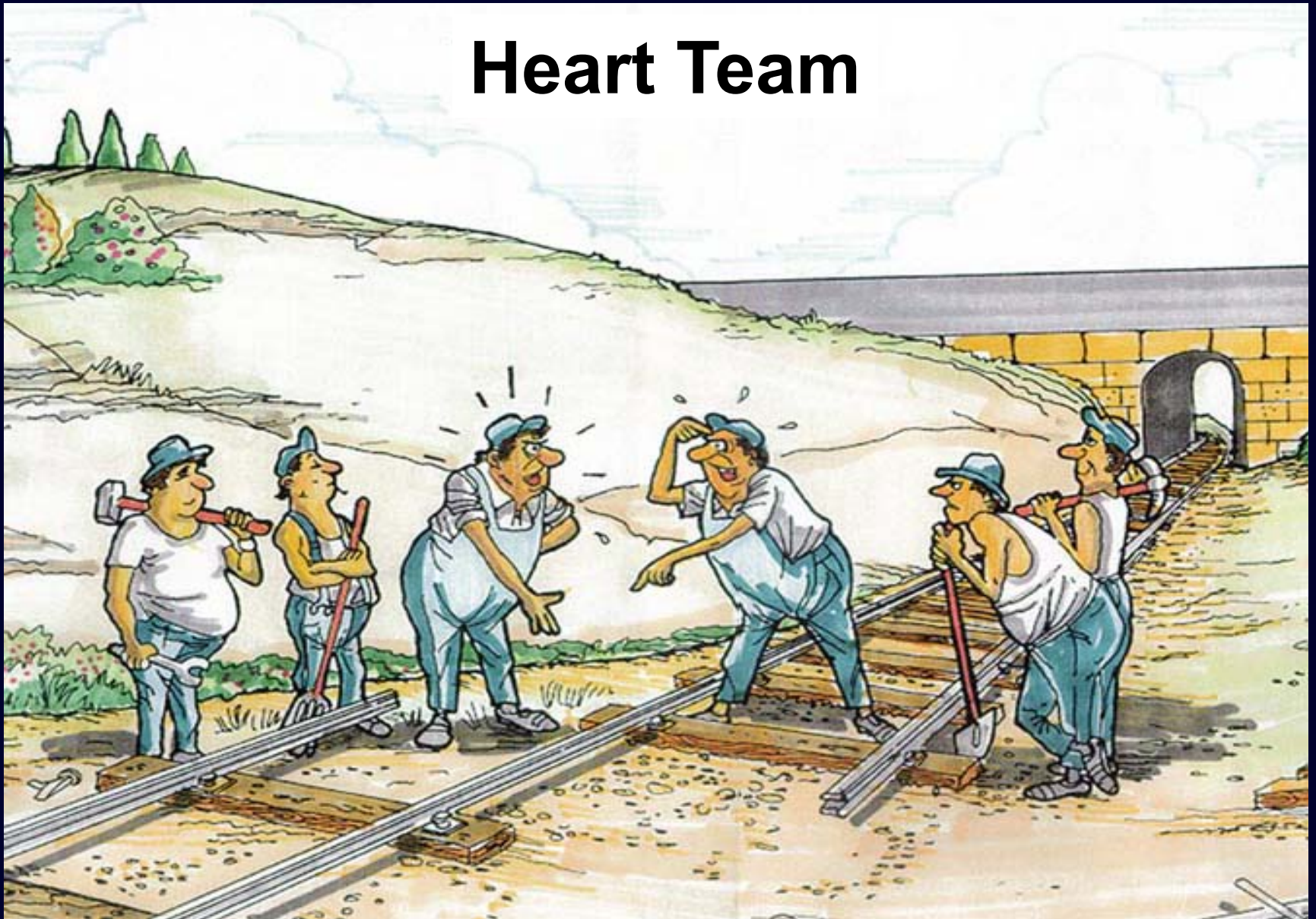


Cardiopatia ischemica cronica
confrontiamo la pratica comune con le linee guida: stent o bypass.
Heart team, Syntax score e FFR esistono solo sulle linee guida?
Il punto di vista del cardiocirurgo.

Team Work



Heart Team





• **SYNTAX score** is purely an anatomic score of the extent of CAD (>50%) in a pt

• Each lesion is assigned a numerical number and then sum of all lesions score for a patient is calculated to come up with the final numerical SYNTAX score

- Pt are divided in 3 groups:
 - Low <22
 - Intermediate 23-32
 - High >32

Coronary Artery Pressure and Fractional Flow Reserve

Fractional flow reserve (FFR) is a simple, reliable, and reproducible physiologic index of lesion severity in patients with intermediate stenosis, and is another method to determine the need for CABG and PCI in equivocal situations, particularly stenosis of the left main coronary artery.¹⁴ The

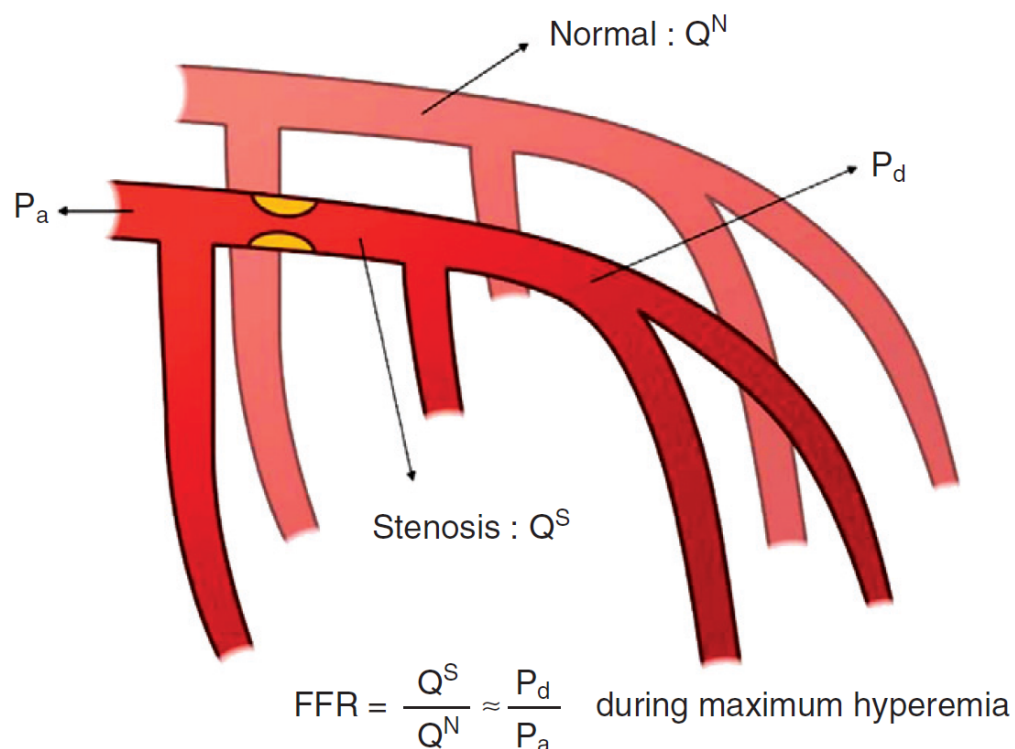


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_a , Mean aortic pressure; P_d , hyperemic distal coronary pressure; Q^N , normal maximal myocardial blood flow; Q^S , maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kusachi.¹⁴)

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812

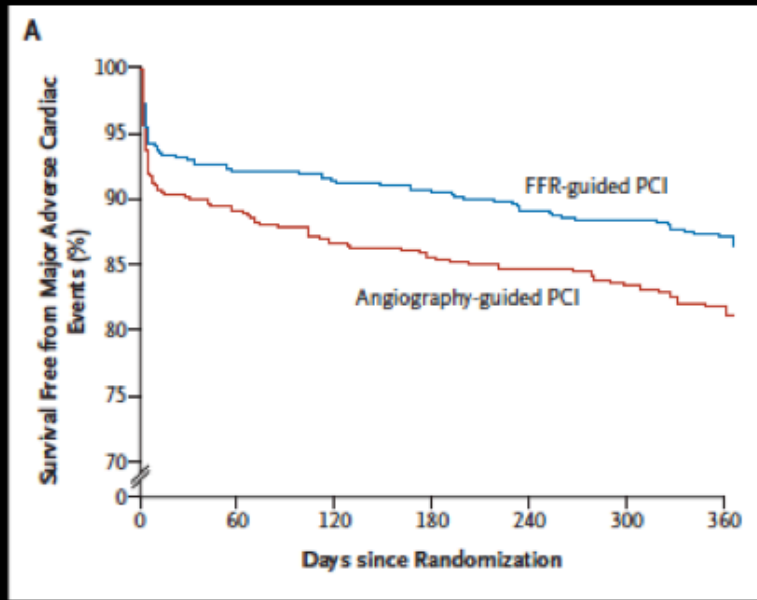
JANUARY 15, 2009

VOL. 360 NO. 3

Fractional Flow Reserve versus Angiography for Guiding Percutaneous Coronary Intervention

Pim A.L. Tonino, M.D., Bernard De Bruyne, M.D., Ph.D., Nico H.J. Pijls, M.D., Ph.D.,
Uwe Siebert, M.D., M.P.H., Sc.D., Fumiaki Ikeno, M.D., Marcel van 't Veer, M.Sc., Volker Klauss, M.D., Ph.D.,
Ganesh Manoharan, M.D., Thomas Engström, M.D., Ph.D., Keith G. Oldroyd, M.D., Peter N. Ver Lee, M.D.,
Philip A. MacCarthy, M.D., Ph.D., and William F. Fearon, M.D., for the FAME Study Investigators*

Characteristic	Angiography Group (N= 496)	FFR Group (N= 509)	P Value†
Angiographic Findings			
Indicated lesions per patient — no.‡	2.7±0.9	2.8±1.0	0.34
Extent of occlusion — no. of lesions/total no. (%)			
50–70% narrowing	550/1350 (40.7)	624/1414 (44.1)	
71–90% narrowing	553/1350 (41.0)	530/1414 (37.5)	
91–99% narrowing	207/1350 (15.3)	202/1414 (14.3)	
Total occlusion	40/1350 (3.0)	58/1414 (4.1)	
Patients with total occlusion — no. (%)	37 (7.5)	54 (10.6)	
Quantitative coronary analysis			
Extent of stenosis — %	61.2±16.6	60.4±17.6	0.24
Minimal luminal diameter — mm	1.0±0.4	1.0±0.5	0.35
Reference diameter — mm	2.5±0.6	2.5±0.7	0.81
Lesion length — mm	12.6±6.9	12.5±6.5	0.42
SYNTAX score¶	14.5±8.8	14.5±8.6	0.95
EQ-5D score	64.7±19.2	66.5±18.3	0.24





“Noi non vogliamo sapere come la pensa la letteratura ma come la pensano i relatori a cui abbiamo affidato i vari argomenti.

Preghiamo di limitare all'essenziale le diapositive con la prima pagina del lavoro scannerizzata commentata dalla frase di rito “come dicono nel lavoro pubblicato su.....” con successivi istogrammi, rette di regressioni e quant'altro. “

Chiediamo quindi di **evitare la “solita” rassegna di lavori (e LG)** sull'argomento e di dirci semplicemente “come si fa”.



2000 Coronarografie
750 Angioplastiche
100 FFR

Stefano Pelenghi Cardiochirurgia "A De Gasperis"



2000 Coronarografie
750 Angioplastiche
100 FFR

Centro CCH «valvolare»
Troppe coronarie «normali»!
Eco stress?
Scintigrafia?

The target of revascularization therapy is myocardial ischaemia, not the epicardial coronary disease itself.

2000 Coronarografie
750 Angioplastiche
100 FFR

«volare»
«normali»!
?
ia?

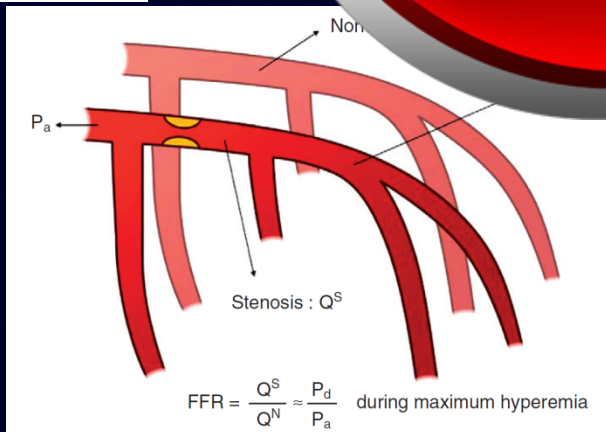
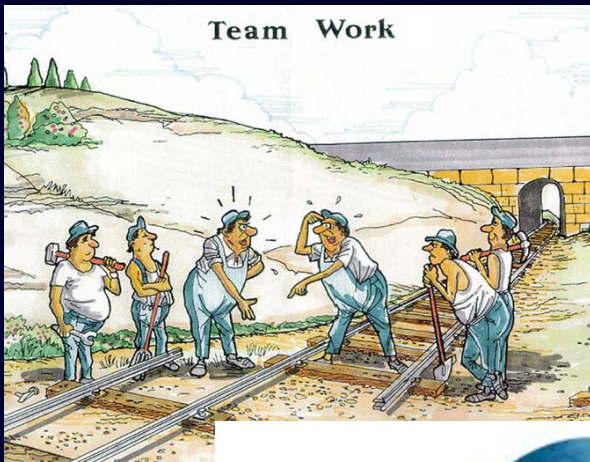


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_a , Mean aortic pressure; P_d , hyperemic distal coronary pressure; Q^N , normal maximal myocardial blood flow; Q^S , maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kusachi.¹⁴)

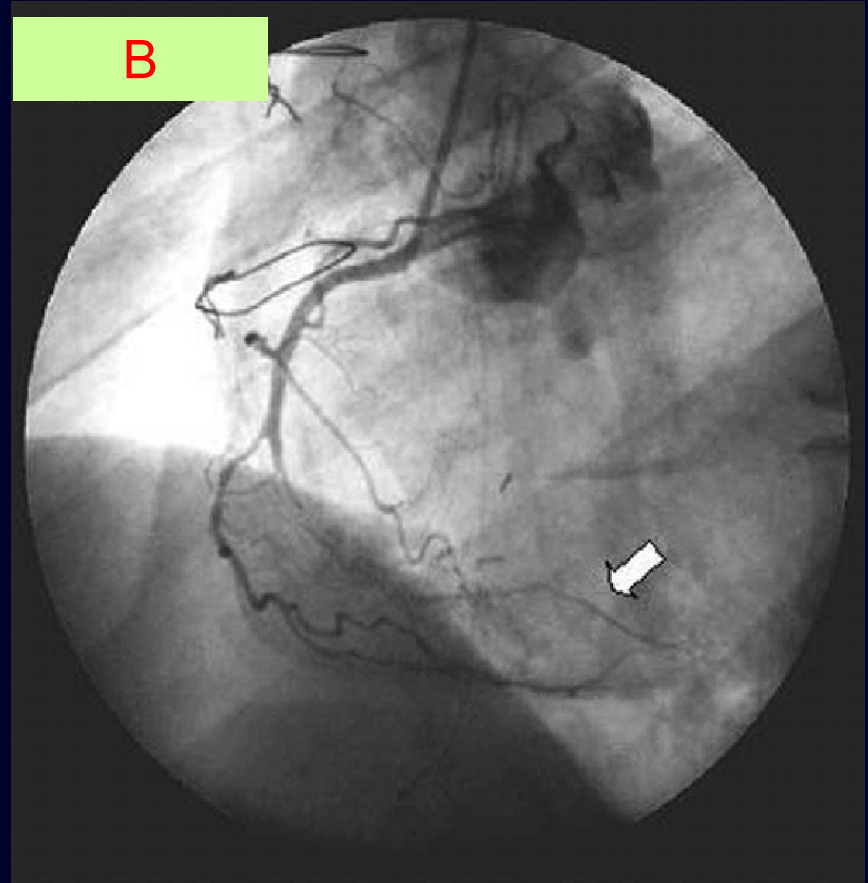
Pz coronarico: Heart Team



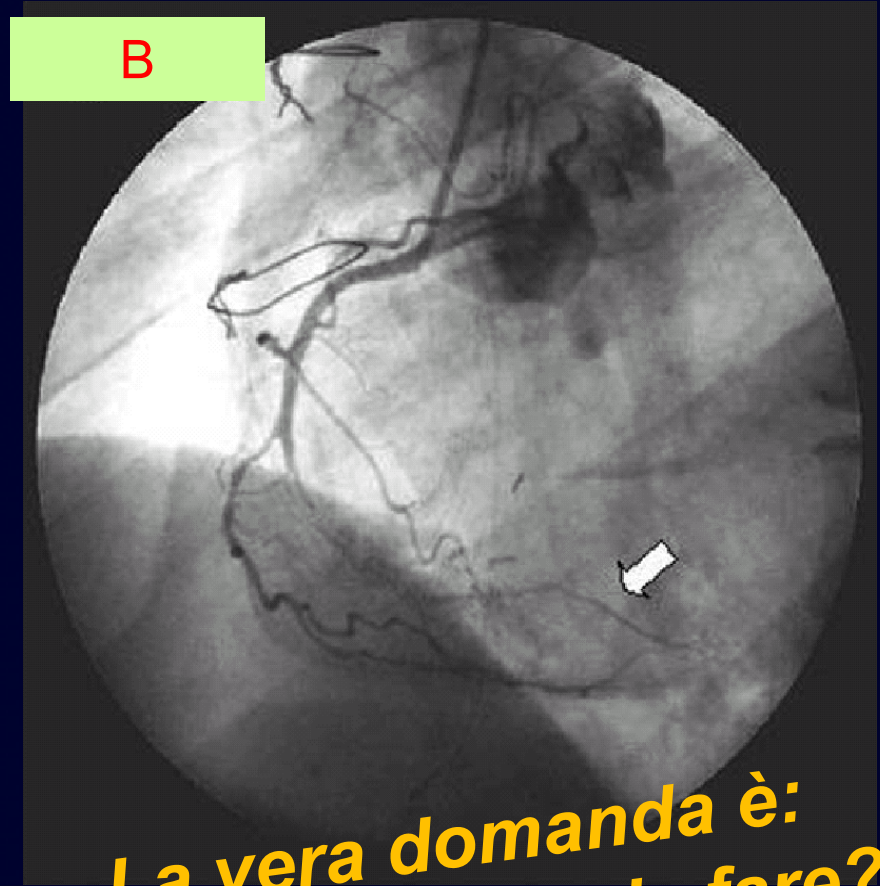
2 tipi di Pz coronarici
A: entrambi lo vogliono fare
B: nessuno lo vuole fare



Evoluzione coronaropatia nel tempo



Evoluzione coronaropatia nel tempo



**La vera domanda è:
qui c'è qualcosa da fare??**

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

**Adherence of Catheterization Laboratory Cardiologists to
American College of Cardiology/American Heart Association
Guidelines for Percutaneous Coronary Interventions and
Coronary Artery Bypass Graft Surgery
What Happens in Actual Practice?**

Edward L. Hannan, PhD; Michael J. Racz, PhD; Jeffrey Gold, MD; Kimberly Cozzens, MA;
Nicholas J. Stamato, MD; Tia Powell, MD; Mary Hibberd, MD; Gary Walford, MD

Circulation. 2010;121:267-275



Adherence of Catheterization Laboratory Cardiologists to American College of Cardiology/American Heart Association Guidelines for Percutaneous Coronary Interventions and Coronary Artery Bypass Graft Surgery

What Happens in Actual Practice?

Circulation. 2010;121:267-275

Table 1. ACC/AHA Indications vs Catheterization Laboratory Recommendations, New York, January 1, 2005–December 31, 2007: Indications for ACC/AHA Class I and Class IIa Regarded as Equal

ACC/AHA Indication/Cath Lab Recommendation	CABG, n (%)	PCI, n (%)	Medical Treatment, n (%)	None, n (%)	Total, n (%)
CABG	712 (53)	455 (34)	156 (12)	14 (1)	1337 (100)
PCI	124 (2)	5660 (94)	255 (4)	12 (<1)	6051 (100)
CABG and PCI	84 (5)	1608 (93)	26 (2)	4 (<1)	1722 (100)
Neither CABG or PCI	70 (6)	261 (21)	873 (71)	19 (2)	1223 (100)
Total	990 (10)	7984 (77)	1310 (13)	49 (<1)	10 333 (100)

Cath Lab indicates catheterization laboratory.

Adherence of Catheterization Laboratory Cardiologists to American College of Cardiology/American Heart Association Guidelines for Percutaneous Coronary Interventions and Coronary Artery Bypass Graft Surgery

What Happens in Actual Practice?

Circulation. 2010;121:267-275

Table 1. ACC/AHA Indications vs Catheterization Laboratory Recommendations, New York, January 1, 2005–December 31, 2007: Indications for ACC/AHA Class I and Class IIa Regarded as Equal

ACC/AHA Indication/Cath Lab Recommendation	CABG, n (%)	PCI, n (%)	Medical Treatment, n (%)	None, n (%)	Total, n (%)
CABG	712 (53)	455 (34)	156 (12)	14 (1)	1337 (100)
PCI	124 (2)	5660 (94)	255 (4)	12 (<1)	6051 (100)
CABG and PCI	84 (5)	1608 (93)	26 (2)	4 (<1)	1722 (100)
Neither CABG or PCI	70 (6)	261 (21)	873 (71)	19 (2)	1223 (100)
Total	990 (10)	7984 (77)	1310 (13)	49 (<1)	10 333 (100)

Cath Lab indicates catheterization laboratory.

APPROPRIATEZZA !!

Adherence of Catheterization Laboratory Cardiologists to American College of Cardiology/American Heart Association Guidelines for Percutaneous Coronary Interventions and Coronary Artery Bypass Graft Surgery

What Happens in Actual Practice?

Circulation. 2010;121:267-275

Table 1. ACC/AHA Indications vs Catheterization Laboratory Recommendations, New York, January 1, 2005–December 31, 2007: Indications for ACC/AHA Class I and Class IIa Regarded as Equal

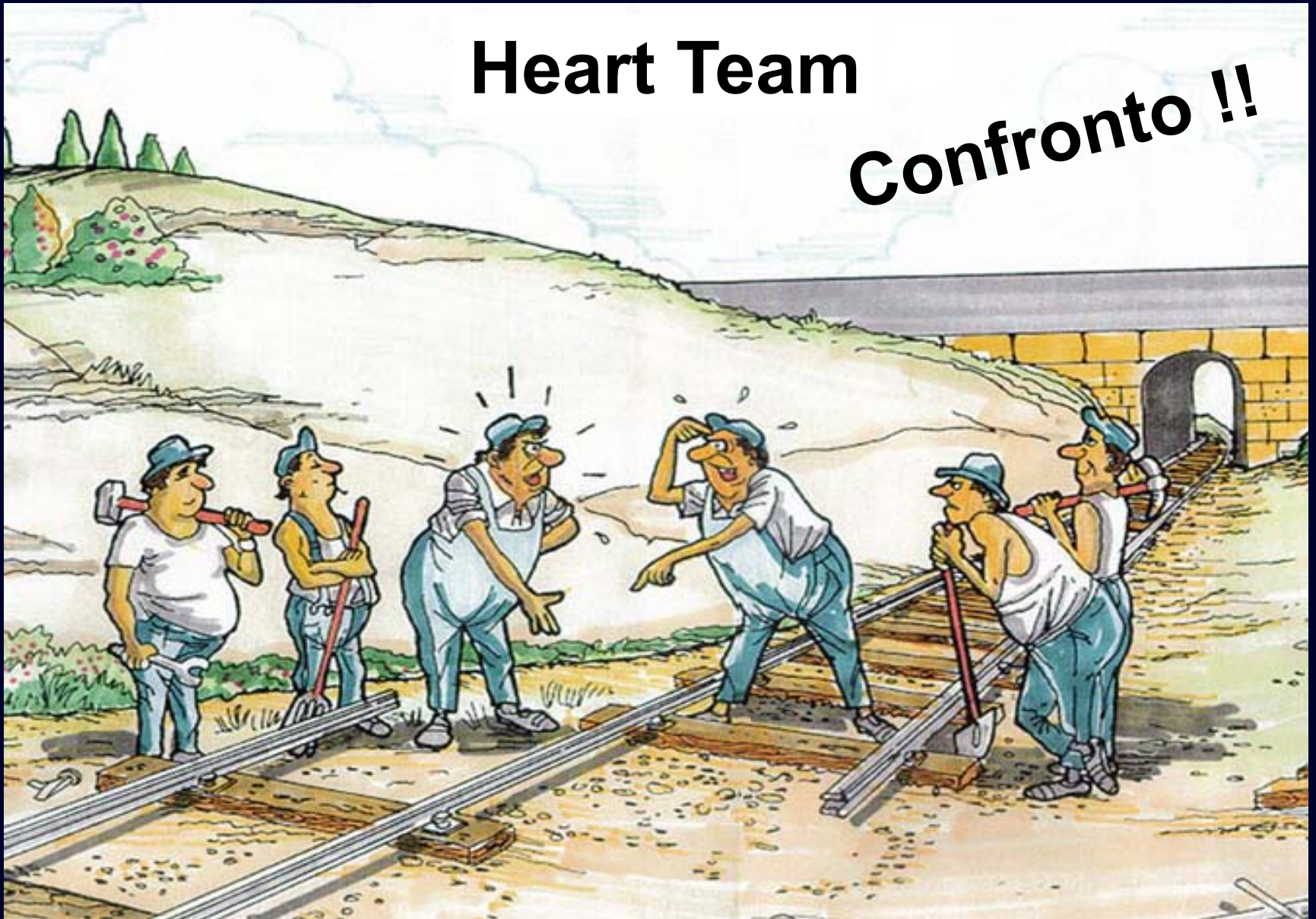
ACC/AHA Indication/Cath Lab Recommendation	CABG, n (%)	PCI, n (%)	Medical Treatment, n (%)	None, n (%)	Total, n (%)
CABG	712 (53)	455 (34)	156 (12)	14 (1)	1337 (100)
PCI	124 (2)	5660 (94)	255 (4)	12 (<1)	6051 (100)
CABG and PCI	84 (5)	1608 (93)	26 (2)	4 (<1)	1722 (100)
Neither CABG or PCI	70 (6)	261 (21)	873 (71)	19 (2)	1223 (100)
Total	990 (10)	7984 (77)	1310 (13)	49 (<1)	10 333 (100)

Cath Lab indicates catheterization laboratory.

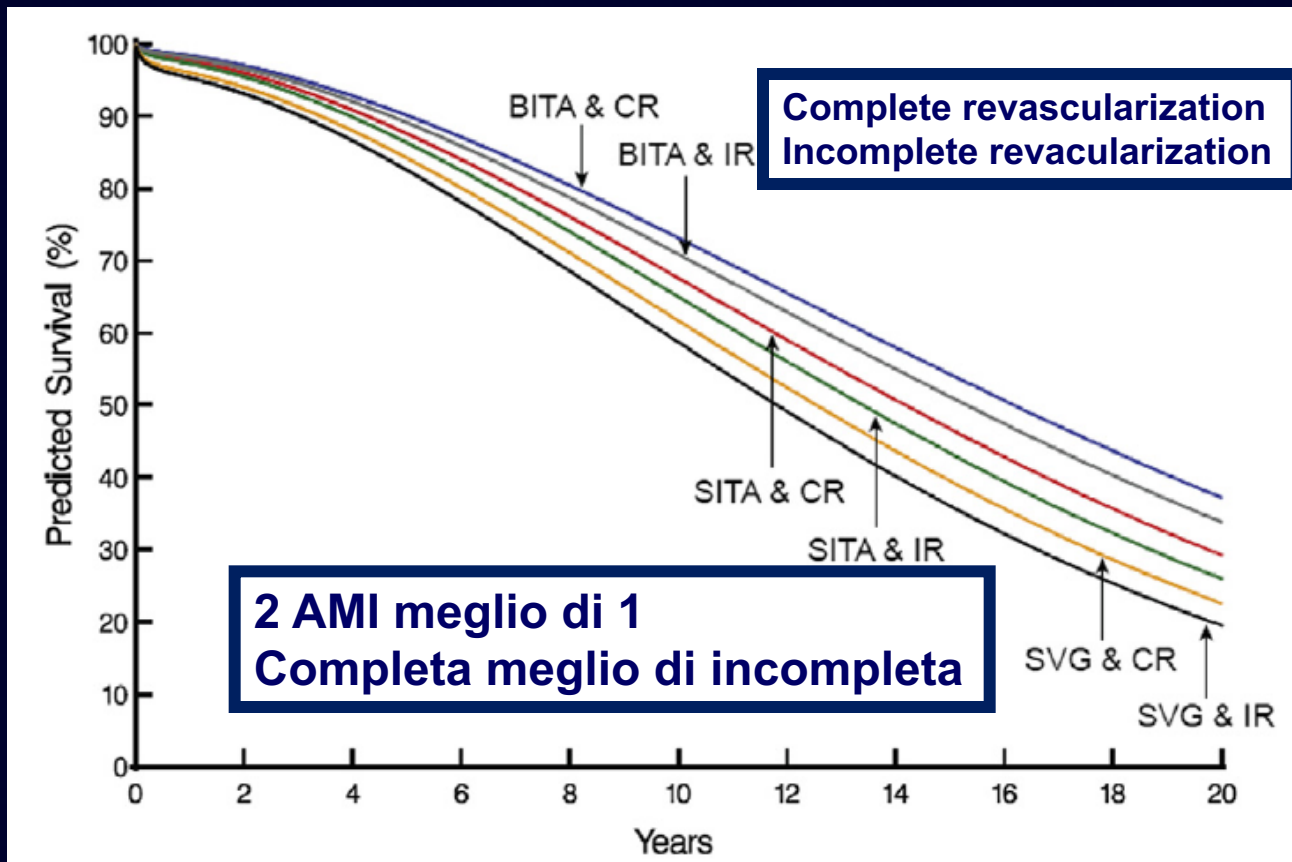
APPROPRIATEZZA !!

Heart Team

Confronto !!

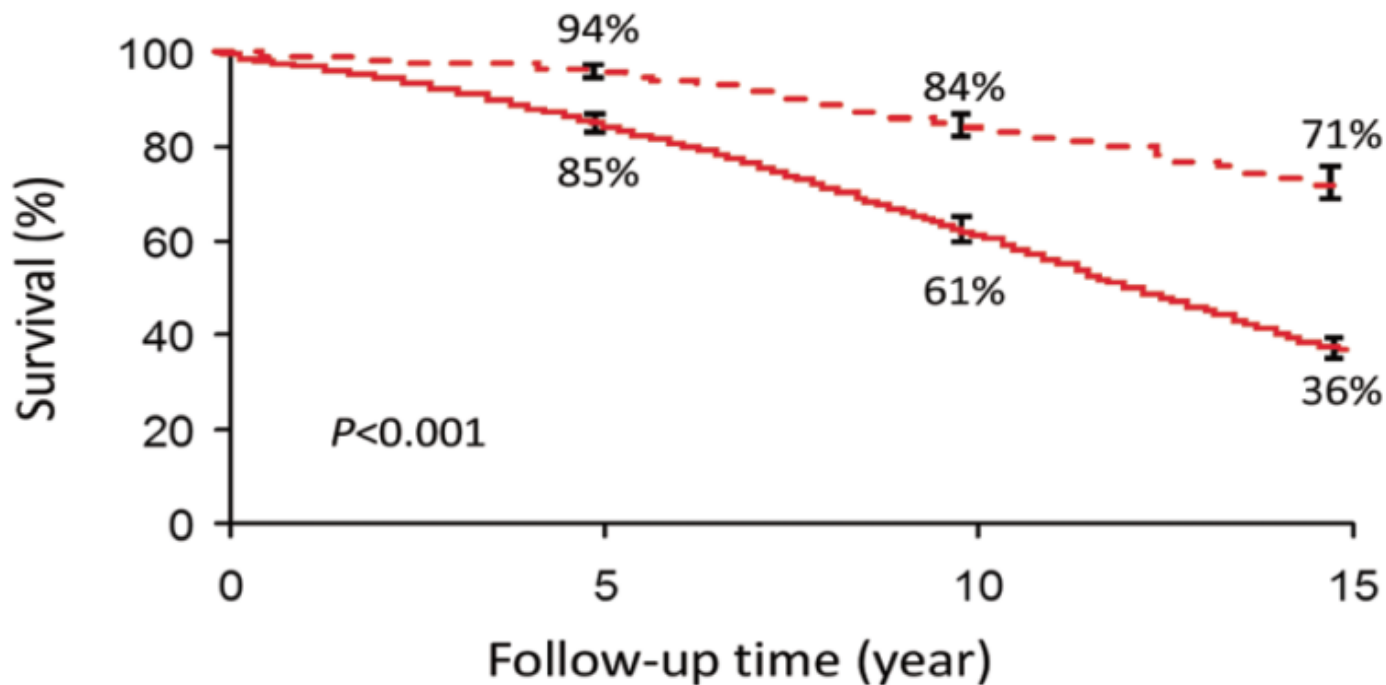


Surgical revascularization techniques that minimize surgical risk and maximize late survival after coronary artery bypass grafting in patients with diabetes mellitus



Multiple Arterial Grafts Improve Late Survival of Patients Undergoing Coronary Artery Bypass Graft Surgery
Analysis of 8622 Patients With Multivessel Disease

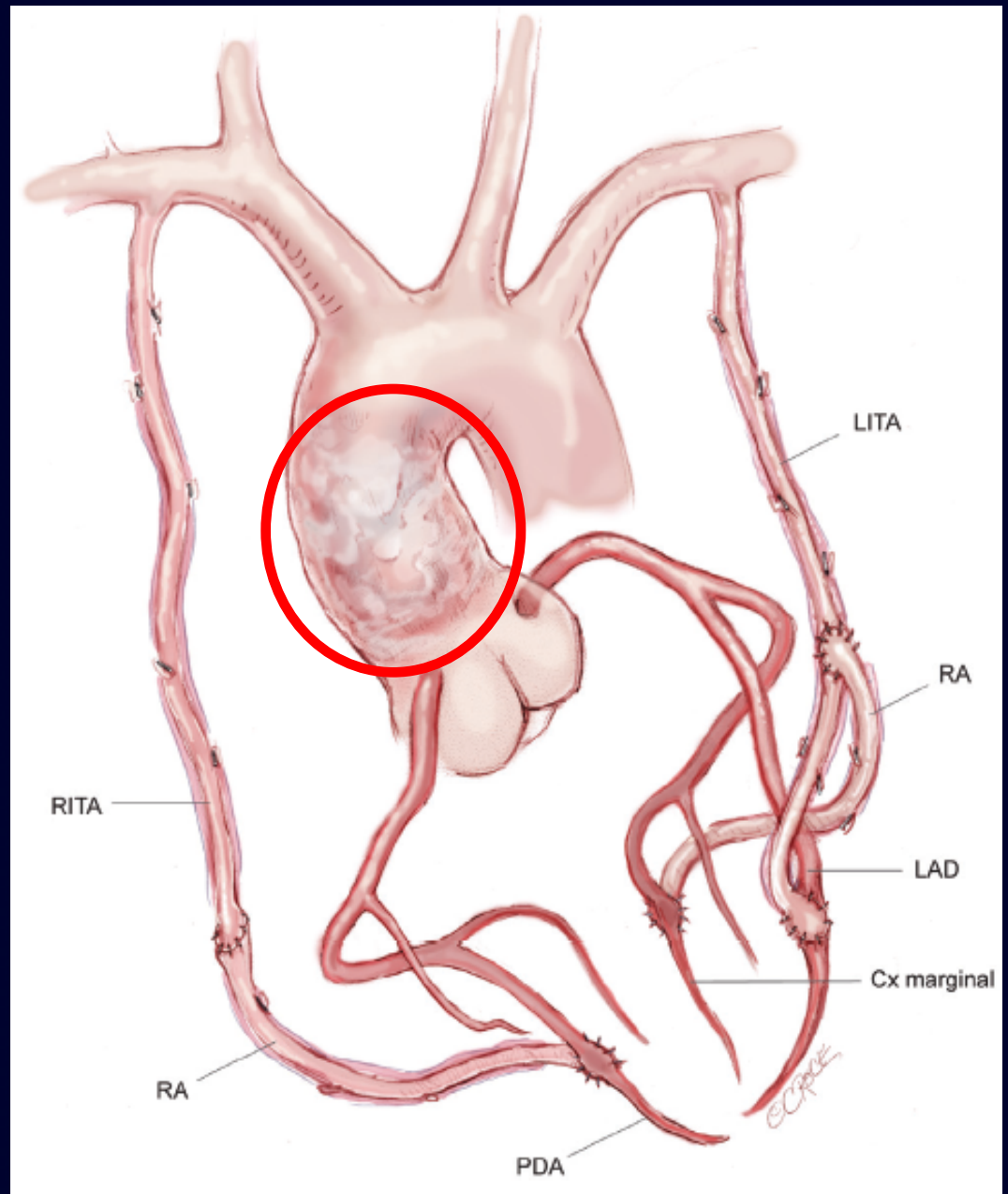
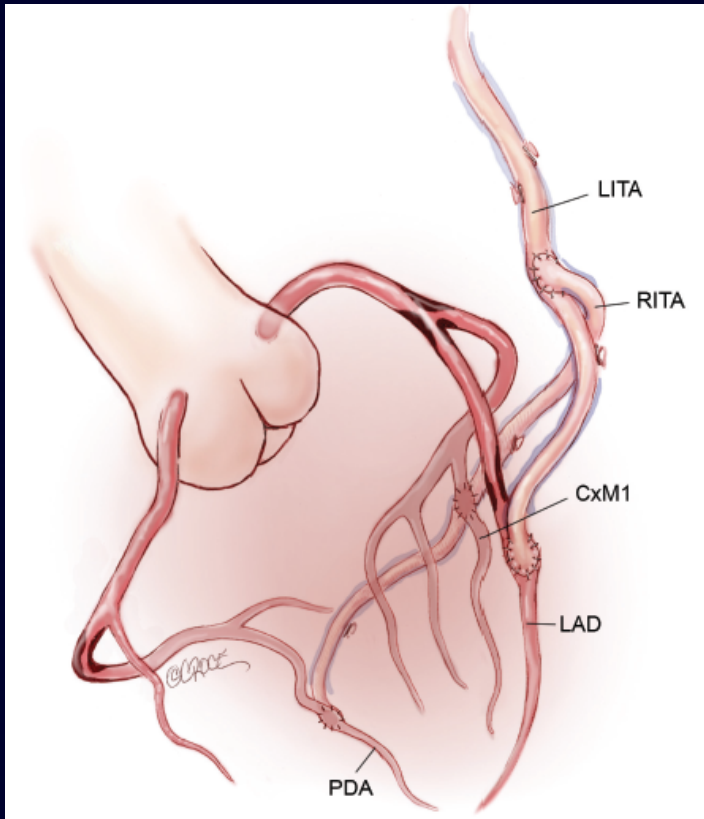
Late survival MultArt vs. LIMA/SV



Patients at risk

--- MultArt	1,177	851	362	83
— LIMA/SV	7,281	4,898	2,493	578

pervietà - sopravvivenza



BIMA
± CEC
NO TOUCH AORTA
!!!! FARMACI !!!!

Editorial

Why Did You Not Use Both Internal Thoracic Arteries?

John D. Puskas, MD, MSc



However, only 4.4% of primary isolated CABG cases in the 2011 Society of Thoracic Surgeons National Adult Cardiac Surgery Database received bilateral internal thoracic artery

BIMA ??

and incentives favor SITA. Federal agencies and private insurers should incentivize broad adoption of BITA grafting and act to reverse the present unintended consequence of discouraging BITA grafting by having labeled postoperative mediastinitis a never event.

Why Did You

We found a very strong protective effect of RA grafting on MAEs. The lower rates of sternal wound infection and respiratory failure in the RA patients suggest the cautious use of bilateral internal thoracic artery (BITA) harvesting in obese, diabetic, older, and COPD patients at risk for these complications. Although there may be somewhat differing

The term "Never Event" was first introduced in 2001 by Ken Kizer, in reference to particularly shocking medical errors (such as wrong-site surgery) that should never occur.....!!!

insurers should incentivize broad adoption of BITA grafting and act to reverse the present unintended consequence of discouraging BITA grafting by having labeled postoperative mediastinitis a never event.



REAL WORLD

ARTERIAL REVASCULARISATION FOR CORONARY ARTERY BYPASS GRATING

SATURDAY 7th & SUNDAY 8th SEPTEMBER 2013

Evidence basis for Arterial Revascularisation and video-based demonstrations of the use of:

A TWO DAY PRACTICAL COURSE AIMED AT SENIOR TRAINEES AND CONSULTANTS

Introduction to the course by Professor J. Pepper

Bilateral Internal Mammary Arteries

In situ and Composite Arterial Grafts

When and how to use the Radial Artery

Alternative Conduits

Off pump Arterial Revascularisation

Wet Lab Sessions – Instruments, Threads & Needles

Registration Fee: 300 Euros

Venue: St. Hugh's College, Oxford University

Places limited to 100 Delegates

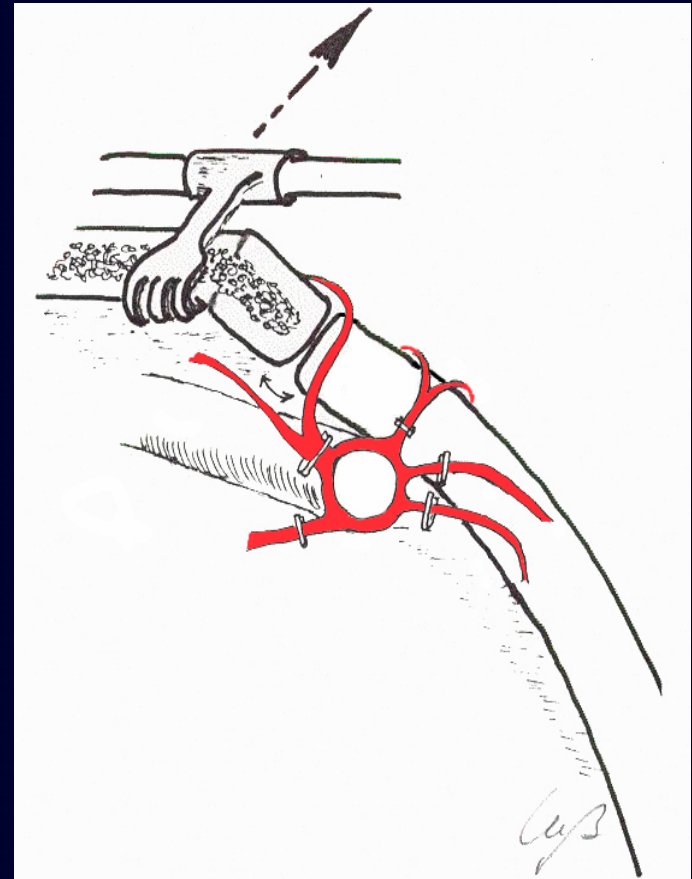
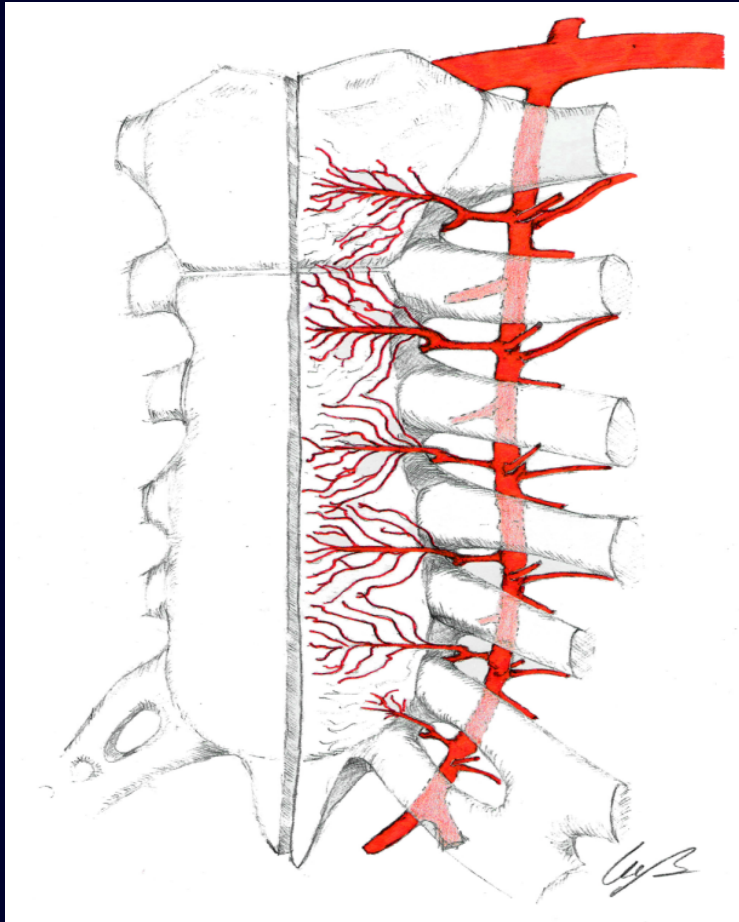


NO BIMA se:

DIABETE	±	bpc
DIABETE	±	obesità
bpc	±	obesità

AMI SCHELETRIZZATE

REAL WORLD



NO BIMA se:

DIABETE ± bpc

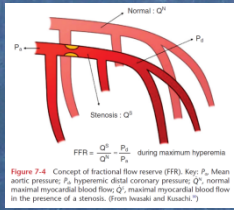
DIABETE ± obesità

bpc ± obesità

SCHELETRIZZATE

Cardiochirurgo

Come ottimizzare risultato?



Cardiochirurgo

Come ottimizzare risultato?

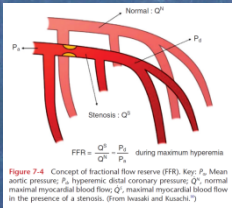


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_m , Mean aortic pressure; P_d , hyperemic distal coronary pressure; Q_m , normal maximal myocardial blood flow; Q_2 , maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kasachi.)



Patency of Internal Thoracic Artery Compared to Vein Grafts – Postoperative Angiographic Findings in 1189 Symptomatic Patients in 12 Years

Thorac Cardiovasc Surg 2007; 55: 412 – 417

Condotti

Table 2 Target vessels for LITA, RITA, SVG

	LITA (n = 1 025)	RITA (n = 425)	SVG (n = 2 218)
LAD	576 (56.2%)	373 (87.8%)	179 (8.0%)
Diagonal branch	143 (13.9%)	14 (3.3%)	441 (19.8%)
Intermediate branch	47 (4.6%)	5 (1.2%)	109 (4.9%)
Obtuse marginal/CX	253 (24.7%)	11 (2.6%)	722 (32.60%)
RCA	6 (0.6%)	22 (5.2%)	767 (34.6%)

LITA: left internal thoracic artery; RITA: right internal thoracic artery; SVG: saphenous vein grafts

Su quale coronaria?

Patency of Internal Thoracic Artery Compared to Vein Grafts – Postoperative Angiographic Findings in 1189 Symptomatic Patients in 12 Years

Thorac Cardiovasc Surg 2007; 55: 412 – 417

Table 3 Occlusion rate (severe stenosis [71 – 99%] or occlusion) for LITA, RITA, SVG

Target vessel	LITA (n = 1025)	RITA (n = 425)	SVG (n = 2218)
LAD	6.6 (9.2) %	4.6 (11.5) %	17.3 (24) %
Diagonal branch	8.5 (10.5) %	7.1 (7.1) %	14.4 (18.4) %
Intermediate branch	4.3 (6.3) %	0 (0) %	23.9 (28.4) %
Obtuse marginal/CX	11.5 (13.8) %	0 (0) %	15.9 (20.1) %
RCA	0 (16.7) %	9.1 (18.2) %	17.0 (22.4) %
Total	7.9 (10.4) %	4.7 (11.3) %	16.5 (21.1) %

LITA: left internal thoracic artery; RITA: right internal thoracic artery; SVG: saphenous vein grafts.

Table 2 Target vessels for LITA, RITA, SVG

	LITA (n = 1025)	RITA (n = 425)	SVG (n = 2218)
LAD	576 (56.2%)	373 (87.8%)	179 (8.0%)
Diagonal branch	143 (13.9%)	14 (3.3%)	441 (19.8%)
Intermediate branch	47 (4.6%)	5 (1.2%)	109 (4.9%)
Obtuse marginal/CX	253 (24.7%)	11 (2.6%)	722 (32.60%)
RCA	6 (0.6%)	22 (5.2%)	767 (34.6%)

LITA: left internal thoracic artery; RITA: right internal thoracic artery; SVG: saphenous vein grafts

**Con che risultati?
LITA - RITA Cx!**

Patency of Internal Thoracic Artery Compared to Vein Grafts – Postoperative Angiographic Findings in 1189 Symptomatic Patients in 12 Years

Thorac Cardiovasc Surg 2007; 55: 417 – 417

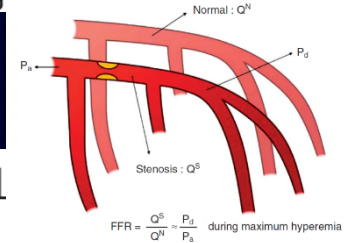


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_a , Mean aortic pressure; P_s , hyperemic distal coronary pressure; Q^n , normal maximal myocardial blood flow; Q^s , maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kusachi.)

Table 3 Occlusion rate (severe stenosis [71 – 99%] or occlusion) for LTA, SVG

Target vessel	LITA (n = 1025)	RITA (n = 425)	SVG (n = ...)
LAD	6.6 (9.2) %	4.6 (11.5) %	17.3
Diagonal branch	8.5 (10.5) %	7.1 (7.1) %	14.4
Intermediate branch	4.3 (6.3) %	0 (0) %	23.9
Obtuse marginal/CX	11.5 (13.8) %	0 (0) %	15.9 (20.1) %
RCA	0 (16.7) %	9.1 (18.2) %	17.0 (22.4) %
Total	7.9 (10.4) %	4.7 (11.3) %	16.5 (21.1) %



Dipende dal condotto o dalla coronaria?

Con che risultati?
 RITA IVA-CDx !

re-interventions and redos. Grafting of a secondary coronary artery such as the diagonal branch with the superior arterial conduit and RITA – RCA bypasses should be avoided. Covering the RITA anterior to the aorta with a PTFE sleeve could prevent injury of the conduit, thus contributing to the feasibility of reoperation.

Coronaria


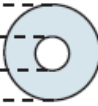





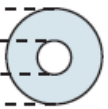

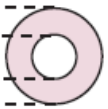

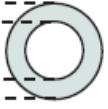
Average diameter loss	Cross-sectional area loss
$\frac{2}{3} = 67\%$ 	 90%
$\frac{1}{2} = 50\%$ 	 75%
$\frac{1}{3} = 33\%$ 	 50%

Figure 7-1 Diagrammatic representation of relationship between two methods of estimating severity of coronary artery stenosis. (From Brandt and colleagues.^{B50})

Brandt PW, Partridge JB, Wattie WJ. Coronary arteriography: a method of presentation of the arteriogram report and a scoring system. Clin Radiol 1977;28:361.
Braunwald E. Unstable angina. A classification. Circulation 1989; 80:410.

Coronaria

Average diameter loss	Cross-sectional area loss
$2/3 = 67\%$ 	 90%
$1/2 = 50\%$ 	 75%
$1/3 = 33\%$ 	 50%

Severa

?????

Moderata

representation of relationship between severity of coronary artery stenosis.
(B50)

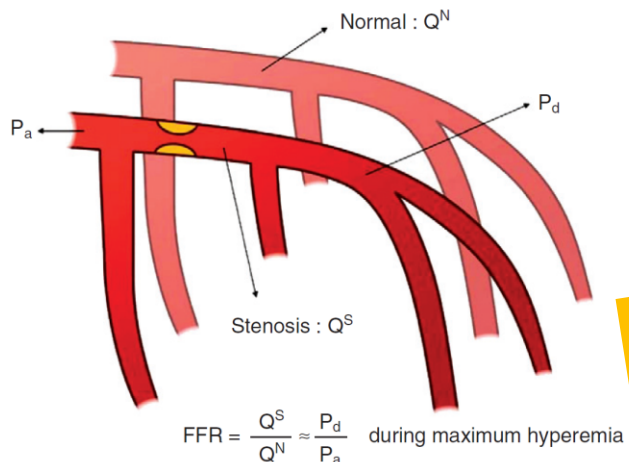


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_a , Mean aortic pressure; P_d , hyperemic distal coronary pressure; \dot{Q}^N , normal maximal myocardial blood flow; \dot{Q}^S , maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kusachi.¹⁴)

**Anche e soprattutto nei Pz VALVOLARI
Ao x prossimale - M x lussazione
DEVO TRASCURARE QUALCOSA ?**

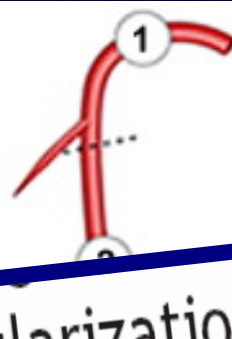
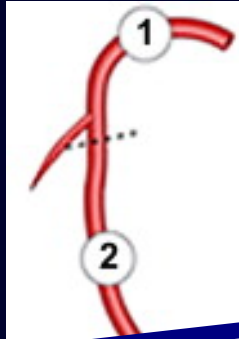
Brandt PW, Partridge JB, Wattie WJ. Coronary arteriography: a method of presentation of the arteriogram report and a scoring system. Clin Radiol 1977;28:361.
Braunwald E. Unstable angina. A classification. Circulation 1989; 80:410.

SYNTAX SCORE

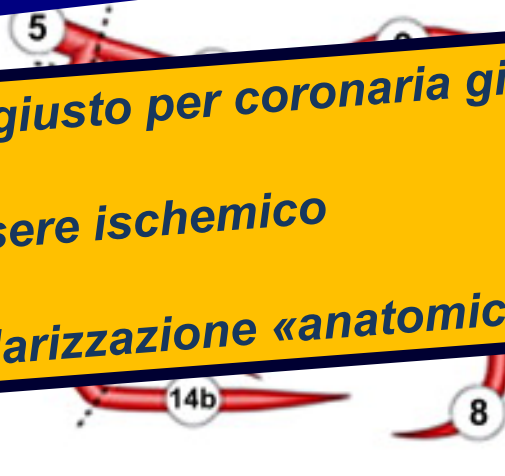


Boston Scientific

CARDIOLYSIS
Clinical Trial Management System



Left dominance



Right dominance

The target of revascularization therapy is myocardial ischaemia, not the epicardial coronary disease itself.

Scegliere condotto giusto per coronaria giusta: "ottimizzare"

Il territorio deve essere ischemico

A costo di: rivascolarizzazione «anatomica»: ant-lat-inf

Heart Team

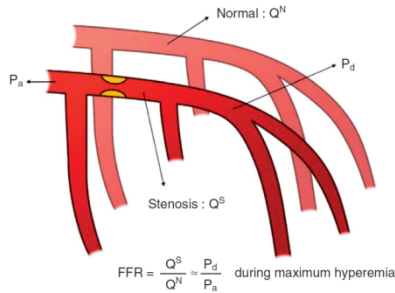


Figure 7-4 Concept of fractional flow reserve (FFR). Key: P_a, Mean aortic pressure; P_d, hyperemic distal coronary pressure; Q^N, normal maximal myocardial blood flow; Q^S, maximal myocardial blood flow in the presence of a stenosis. (From Iwasaki and Kusachi.)



Rivascolarizzazione Ibrida

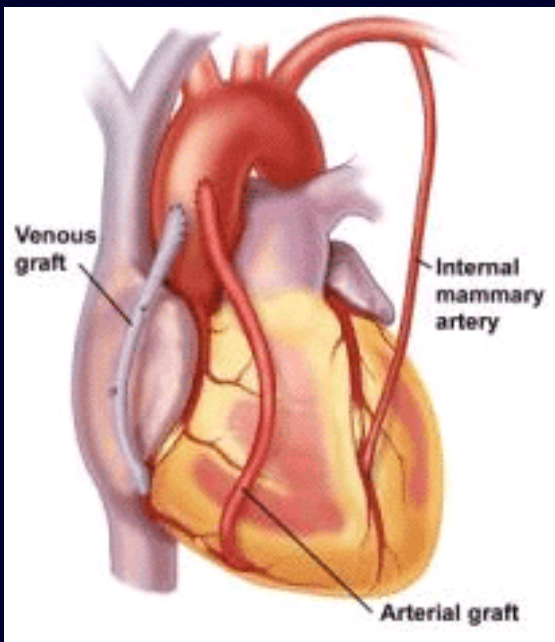
one stage

delay (vgs “a tempo”)

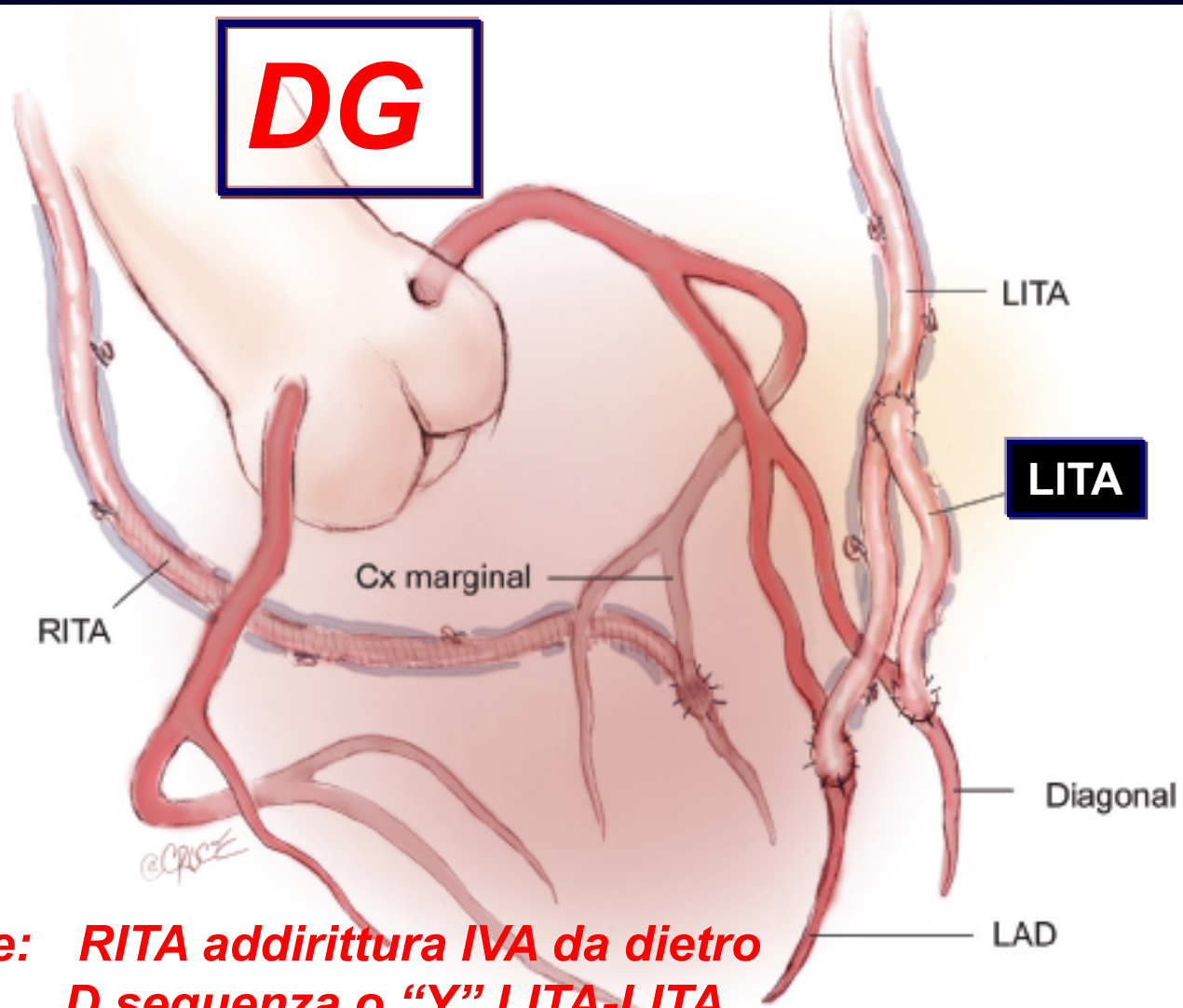
«ischemic guided !!»

EcoStress?

Scintigrafia?



DG



scheletrizzate e rette: RITA addirittura IVA da dietro D sequenza o "Y" LITA-LITA

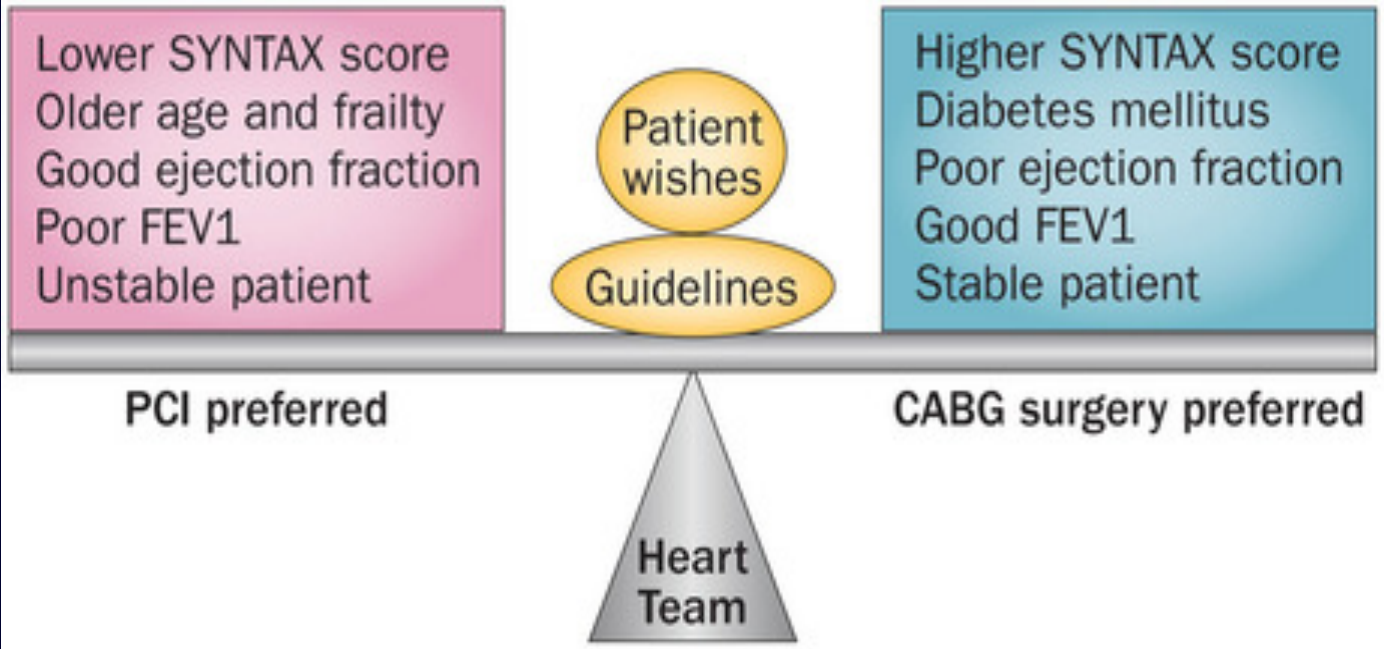


1967-2013 46 aa

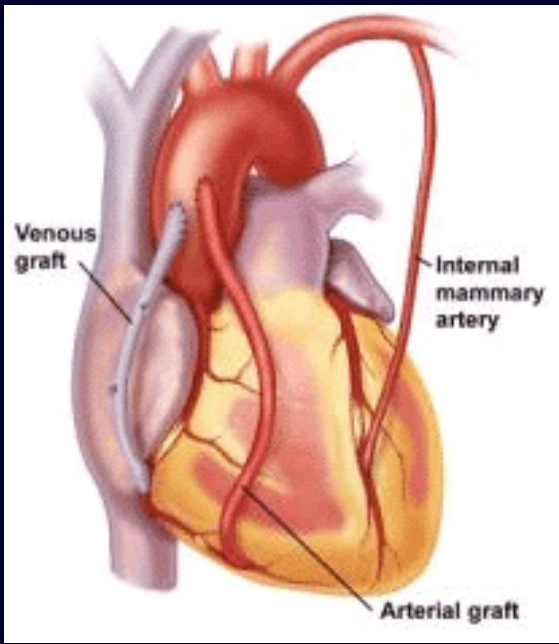
Patrick Serruys

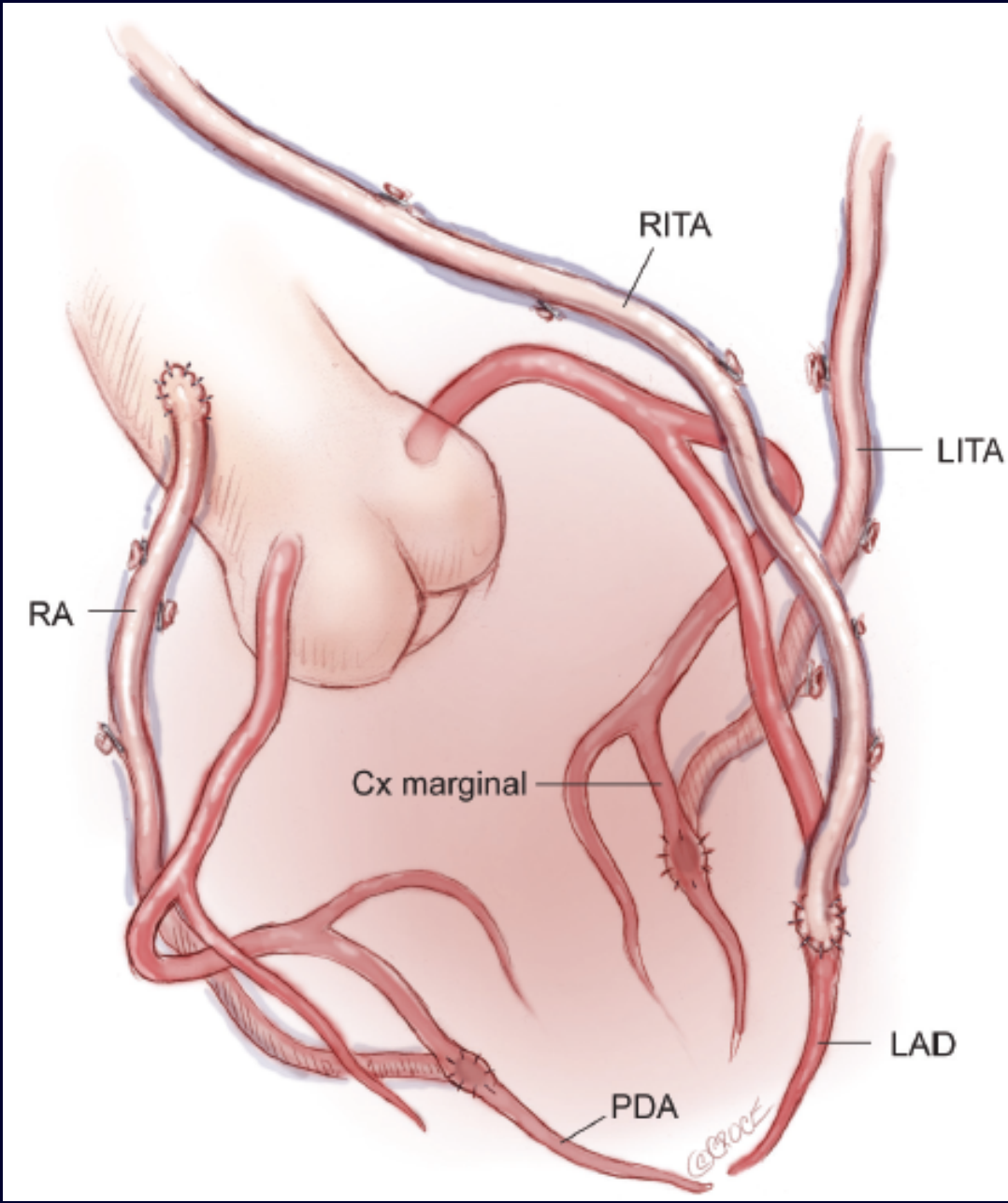


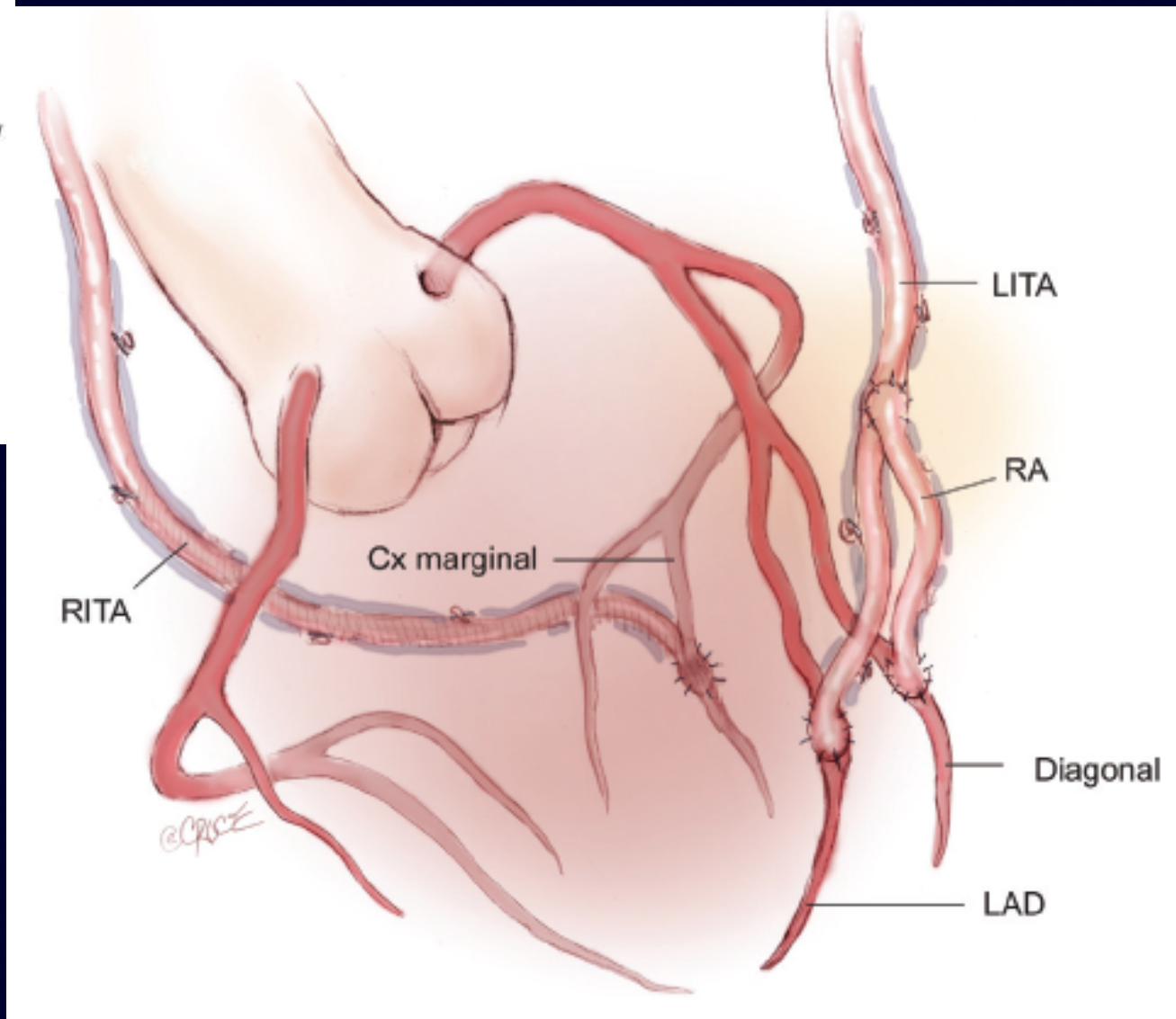
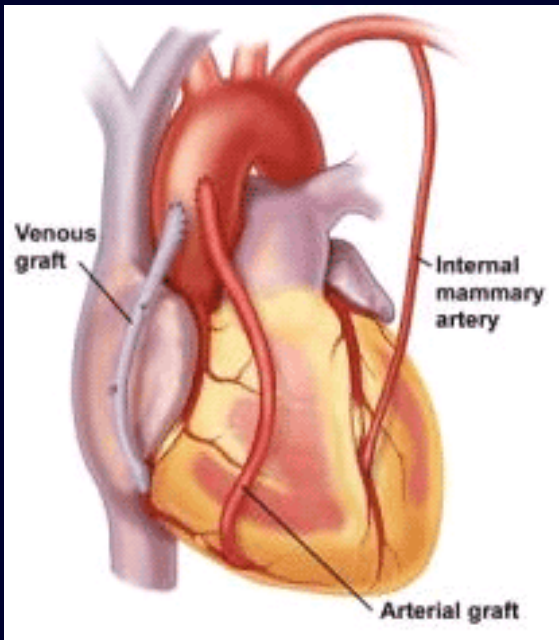
David Taggart



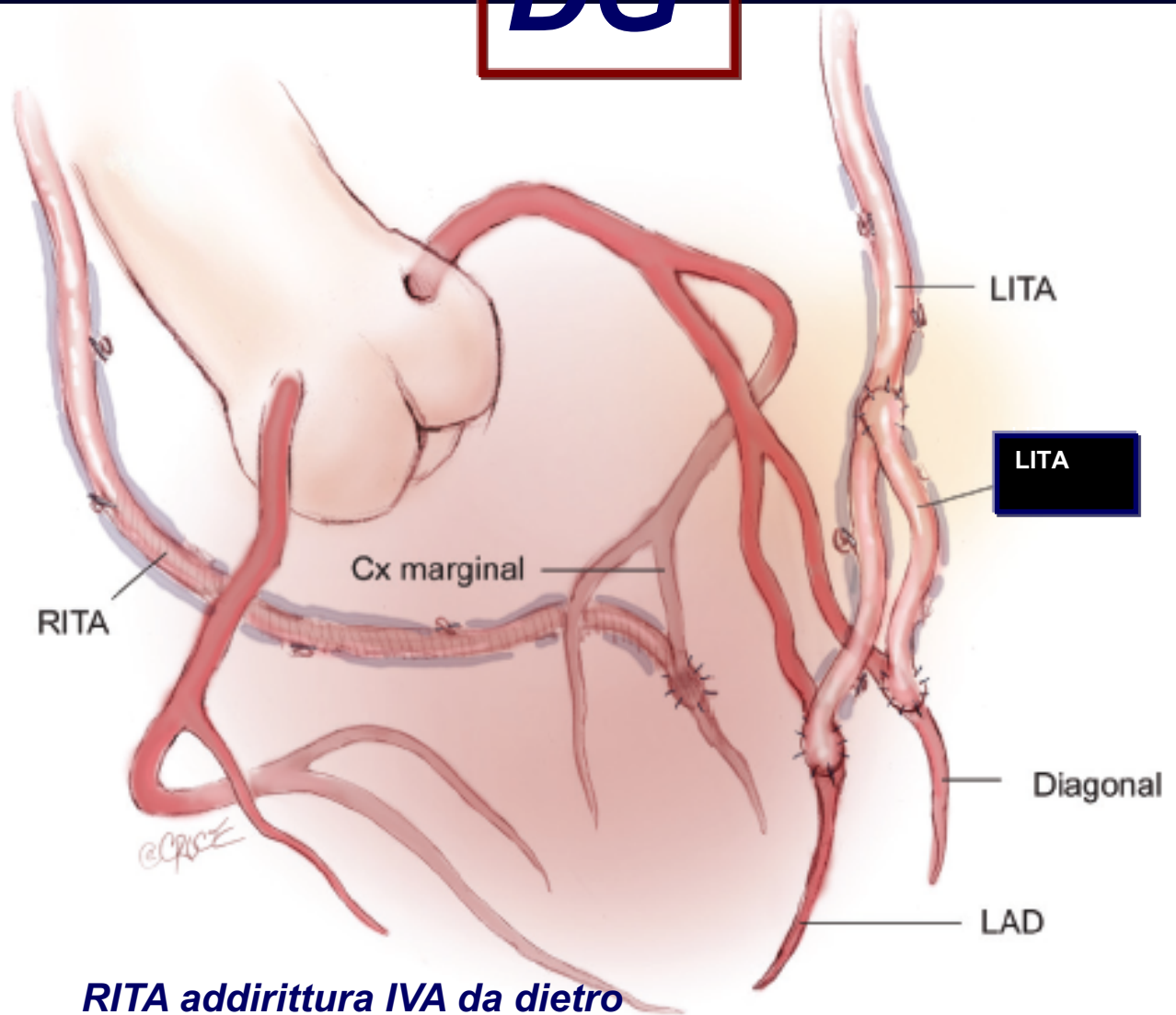
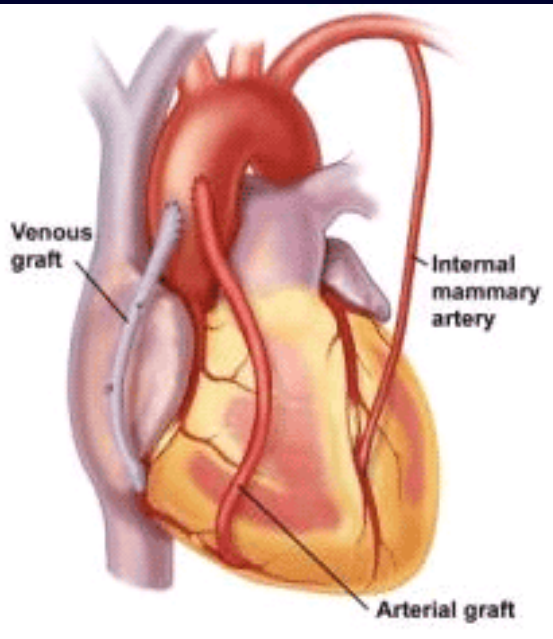
Grazie







DG



scheletrizzate e rette:

RITA addirittura IVA da dietro

D sequenza o "Y" LITA-LITA

The second best arterial graft: A propensity analysis of the radial artery versus the free right internal thoracic artery to bypass the circumflex coronary artery

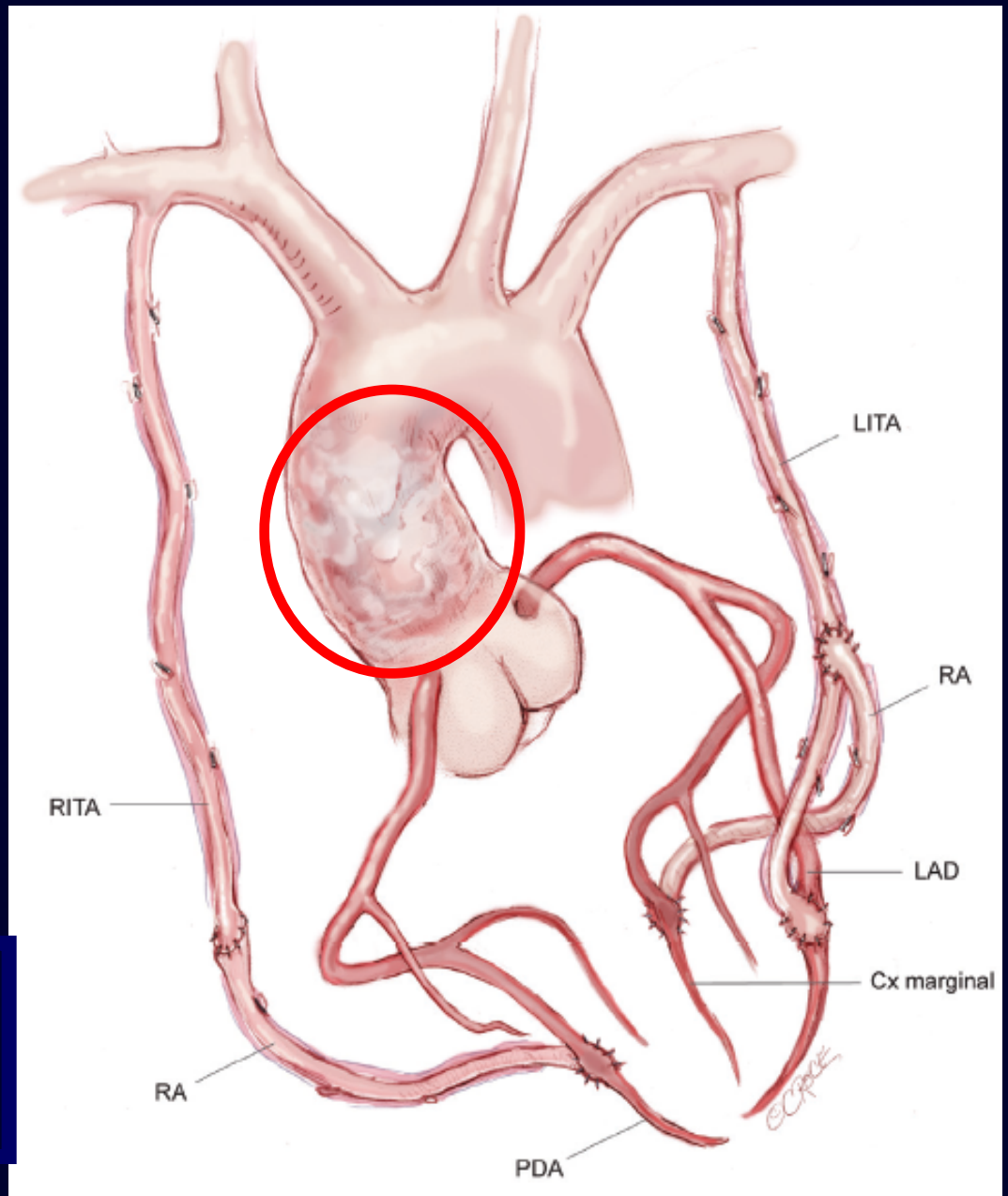
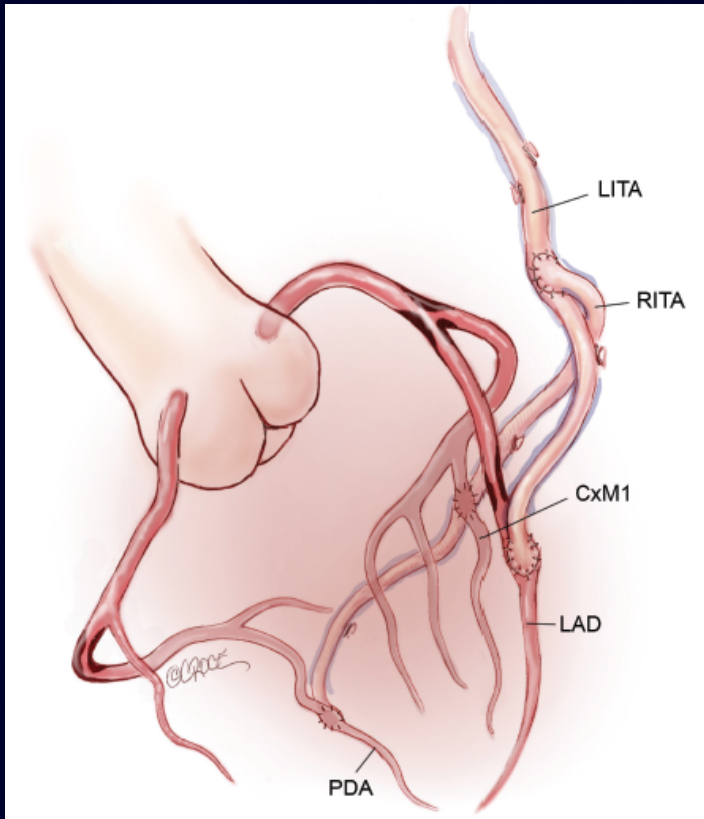
Robert F. Tranbaugh, MD,^a Kamellia R. Dimitrova, MD,^a David J. Lucido, PhD,^b Darryl M. Hoffman, MD,^a Gabriela R. Dincheva, BS,^a Charles M. Geller, MD,^a Sandhya K. Balaram, MD, PhD,^c Wilson Ko, MD,^a and Daniel G. Swistel, MD^c

6566 pts: 2707 2 arterie: 1334 RA 1154 RITA free-graft o Y

We found a very strong protective effect of RA grafting on MAEs. The lower rates of sternal wound infection and respiratory failure in the RA patients suggest the cautious use of bilateral internal thoracic artery (BITA) harvesting in obese, diabetic, older, and COPD patients at risk for these complications. Although there may be somewhat differing

BIMA ??

BITA grafts. The recent Center for Medicare and Medicaid decision not to pay for a sternal wound infection, defined as a “never event,” adds to the appropriate reluctance to use BITA grafting in diabetic (as well as in obese and COPD) patients. RA grafting is an excellent alternative to RITA



BIMA
± CEC

NO TOUCH AORTA

Patency of Internal Thoracic Artery Compared to Vein Grafts – Postoperative Angiographic Findings in 1189 Symptomatic Patients in 12 Years

Thorac Cardio Surg 2007; 55: 412 – 417

Table 3 Occlusion rate (severe stenosis [71 – 99%] or occlusion) for LITA, RITA, SVG

Target vessel	LITA (n = 1025)	RITA (n = 425)	SVG (n = 2218)
LAD	6.6 (9.2) %	4.6 (11.5) %	17.3 (24) %
Diagonal branch	8.5 (10.5) %	7.1 (7.1) %	14.4 (18.4) %
Intermediate branch	4.3 (6.3) %	0 (0) %	23.9 (28.4) %
Obtuse marginal/CX	11.5 (13.8) %	0 (0) %	15.9 (20.1) %
RCA	0 (16.7) %	9.1 (18.2) %	17.0 (22.4) %
Total	7.9 (10.4) %	4.7 (11.3) %	16.5 (21.1) %

Dipende dal condotto o dalla coronaria?

re-interventions and redos. Grafting of a secondary coronary artery such as the diagonal branch with the superior arterial conduit and RITA – RCA bypasses should be avoided. Covering the RITA anterior to the aorta with a PTFE sleeve could prevent injury of the conduit, thus contributing to the feasibility of reoperation.

Box 7-1 Incremental Risk Factors for Death and Other Unfavorable Outcome Events in Patients with Stenotic Atherosclerotic Coronary Artery Disease^a

Severity of Reduction in Regional Coronary Flow Reserve^b

- Angina severity (Canadian class I to IV)
- Degree of positive response to stress testing
- Severity and number of stenoses

Number of Myocardial Regions with Reduced Coronary Flow Reserve^b

- Left main stenosis and severity
- Distribution and severity of coronary stenoses
- Myocardial score

Nature of Coronary Arteriosclerotic Plaque

- Number of previous myocardial infarctions
- Acute myocardial infarction
- Distribution of coronary stenoses

Internal Milieu (Thrombotic or Fibrinolytic)

- Number of previous myocardial infarctions
- Acute myocardial infarction
- Distribution of coronary stenoses

Aggressiveness of Atherosclerotic Process

- Diffusely narrowed coronary arteries
- Peripheral arterial disease
- Cerebrovascular disease
- Hyperlipidemia
- Diabetes
- Hypertension
- Younger age at intervention

Rate of Progression of Coronary Arterial Stenoses

Amount and Distribution of Myocardial Scar

- Number of previous acute myocardial infarctions
- Left ventricular ejection fraction
- Left ventricular Coronary Artery Surgery Study (CASS) score
- Left ventricular end-diastolic pressure
- Defects identified by exercise or resting thallium-201 scintigraphy (delayed or after reinjection)

Secondary Conditions

- Hemodynamic instability
- Cardiogenic shock
- Ischemic instability (unstable angina)
- Ventricular electrical instability

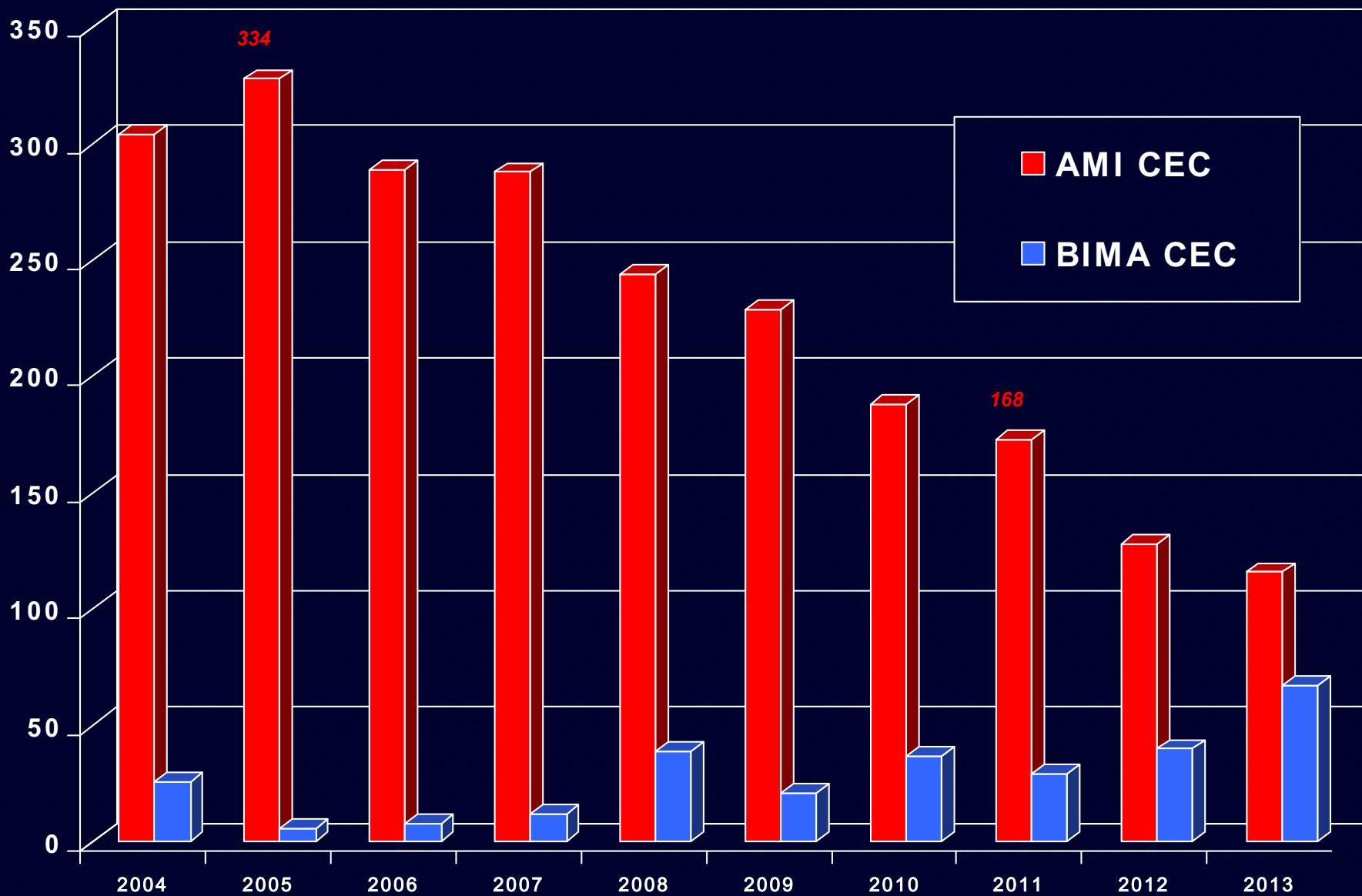
Coexisting Conditions (Comorbidity)

- Older and younger age
- Larger and smaller body size
- Ethnicity
- Diabetes
- Hyperlipidemia
- Hypertension
- Chronic pulmonary disease
- Chronic renal disease
- Smoking
- Previous stroke

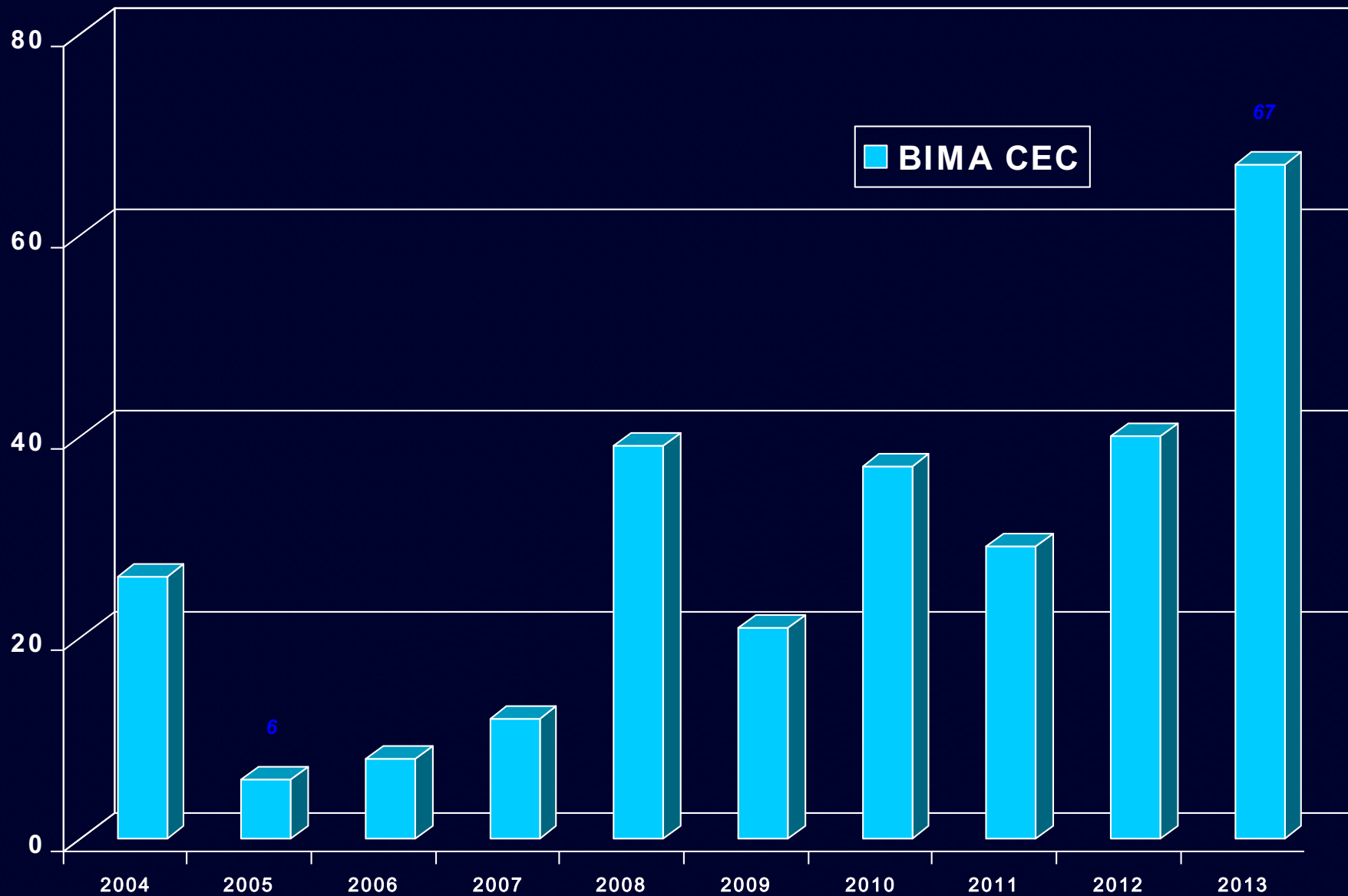
^aFactors/events listed are not the result of a formal multivariable analysis, but rather a composite of many such analyses.

^bThese categories constitute reversible ischemia.

AMI-BIMA H. Niguarda 2004-2013



AMI-BIMA H. Niguarda 2004-2013



preoperative variables. In an analysis of seven large datasets representing more than 172,000 patients, Jones and colleagues identified seven variables most predictive of early mortality^{J13}:

- Older age (Fig. 7-28)^{E2,H8}
- Female gender^{E6}
- Previous CABG
- Urgency of operation
- Increasing LV dysfunction
- Left main disease
- Increasing extent of coronary artery disease

Table 7-6 Procedural Risk Factors for Death after Coronary Artery Bypass Grafting^a

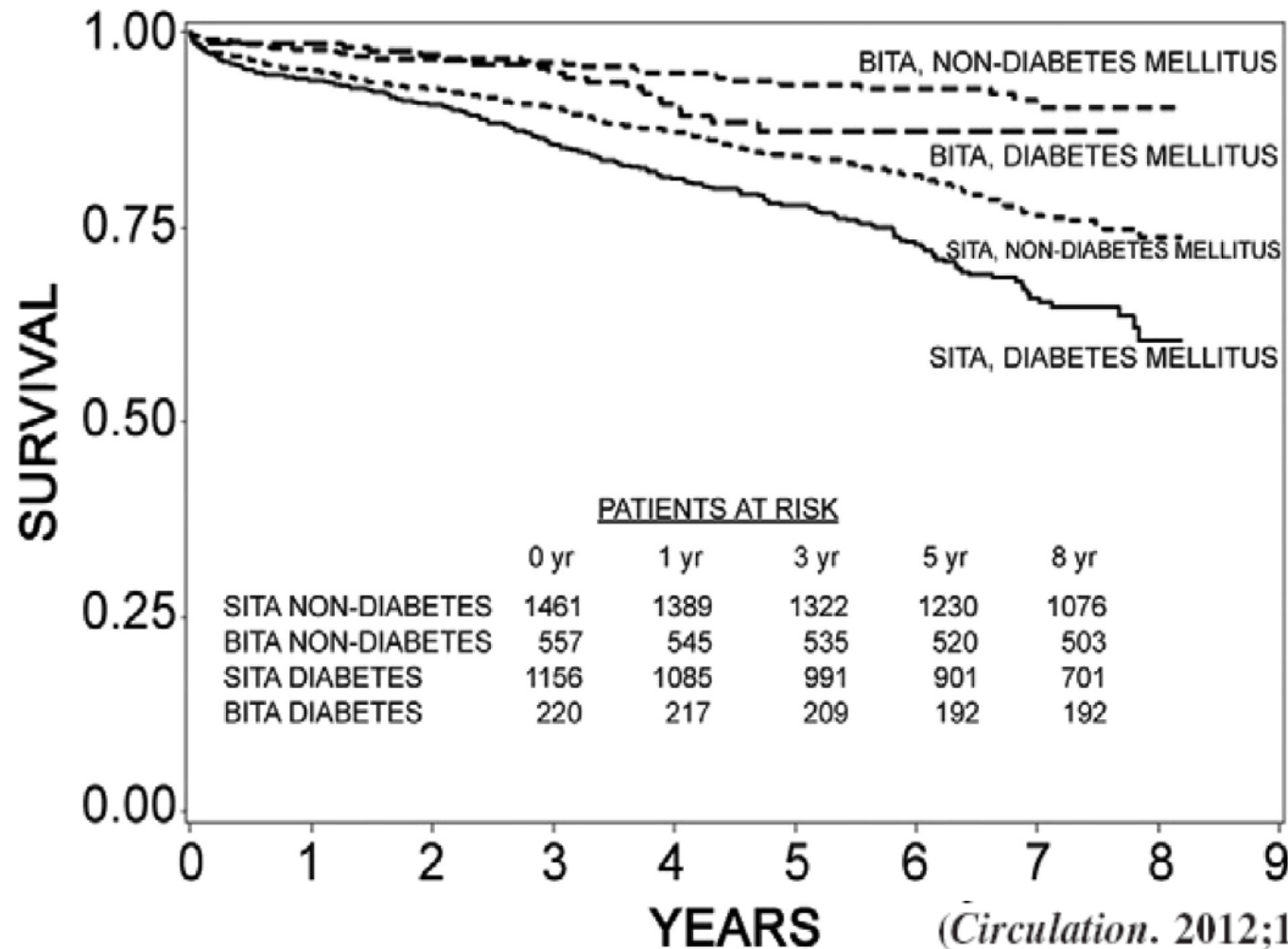
	Incomplete revascularization
	Nonuse of internal thoracic artery to left anterior descending artery
(Longer)	Global myocardial ischemic time interacting with method of myocardial management
(Longer)	Cardiopulmonary bypass time
	Surgeon
(Earlier)	Date of operation

^aInstitution where procedure is performed may also be a risk factor.

Editorial

Why Did You Not Use Both Internal Thoracic Arteries?

John D. Puskas, MD, MSc





GOALS



Patency of Internal Thoracic Artery Compared to Vein Grafts – Postoperative Angiographic Findings in 1189 Symptomatic Patients in 12 Years

Thorac Cardiovasc Surg 2007; 55: 412 – 417

Table 4 Literature

Authors (year) [References]	Number of patients	Interval to postop. angiography	Graft characteristics	Patency rates
Dion et al. (2000) [12]	n = 161	after mean of 7.5 years	84% RITAs to left coronary system	95.5% ITAs 72.5% SVG $p < .001$
Al Ruzzeh et al. (2002) [16]	n = 32	early postoperative period	all RITAs to LAD	100%
Sakata et al. (1999) [17]	n = 278	early postoperative period	RITA <i>in situ</i> grafts to CX-artery	97.8% RITA 96.6% LITA
Ura et al. (1998) [18]	n = 114	early postoperative period (2–3 weeks)	RITA to CX LITA to CX	97.1% RITA 95.5% LITA
Ura et al. (1998) [18]	n = 73	after mean of 59 months	RITA to CX LITA to CX	89.9% RITA 92.3% LITA
Lev-Ran et al. (2001) [19]	n = 22	after mean of 6–44 months	“skeletonized” RITA to LAD LITA to CX	95% for both ITAs
Kawata et al. (1999) [20]	n = 133	after mean of 11 years mean	RITA to LAD	97%
Tatoulis et al. (2004) [21]	n = 2127	after mean of 15 years		88.3% RITA 96.4% LITA 61% SVG

Quale condotto?

Multiple Arterial Grafts Improve Late Survival of Patients Undergoing Coronary Artery Bypass Graft Surgery

Analysis of 8622 Patients With Multivessel Disease

Chaim Locker, MD; Hartzell V. Schaff, MD; Joseph A. Dearani, MD; Lyle D. Joyce, MD, PhD; Soon J. Park, MD; Harold M. Burkhart, MD; Rakesh M. Suri, MD, DPhil; Kevin L. Greason, MD; John M. Stulak, MD; Zhuo Li, MS; Richard C. Daly, MD

BIMA!

Table 3. Kaplan–Meier Estimated Late Survival Rates: Multiple Arterial Grafting Subgroups Versus Left Internal Mammary Artery/Saphenous Vein Group ($P < 0.001$)

	1-Year Survival, %	5-Year Survival, %	10-Year Survival, %	15-Year Survival, %
BIMA/SV (n=583)	98.7 (97.8–99.7)	96.5 (94.9–98.1)	85.8 (82.1–89.6)	75.8 (69.8–82.3)
BIMA/RA (n=145)	99.2 (97.8–100.0)	95.1 (91.4–99.0)	84.3 (76.6–92.7)	NA
BIMA (n=270)	99.2 (98.1–100.0)	94.4 (91.4–97.6)	82.0 (75.5–89.1)	74.5 (63.1–88.1)
LIMA/RA (n=168)	99.4 (98.2–100.0)	93.4 (89.5–97.4)	78.4 (70.8–86.9)	NA
LIMA/SV (n=7281)	97.5 (97.1–97.9)	85.0 (84.1–85.9)	61.1 (59.8–62.5)	36.3 (34.6–38.1)

BIMA indicates bilateral internal mammary artery; SV, saphenous vein; RA, radial artery; LIMA, left internal mammary artery; and NA, not available. Values in parentheses are 95% confidence intervals.

Martedì, 28 marzo 2017

Cardiopatia ischemica cronica: confrontiamo la pratica comune con le linee guida: stent o bypass

Moderatori: *Guido Belli (Bergamo), Tiziano Colombo (Milano)*

Heart team, Syntax score e FFR esistono solo sulle linee guida?

10.40 Il punto di vista del cardiocirurgo *Stefano Pelenghi (Milano)*

10.50 Il punto di vista del cardiologo interventista *Gianluca Tiberti (Lecco)*

Come rivascularizzare il paziente multivasale diabetico

11.00 Sempre bypass! *Enrico Citterio (Rozzano)*

11.10 Una decisione "tailored" *Marco Ferlini (Pavia)*

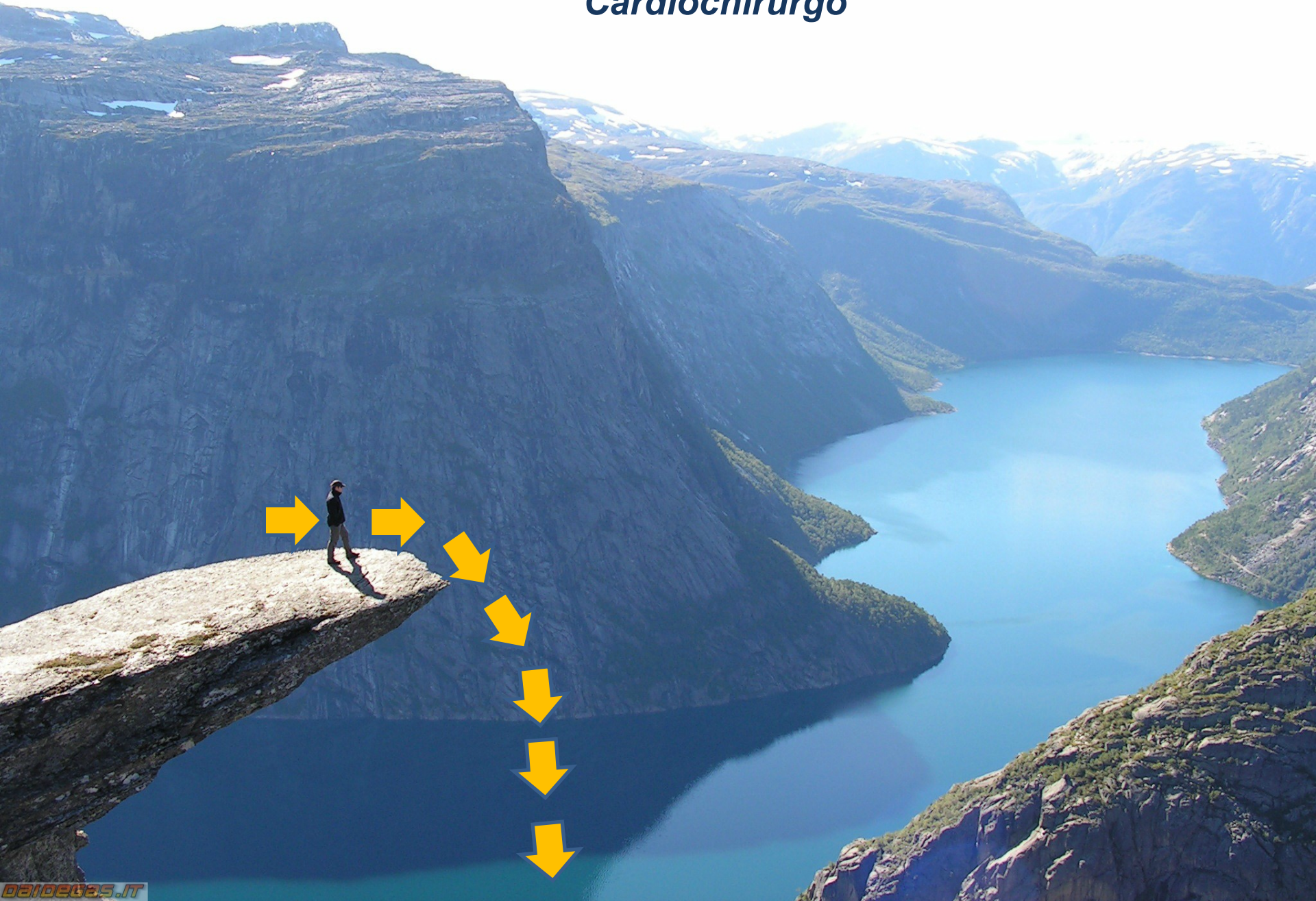
11.20 Update sulla rivascularizzazione chirurgica "off pump" *Giovanni Troise (Brescia)*

11.30 Il ruolo della rivascularizzazione "ibrida" *Diego Maffeo (Brescia)*

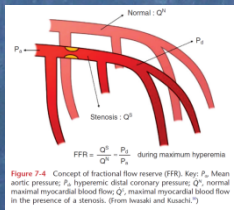
Emodinamista



Cardiochirurgo



Cardiochirurgo



BIMA ??

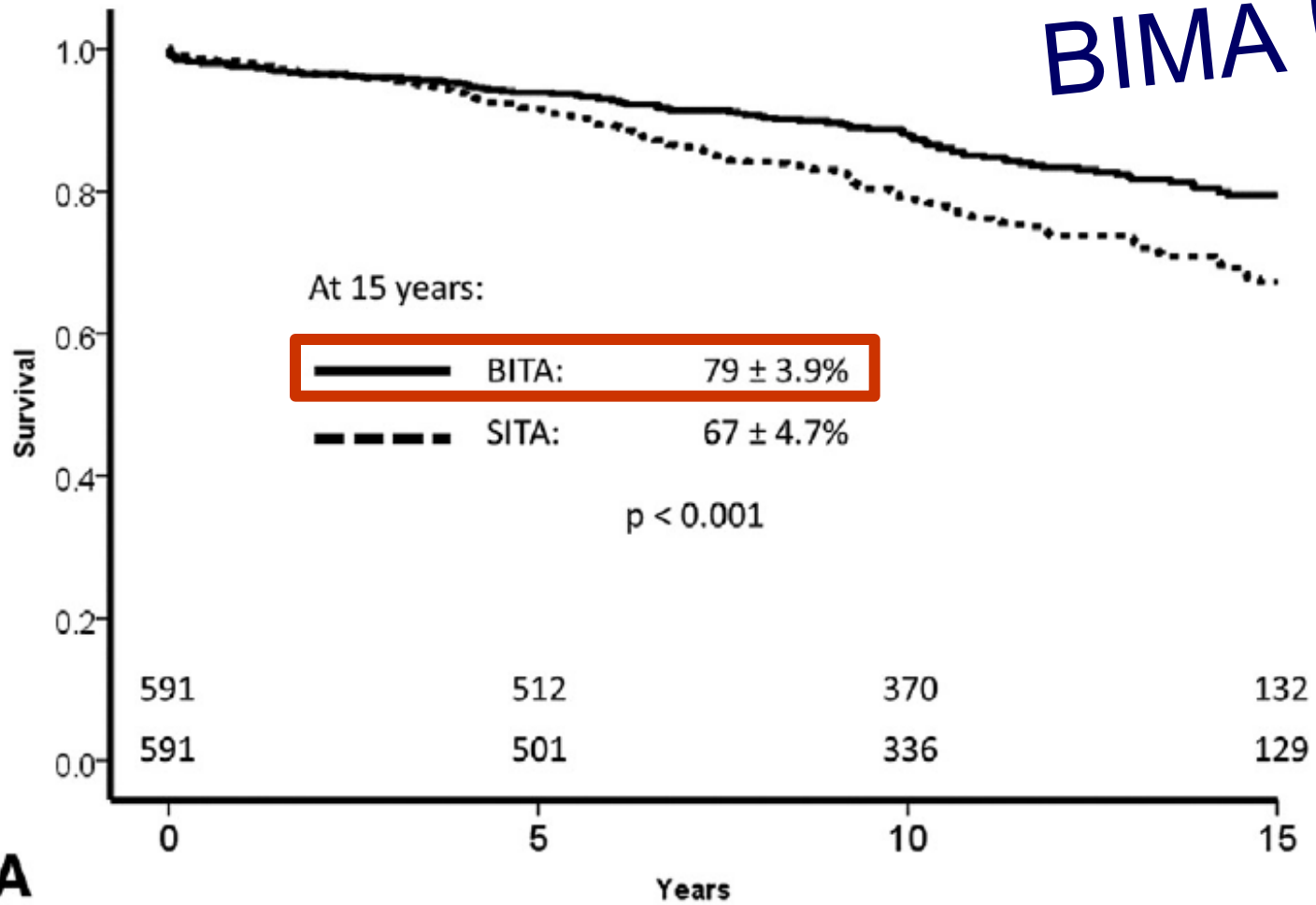
From 1995 to 2010, 2821 patients

Are all forms of total arterial revascularization equal? A comparison of single versus bilateral internal thoracic artery grafting strategies

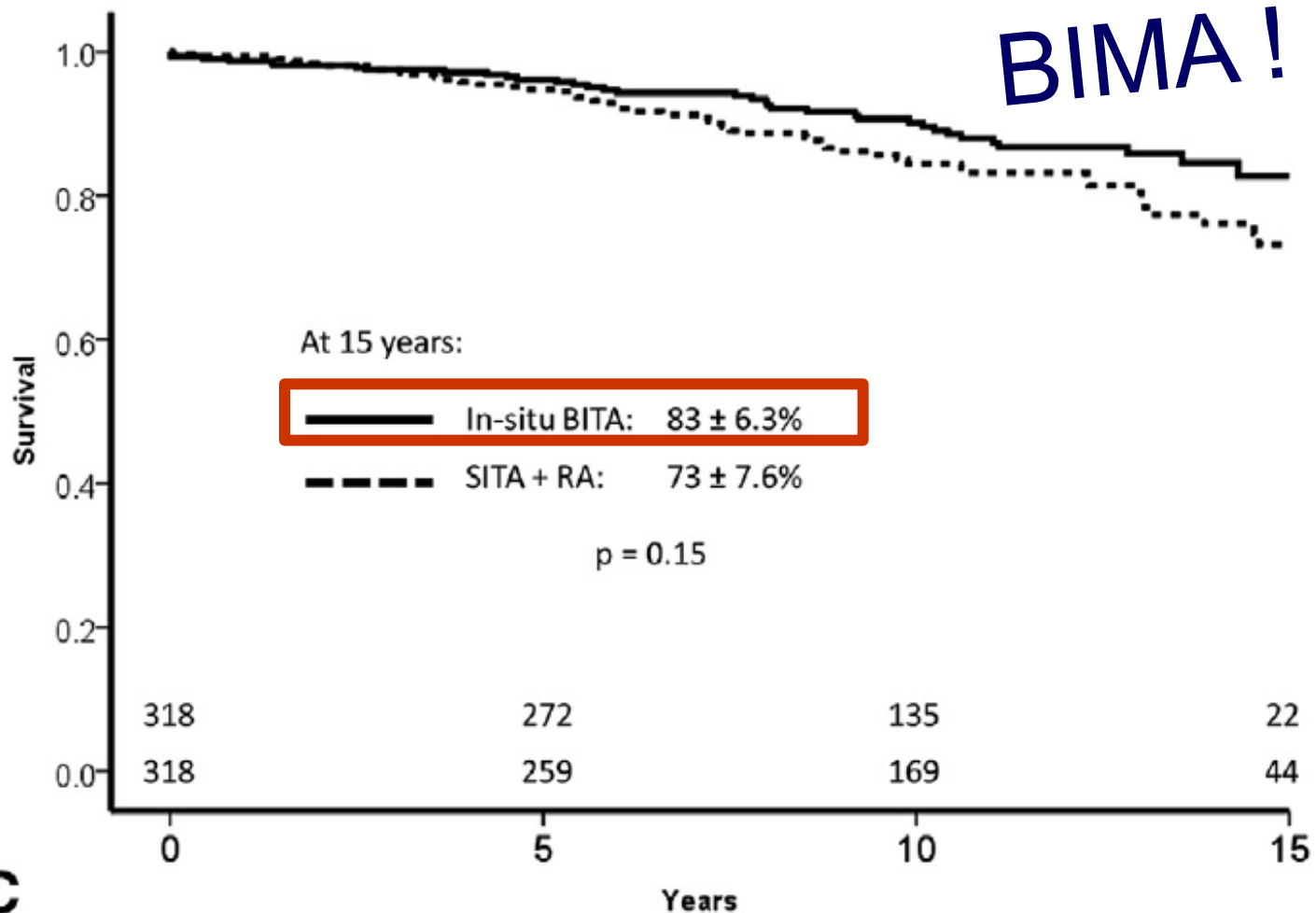
pervietà - sopravvivenza

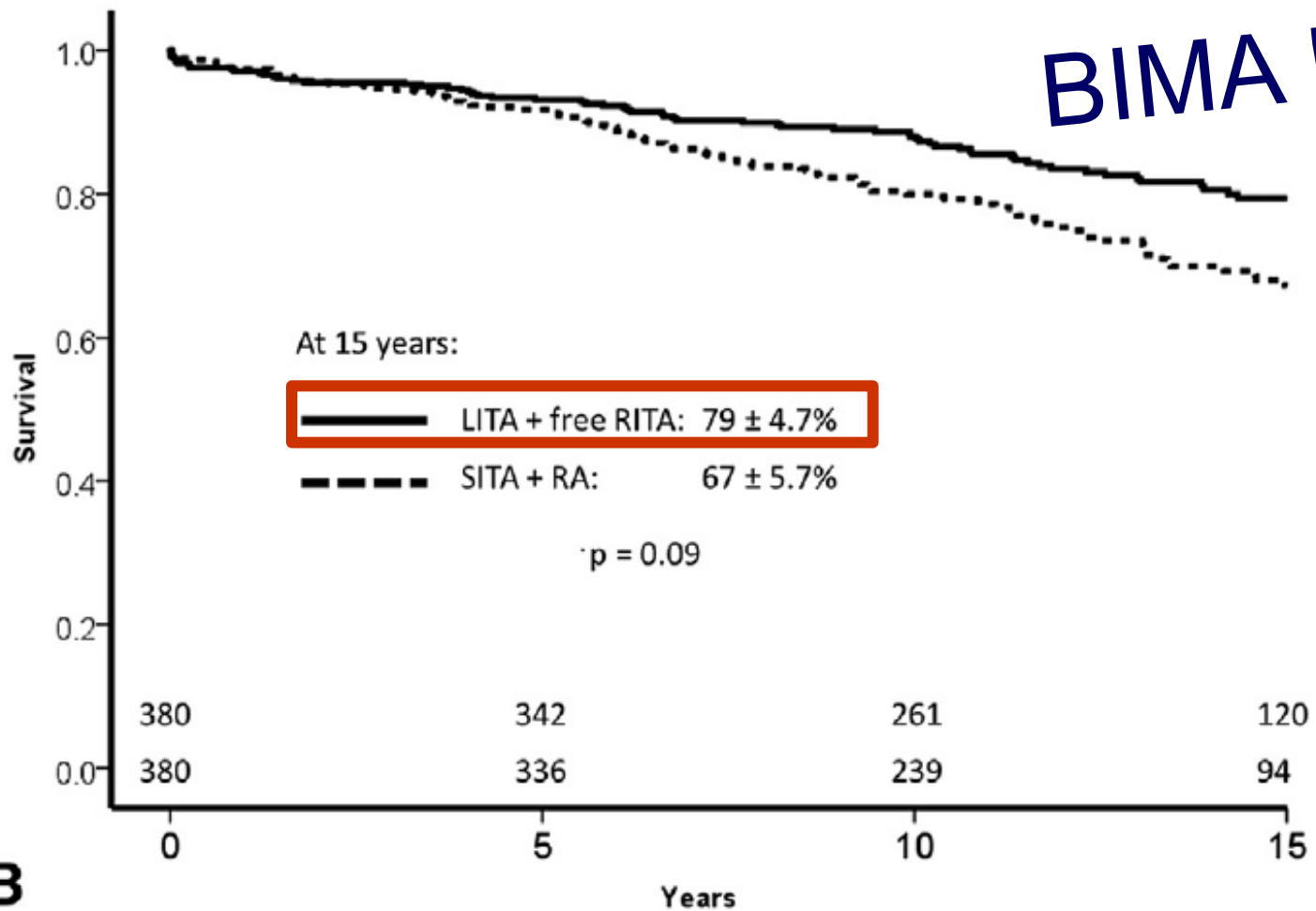
The Journal of Thoracic and Cardiovascular Surgery December

BIMA!



A





2014 ESC/EACTS Guidelines on myocardial revascularization

Table 9 Graft patency after CABG

Graft	Patency at 1 year	Patency at 4-5 years	Patency at ≥ 10 years
Saphenous vein graft	75–95%	65–85%	32–71%
Radial artery	92–96%	90%	63–83%
Left IMA	>95%	90–95%	88–95%
Right IMA	>95%	>90%	65–90%

CABG = coronary artery bypass grafting; IMA = internal mammary artery.

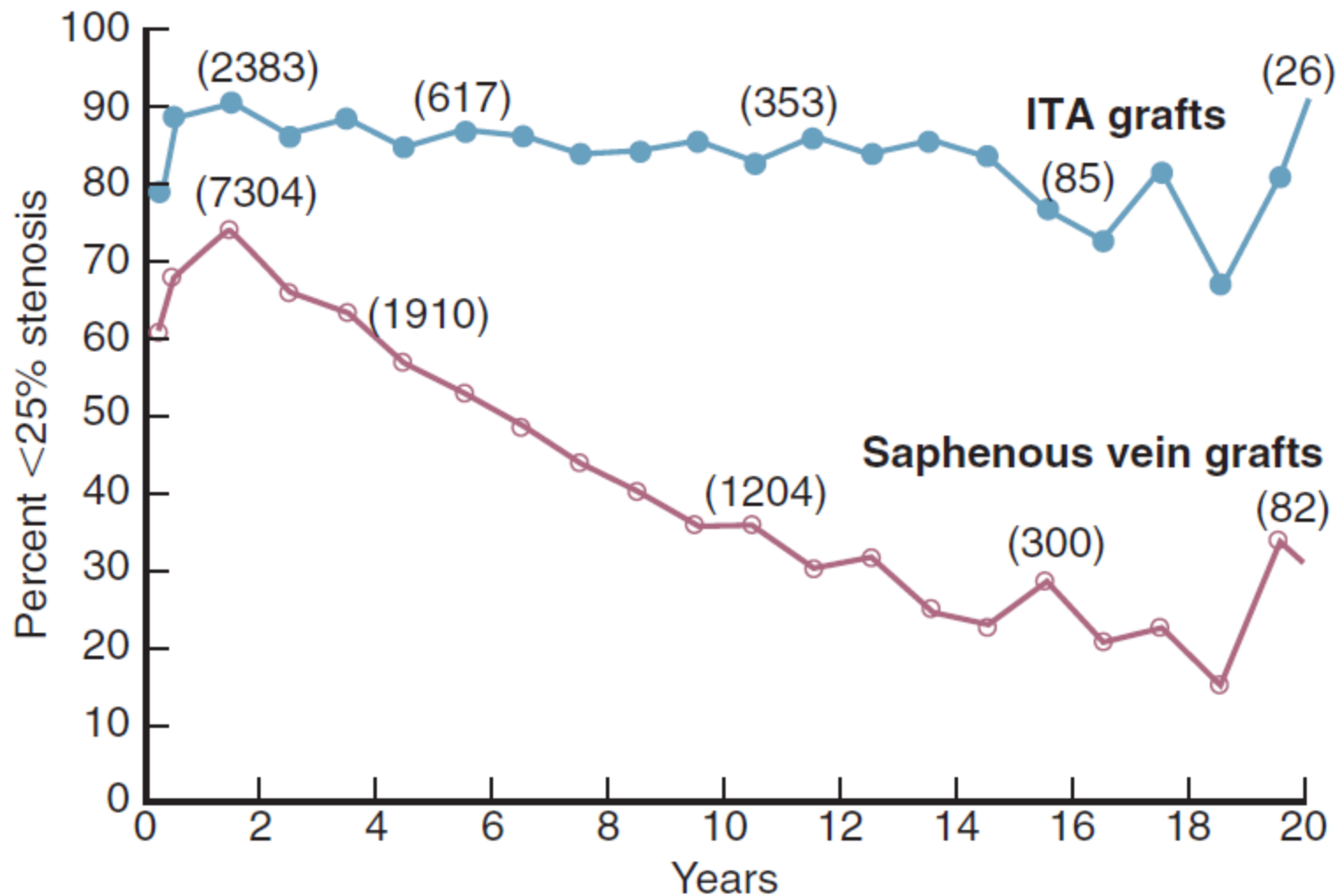


Figure 7-42 Patency of internal thoracic artery (*ITA*) and saphenous vein grafts at 1-year intervals after coronary artery bypass grafting. Numbers in parentheses are the number of observations. (From Cleveland Clinic data, 1972 to 1999).

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

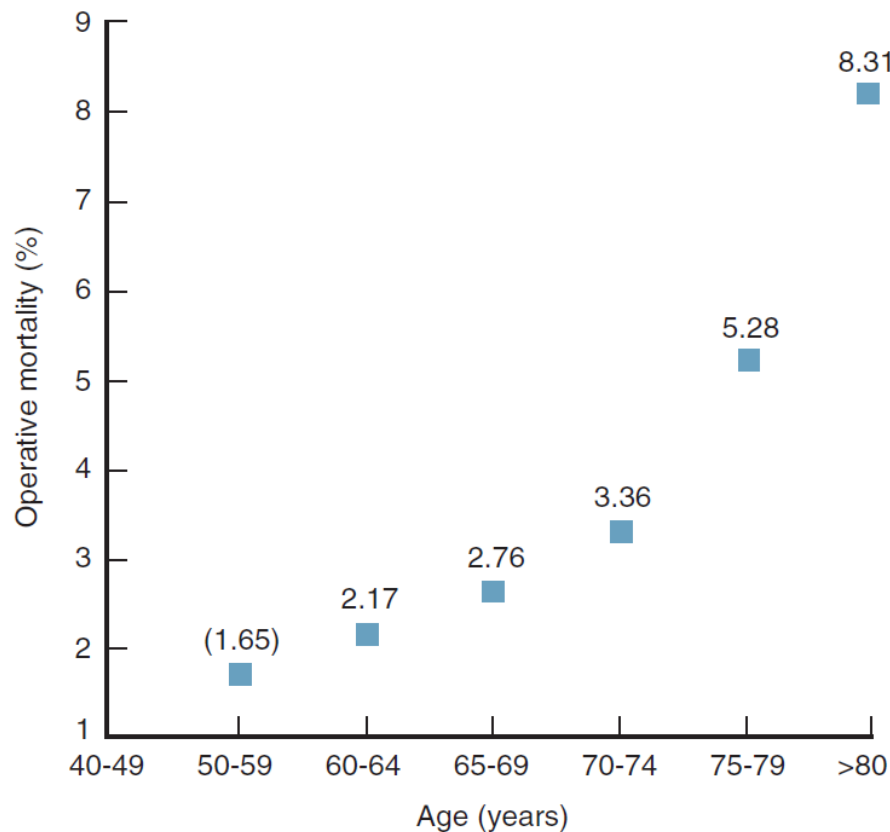


Figure 7-28 Operative mortality for coronary artery bypass grafting in various age cohorts in New York State Cardiac Surgery Reporting System for 1991-1992 ($n = 30,972$). (From Eagle and colleagues.^{E2})

Eagle KA, Guyton RA, Davidoff R, Ewy GA, Fonger J, Gardner TJ, et al. ACC/AHA Guidelines for Coronary Artery Bypass Graft Surgery: A Report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1991 Guidelines for Coronary Artery Bypass Graft Surgery). American College of Cardiology/American Heart Association. *J Am Coll Cardiol* 1999;34:1262.