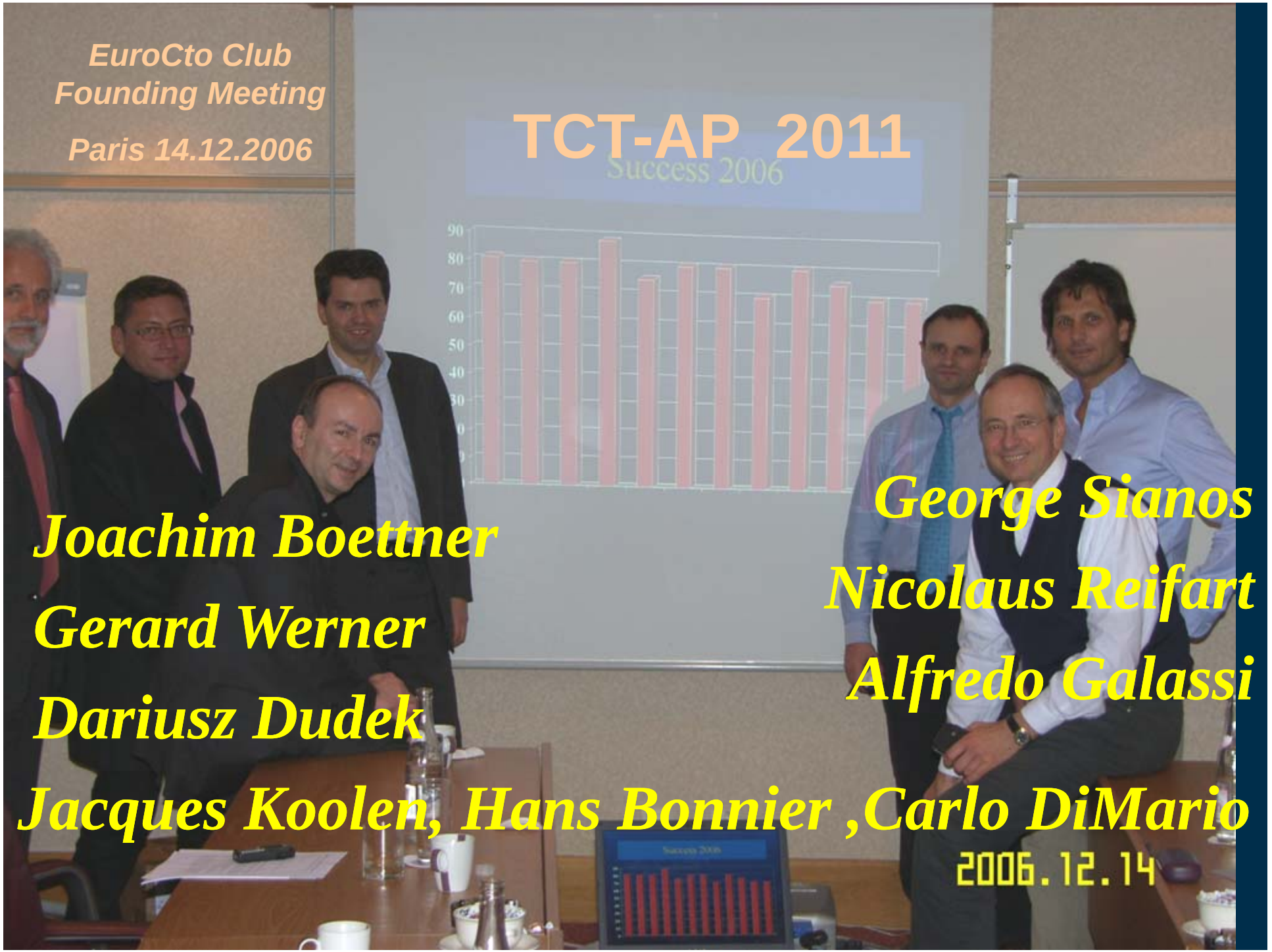

EuroCto Club
Founding Meeting
Paris 14.12.2006
TCT-AP 2011
Success 2006
Joachim Boettner
Gerard Werner
Dariusz Dudek
George Sianos
Nicolaus Reifart
Alfredo Galassi
Jacques Koolen, Hans Bonnier ,Carlo DiMario
2006.12.14

EuroCTO Club: Goals

Promote angioplasty for treatment of CTO in Europe

- **Exchange experience among the most experienced;**
- **Test new technologies and strategies,**
- **Issue ”state of the art” recommendations.**
- **Teaching courses**
- **Draw information from an own registry,**

EuroIntervention

Published May 2007

European perspective in the recanalisation of Chronic Total Occlusions (CTO): consensus document from the EuroCTO Club

Carlo Di Mario[1*], MD, PhD, FRCP, FESC; Gerald S. Werner[2], MD, PhD, FESC; Georgios Sianos[3], MD PhD, FESC; Alfredo R. Galassi[4], MD, FESC; Joachim Büttner[5], MD, PhD, FESC; Dariusz Dudek[6], MD, PhD, FESC; Bernard Chevalier[7], MD; Thierry Lefevre[8], MD, FESC; Joachim Schofer[9], MD, PhD; Jacques Koolen[10], MD, PhD, FESC; Horst Sievert[11], MD, PhD, FESC; Bernhard Reimers[12], MD, FESC Jean Fajadet[13], MD, FESC; Antonio Colombo[14], MD, FESC; Anthony Gershlick[15], MD, FRCP, FESC; Patrick W. Serruys[3], MD, PhD, FESC; Nicolaus Reifart[16], MD, PhD, FESC for the EuroCTO Club

1. Royal Brompton Hospital and Imperial College, London, United Kingdom; 2. Klinikum Darmstadt, Darmstadt, Germany; 3. Thoraxcentre, Erasmus, Medical Center, Rotterdam, The Netherlands; 4. Ospedale Ferrarotto, University of Catania, Catania, Italy; 5. Heart Centre, Bad Krozingen, Germany; 6. Jagellonian University, Cracow, Poland; 7. Centre Cardiologiqu du Nord, Saint-Denis, France; 8. Institut Hospitalier Jacque Cartier, Massy, France; 9. Hamburg University Cardiovascular Center, MVZ Prof. Mathey, Prof. Schofer GmbH, Hamburg, Germany; 10. Catharina Ziekenhuis, Eindhoven, The Netherlands; 11. Frankfurt, Germany; 12. Ospedale di Mirano, Venice, Italy; 13. Toulouse, France; 14. Centro Cuore Columbus and San Raffaele Hospital, Milan, Italy; 15. Univ. of Leicester, Leicester, United Kingdom; 16. Bad Soden, Germany

In-hospital Clinical and Angiographic Outcome from the J-CTO Registry (498 Patients from Apr. 2006 to Dec. 2007)

Yoshihiro Morino, MD, Takeshi Kimura, Yasuhiko Hayashi, Toshiya Muramatsu, Masahiko Ochiai, Yuichi Noguchi, Kenichi Kato, Yoshisato Shibata, Yoshikazu Hiasa, Osamu Doi, Takehiro Yamashita, Mitsuru Abe, Takeshi Morimoto, Tomoaki Hinohara, Kazuaki Mitsudo, On Behalf of the J-CTO Registry Investigators

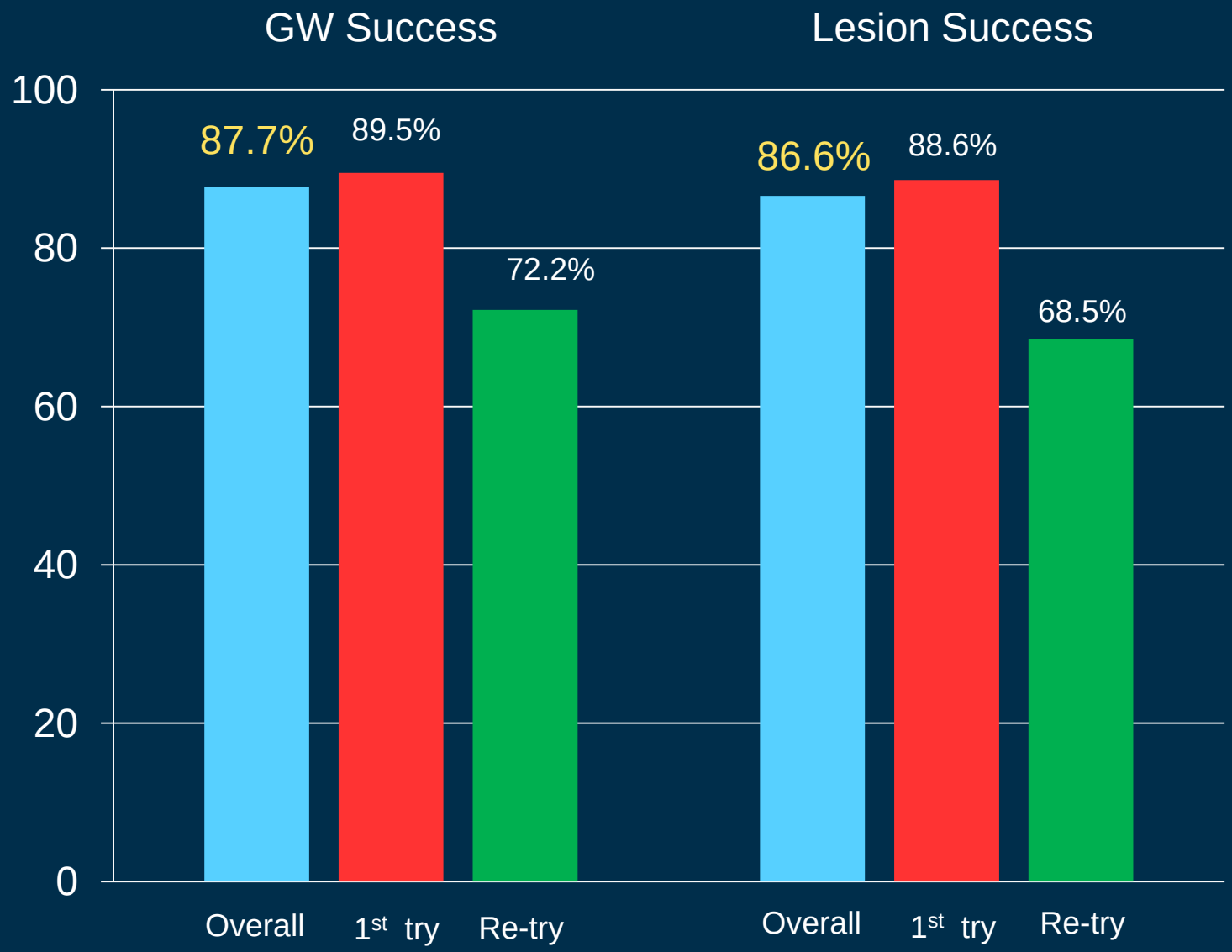
J. Am. Coll. Cardiol. Intv, in press

Novel CTO Technologies are Overrated
I'll Take an Experienced Operator and CTO Techniques

Masahiko Ochiai MD, FACC, FESC, FSCAI

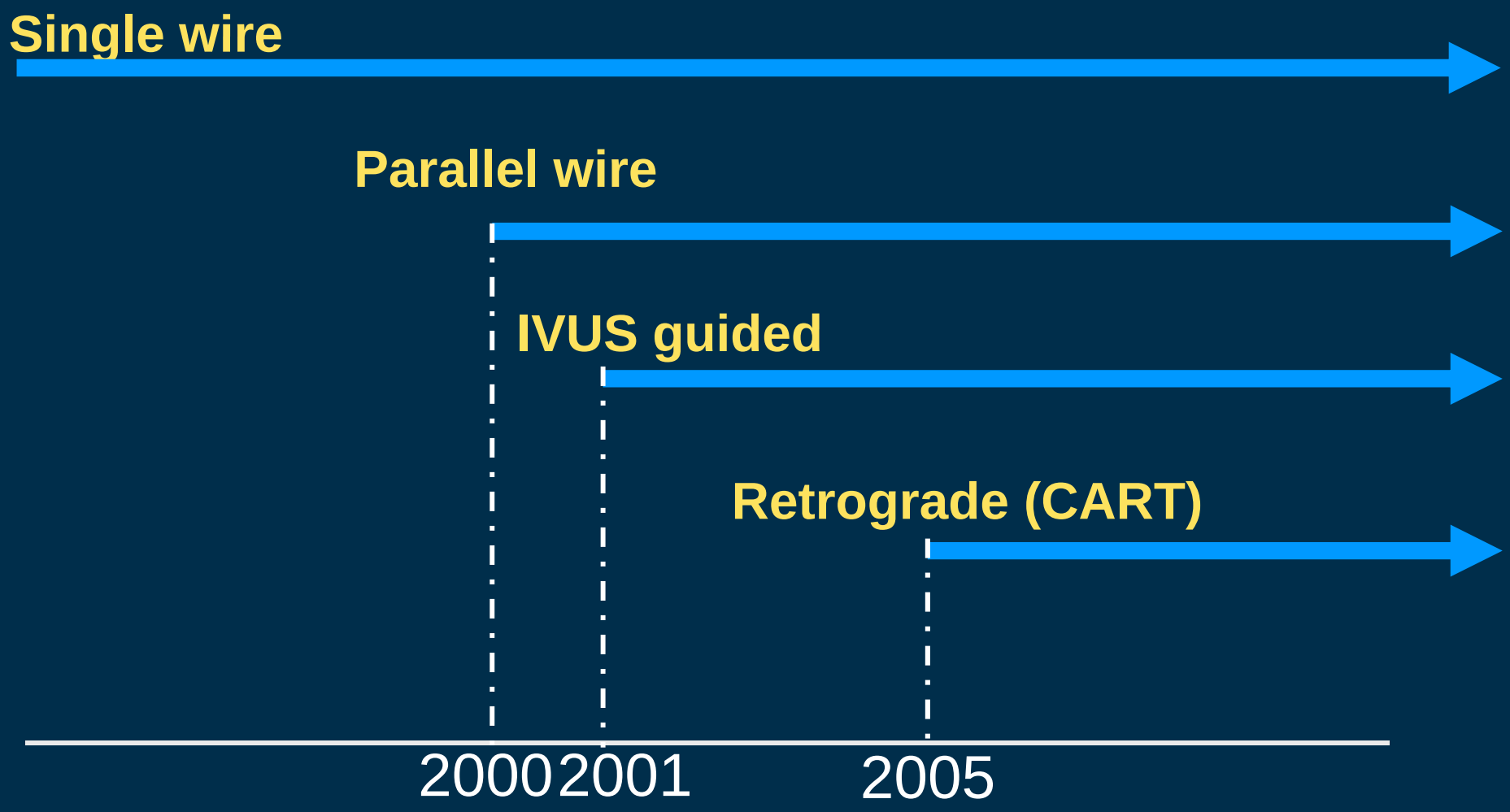
Division of Cardiology
Showa University Northern Yokohama Hospital, Kanagawa, JAPAN

Success Rates

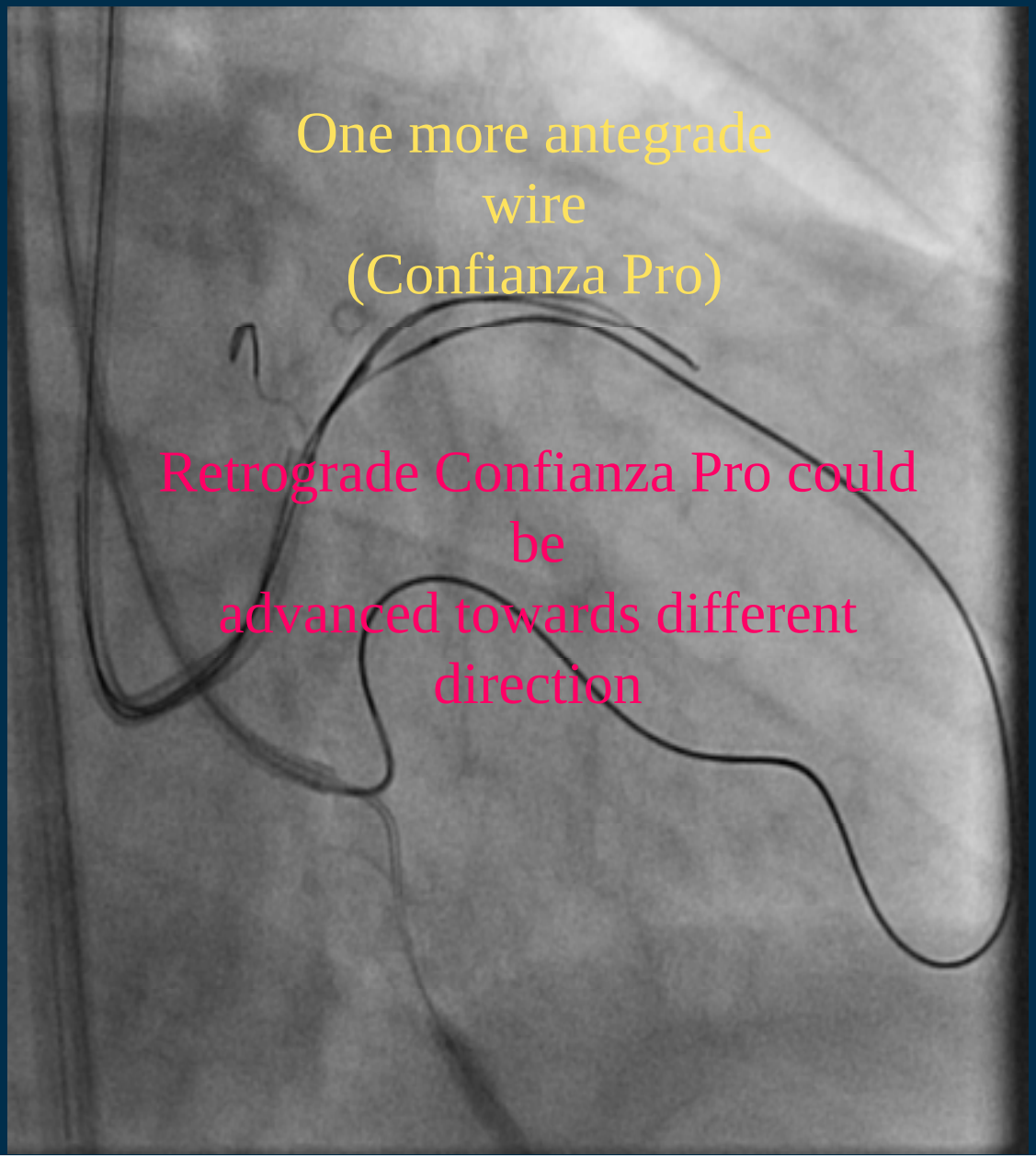


J. Am. Coll. Cardiol. Intv, in press

Development of CTO Techniques

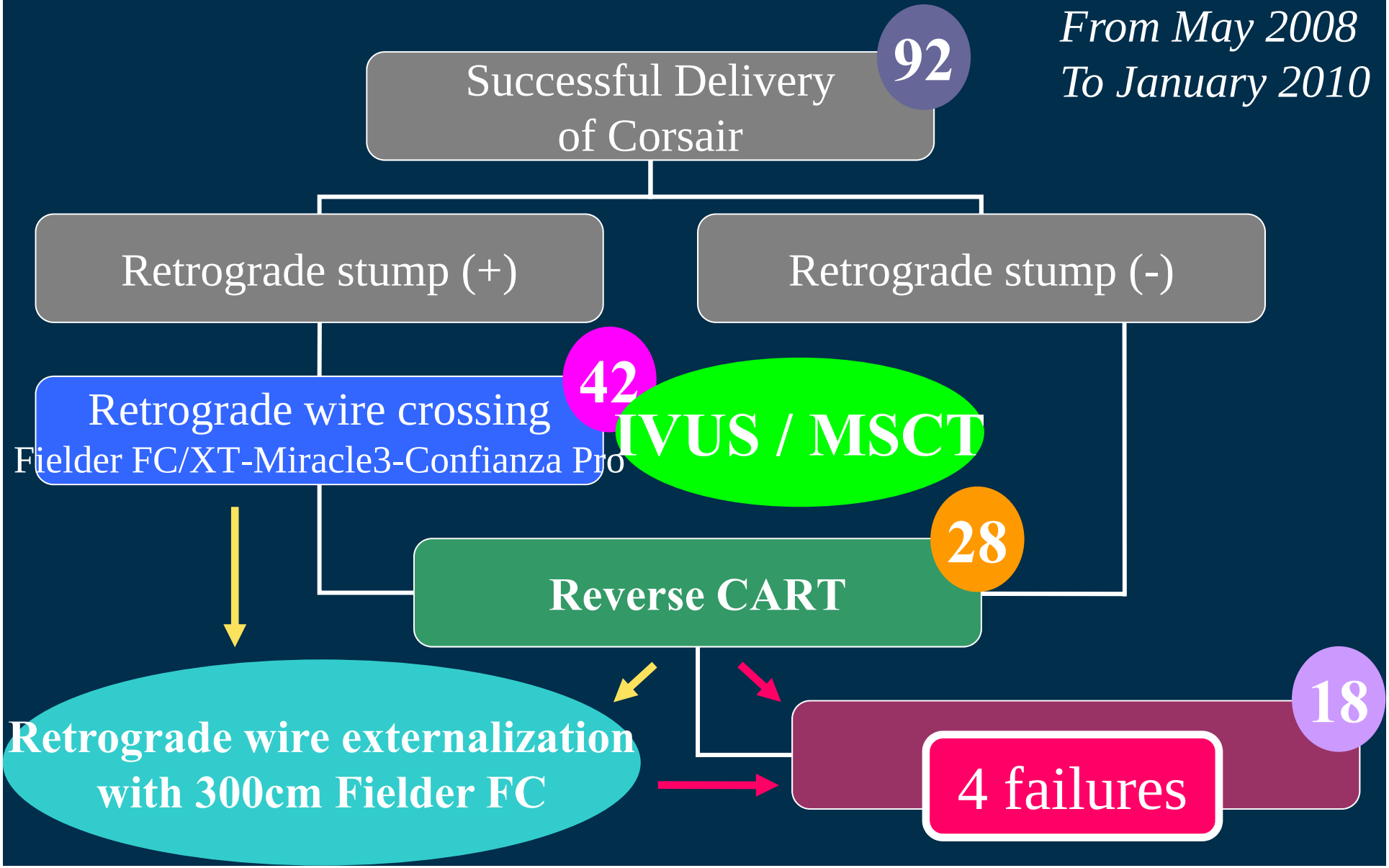


Repeated IVUS Guided Reverse CART



Standardized Retrograde Procedure with Corsair

From May 2008
To January 2010



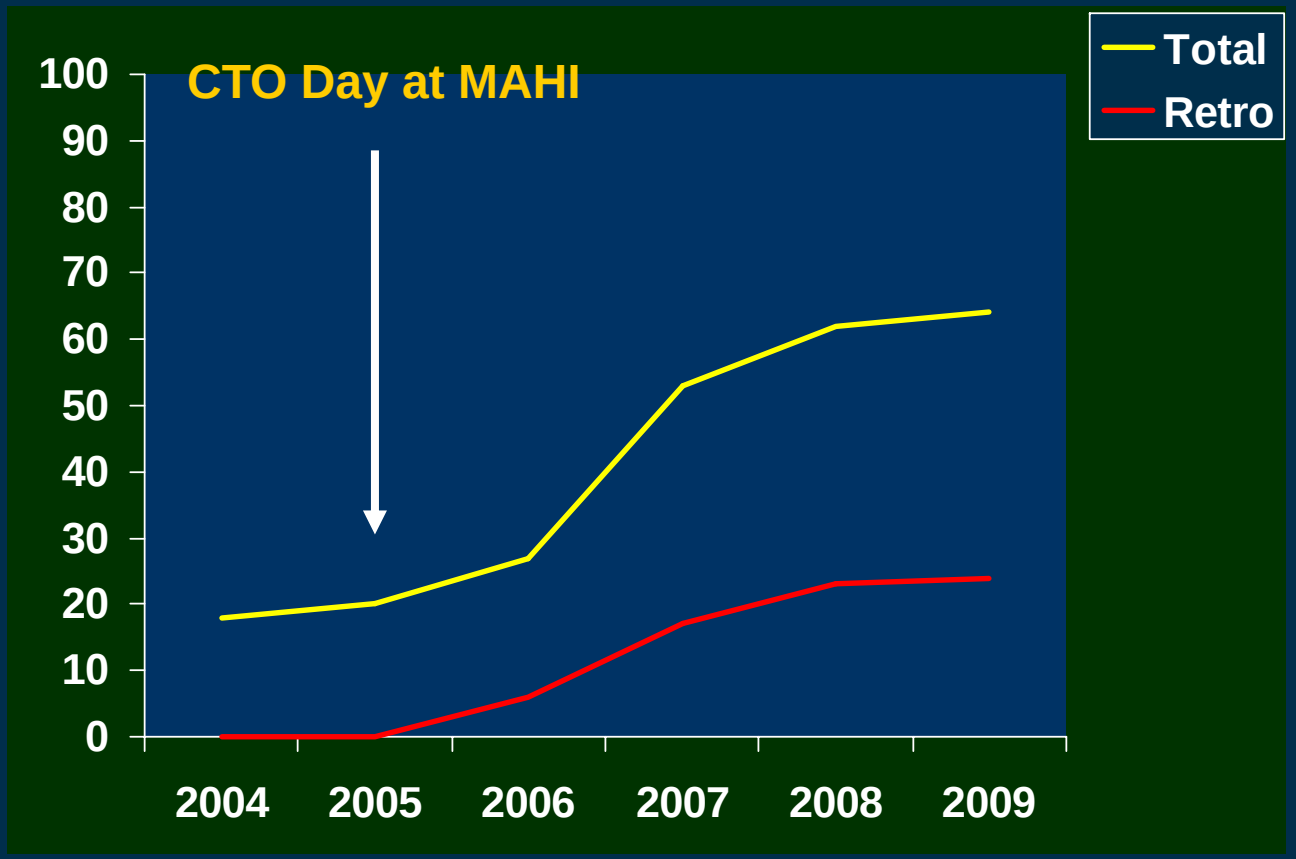
Conclusions

- **I’ll take an experienced operator and CTO techniques.**
- **Integration of all imaging information (MSCT, bi-plane FPD and IVUS) is as important as dilatation devices.**

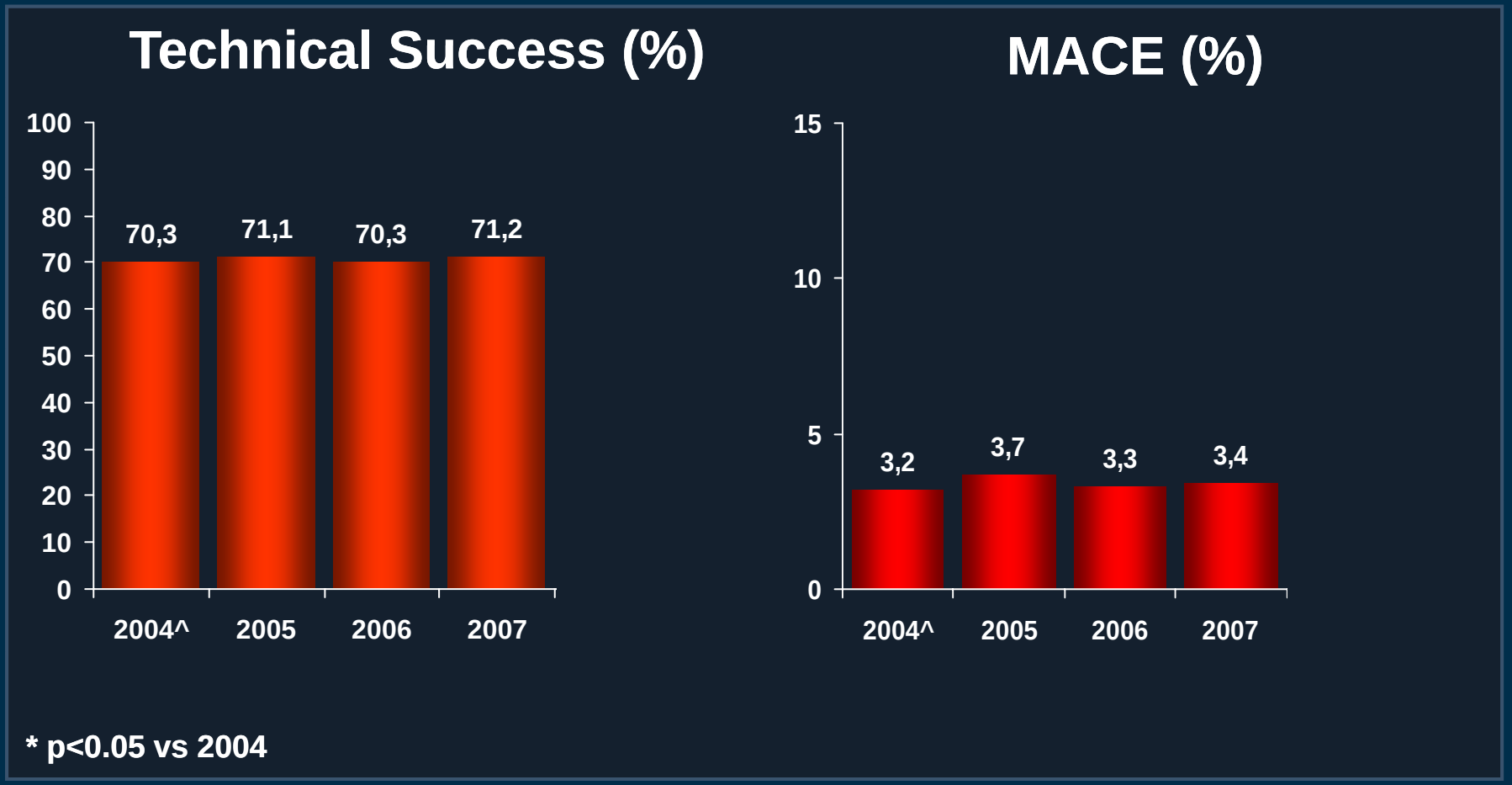
CTO Angioplasty Trends in the United States: Data from the ACC's National Cardiovascular Disease Registry (NCDR)

J. Aaron Grantham, MD, FACC
Associate Professor of Medicine,
University of Missouri Kansas City
Consultant, Mid America Heart Institute,
Kansas City, MO, USA

CTO Angioplasty Trends in the US



CTO Angioplasty Trends in the US



* p<0.05 vs 2004

Grantham, JA et al *JACC: Cardiovascular Interventions.* 2009; 2:479-486

CTO Angioplasty Trends in the US

In 2008 716 hospitals, 6,303 interventionalists, 64, 924 CTOs

Grantham, JA et al *JACC: Cardiovascular Interventions.* 2009; 2:479-486

CTO Angioplasty Trends in the US

- US CTO angioplasty attempt rates are not increasing but success rates are improving.
- Safety (MACE rates) remain acceptably low.
- Disparities in attempt rate based on operator experience suggest that patients don’t have equal access to care.

Hot Topic II: The Retrograde Approach Increases Complications And Adds Little to CTO Angioplasty (in the general interventional community)

G.S. Werner, MD FACC FESC FSCAI

Medizinische Klinik I - Klinikum Darmstadt

Darmstadt

What is our goal in CTO revascularization ?

- We are dealing with patients with stable angina
  - This stage of CAD has a good mid-term prognosis
  - Revascularization aims at relieving symptoms
  - -> All procedures need to be safe

- We should achieve a high success rate in CTOs at a calculated low risk
  - This is best achieved with a perfection of the antegrade approach
  - The antegrade approach bears a lot of potential…

Periprocedural Infarct(lets) after retrograde access

	Antegrade	Septal	Septal dilated	Epicardial
Patients	**137**	**20**	**17**	**5**
CK > 3 x ULN	*3.1*	*7.1*	*12.5*	*20*
TnI > 0.15 ng/ml	**48**	**79**	**100 *)**	**100 *)**
TnI > 1.0 ng/ml	**14**	**21**	**69 *)**	**80 *)**

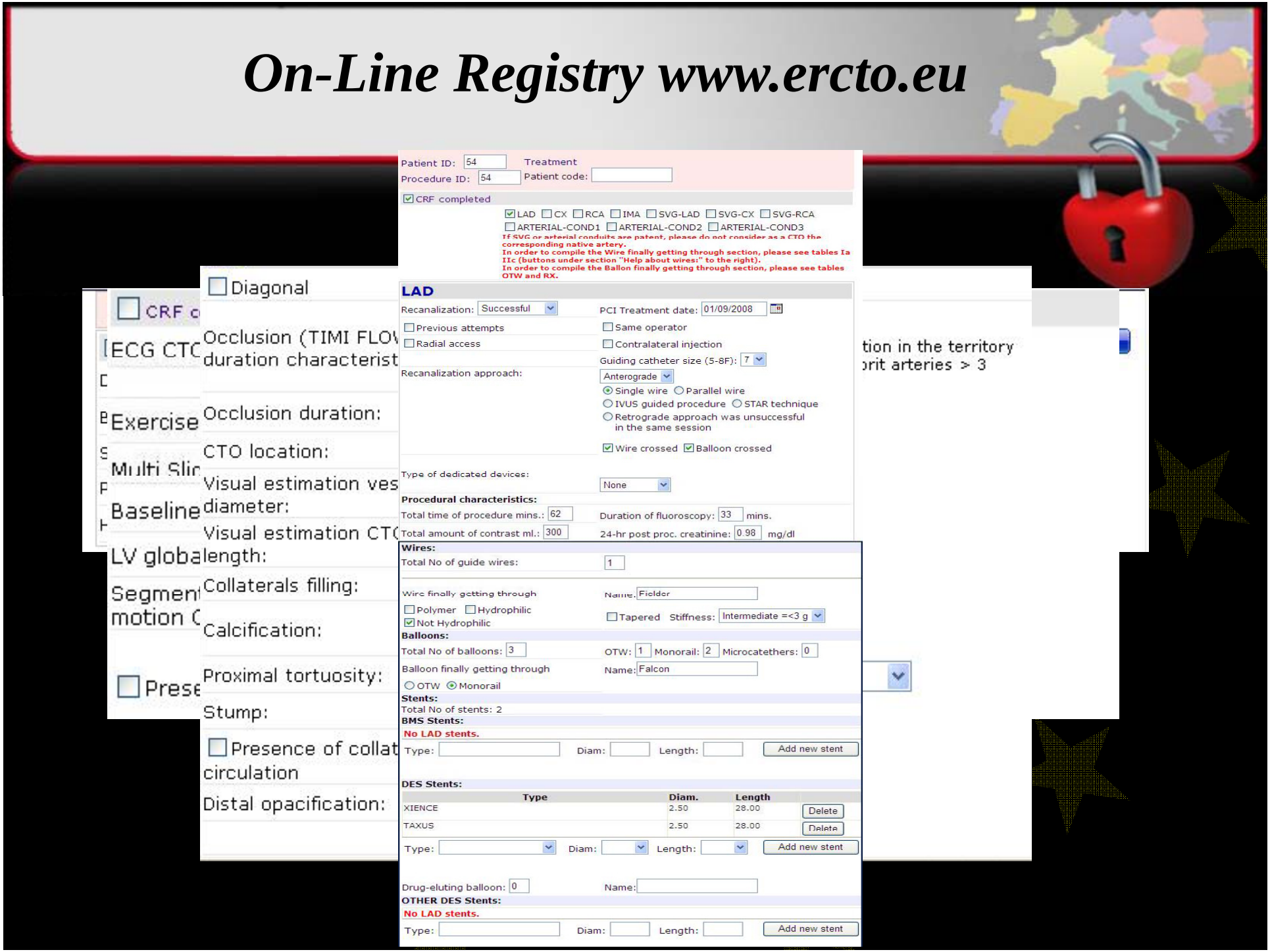
Percent of procedures

*) p<0.01

Most CTO PCI Should be Performed by Dedicated Interventionalists
Top Ten Reasons

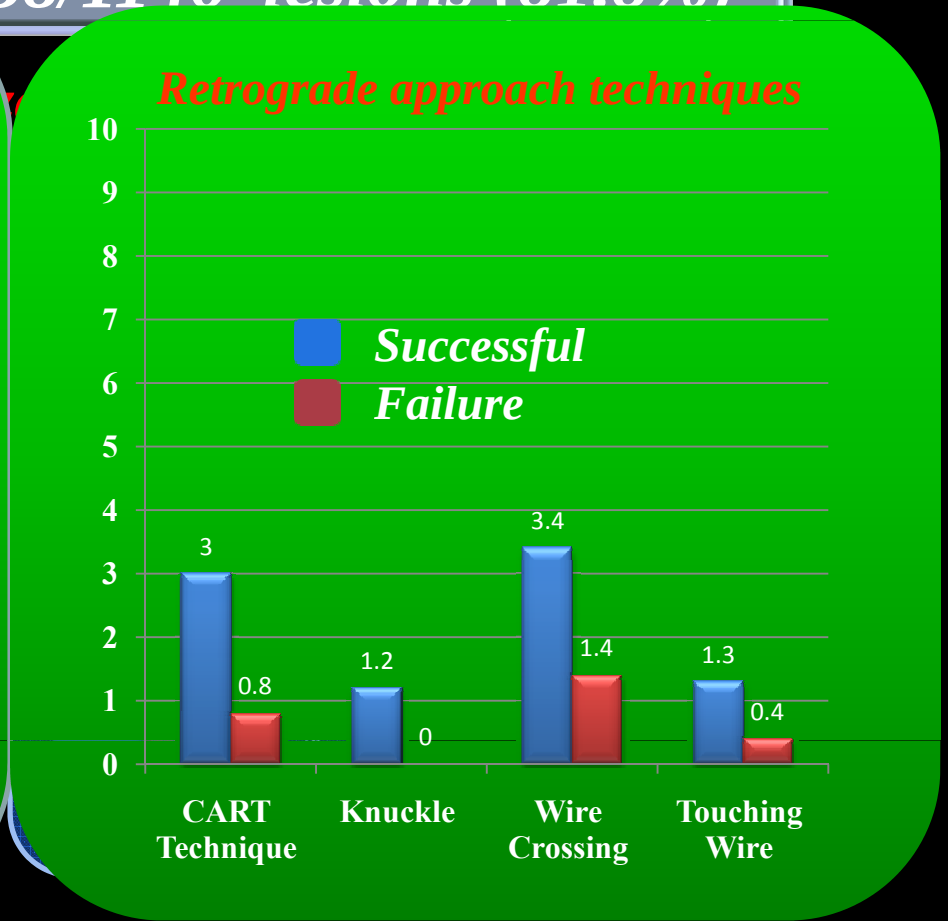
6. Many of the techniques and strategies are different and not a natural extension of non-CTO PCI. This differs from other complex lesions

On-Line Registry www.ercto.eu



CTO Treatment: Recanalization Approach

Procedural success: 938/1146 lesions (81.8%)



EuroCTO Club 1st Congress: CONSENSUS on Indications

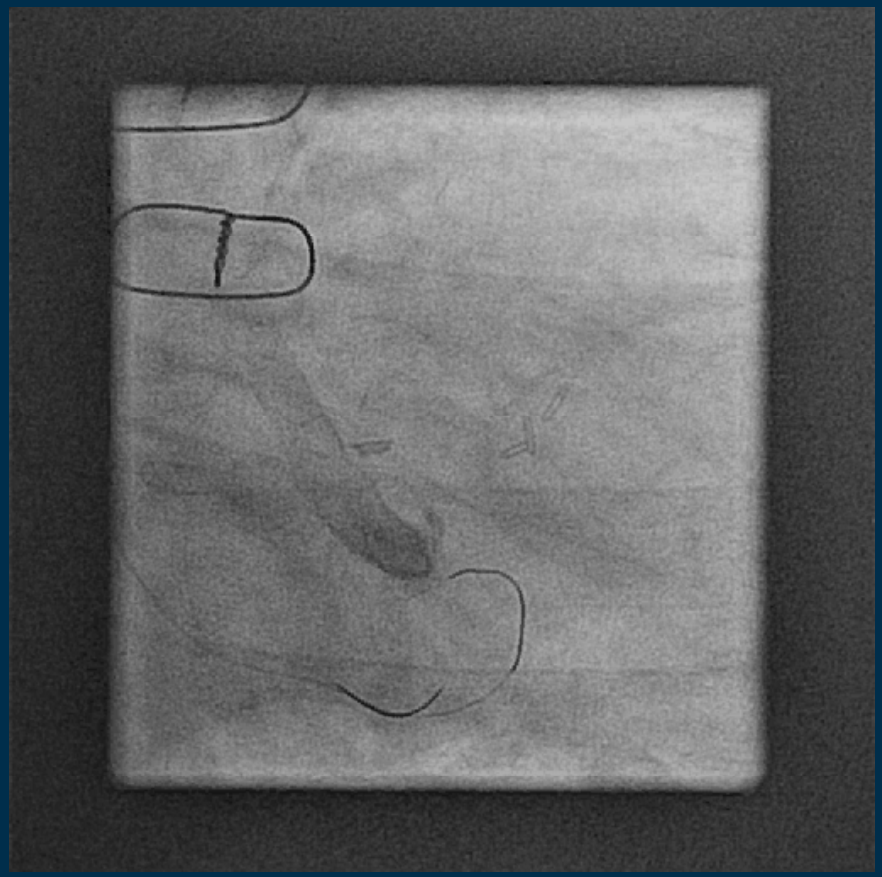
- PCI of CTO in Europe should be encouraged (too often pts left on medical therapy or sent to CABG): train new operators, change mentality;
- Most complex cases require specialised centres and operators,
- Promote a trial of PCI vs medical therapy with hard end-points, avoiding the superselection of low risk pts of COURAGE & OAT

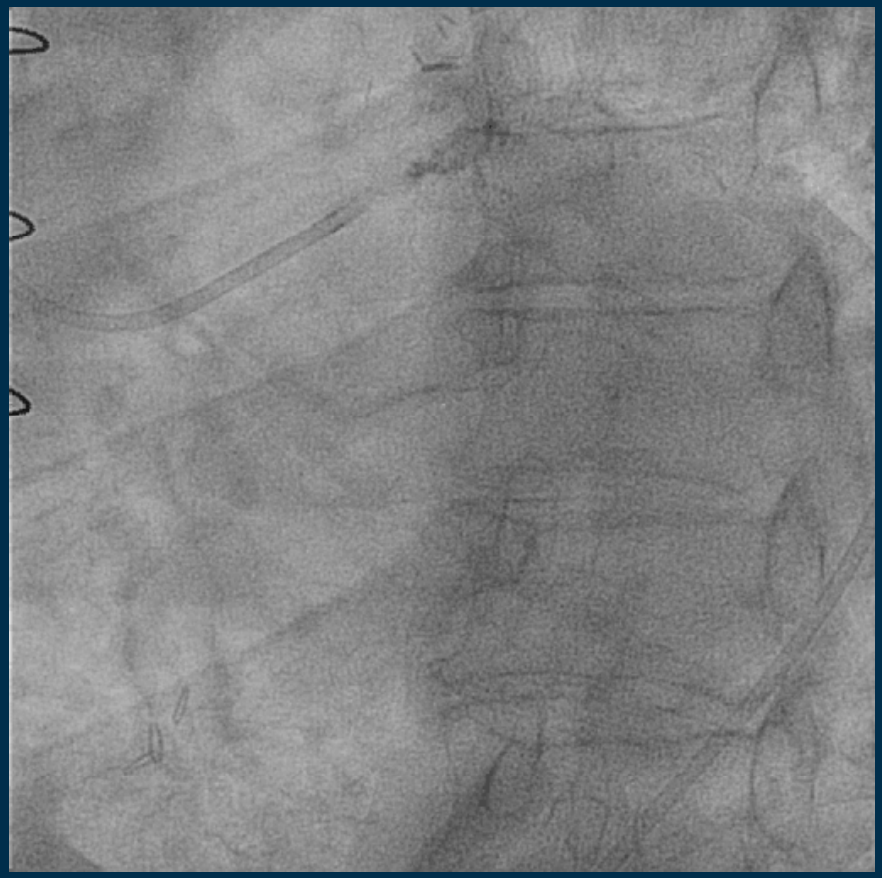
EuroCTO Club 1st Congress: CONSENSUS on Technique: Anterograde

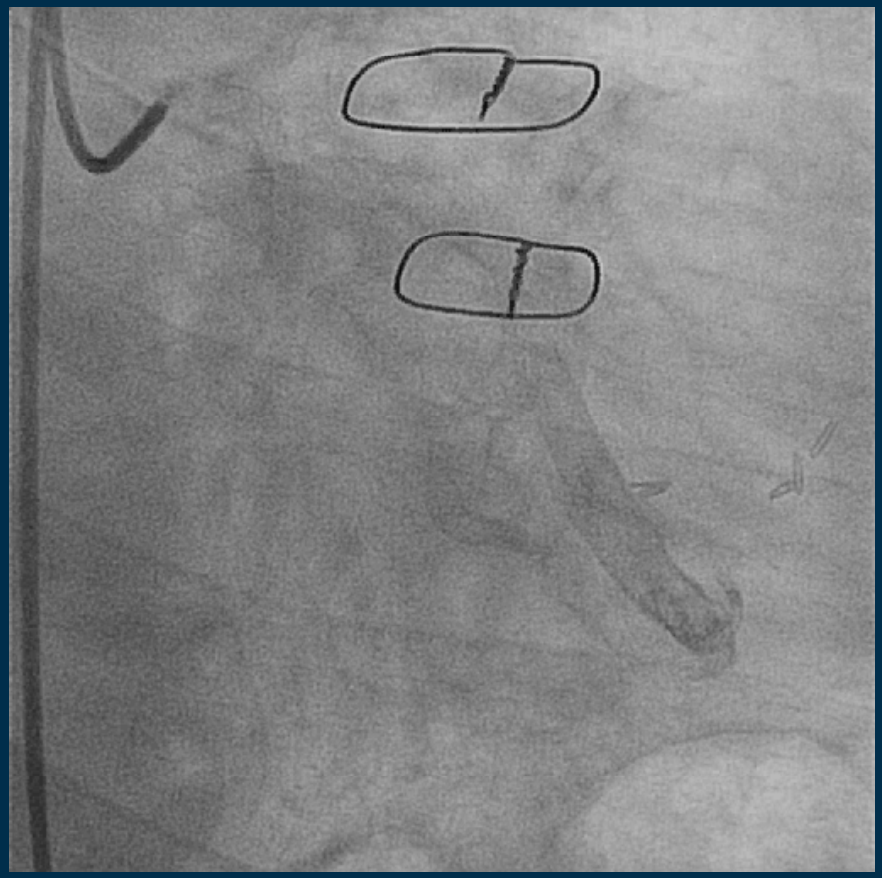
- Importance Dual Injection never overemphasised;
- Split opinion on catheter size (keen 6 Fr radialists),
- Rediscovery of the “soft touch” approach with polymer coated wires (patient handling of the tapered Fielder XT supported by microcatheters) to engage microchannels
- Switch to steerable stiff wires (Miracle, Confianza) avoiding long subintimal tracks

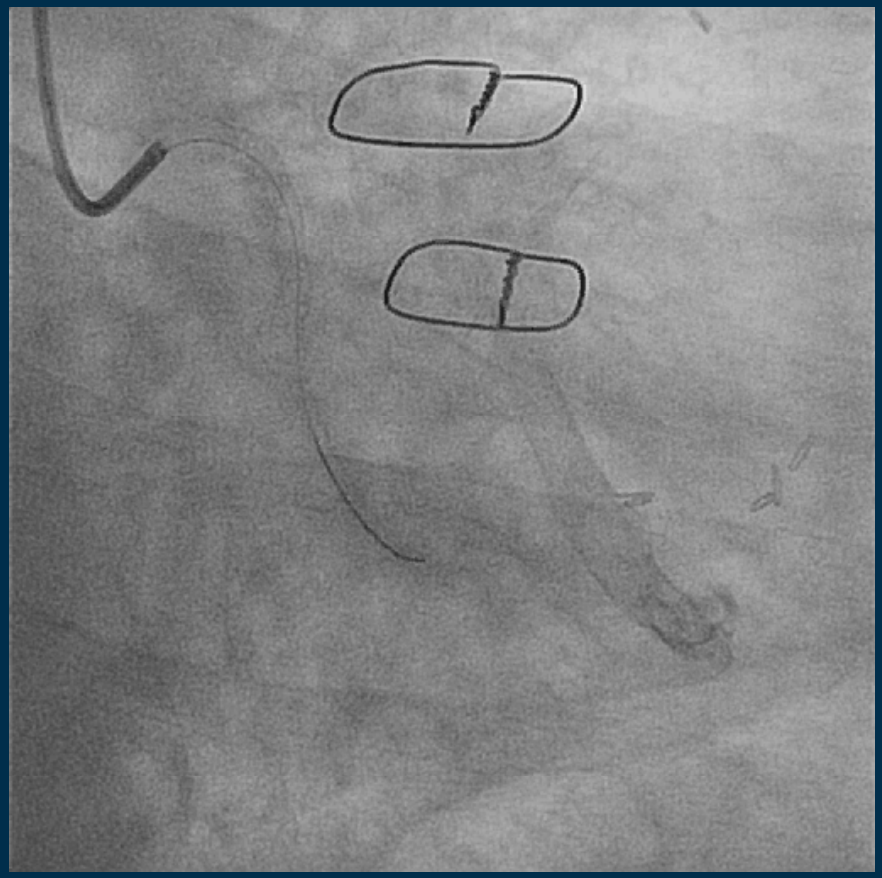
EuroCTO Club 1st Congress: CONSENSUS on Technique: Retrograde

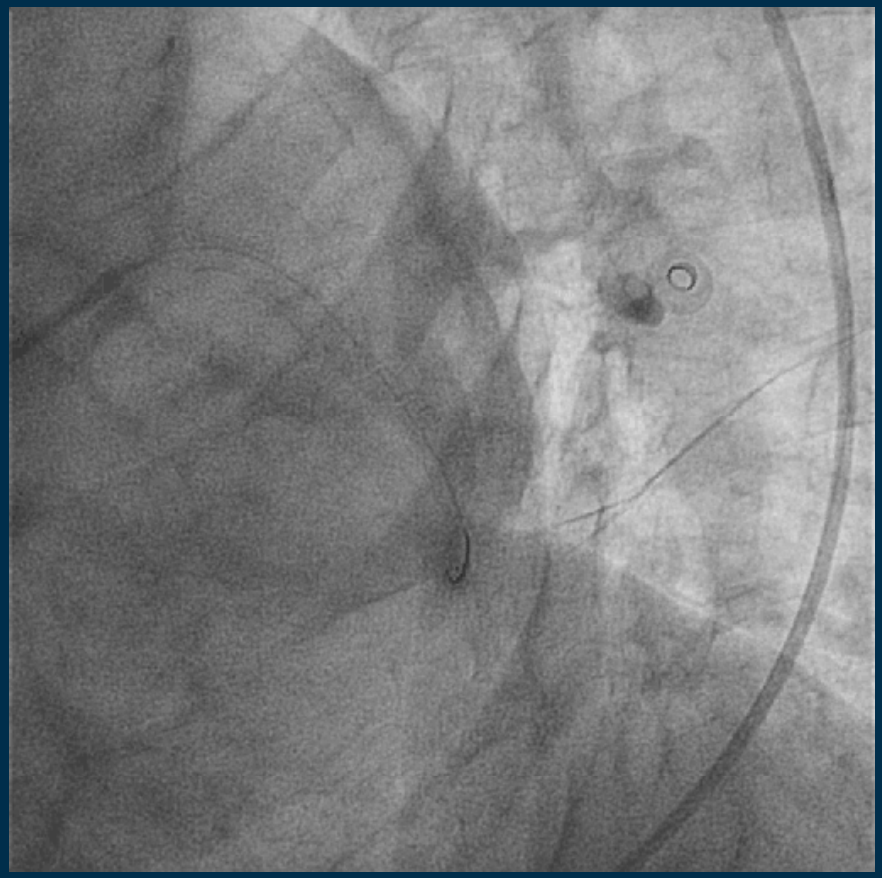
- Last resource rather than first approach (old foxes v young lions) with some exceptions;
- Posterior epicardial channels and tortuous septals feasible with new wires (Fielder FC/XT) and microcatheters (Finecross 150, Corsaire)
- Reverse CART with retrograde crossing, and advancement retrograde catheter (Corsaire) allows wire externalisation (dedicated wires, 300 Fielder)







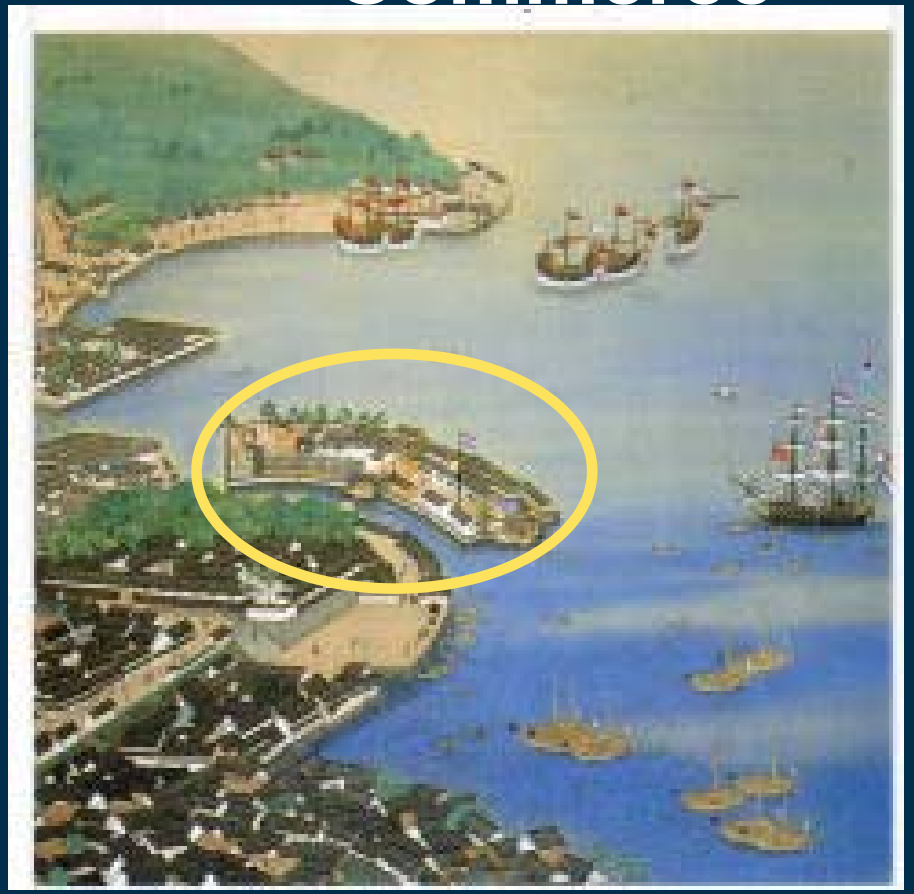





Reifart, President - Galassi, Congress Organiser Werner,
Secretary
Reifart, President
Galassi, Congress Organiser
Werner, Secretary
A. R. GALASSI

From Early 17th to Late 19th Century Japan Closed the Country to Foreign Commerce

During this period of national isolation, international trade was allowed only in a small island called “Dejima” (“exit” island) to China and Holland.



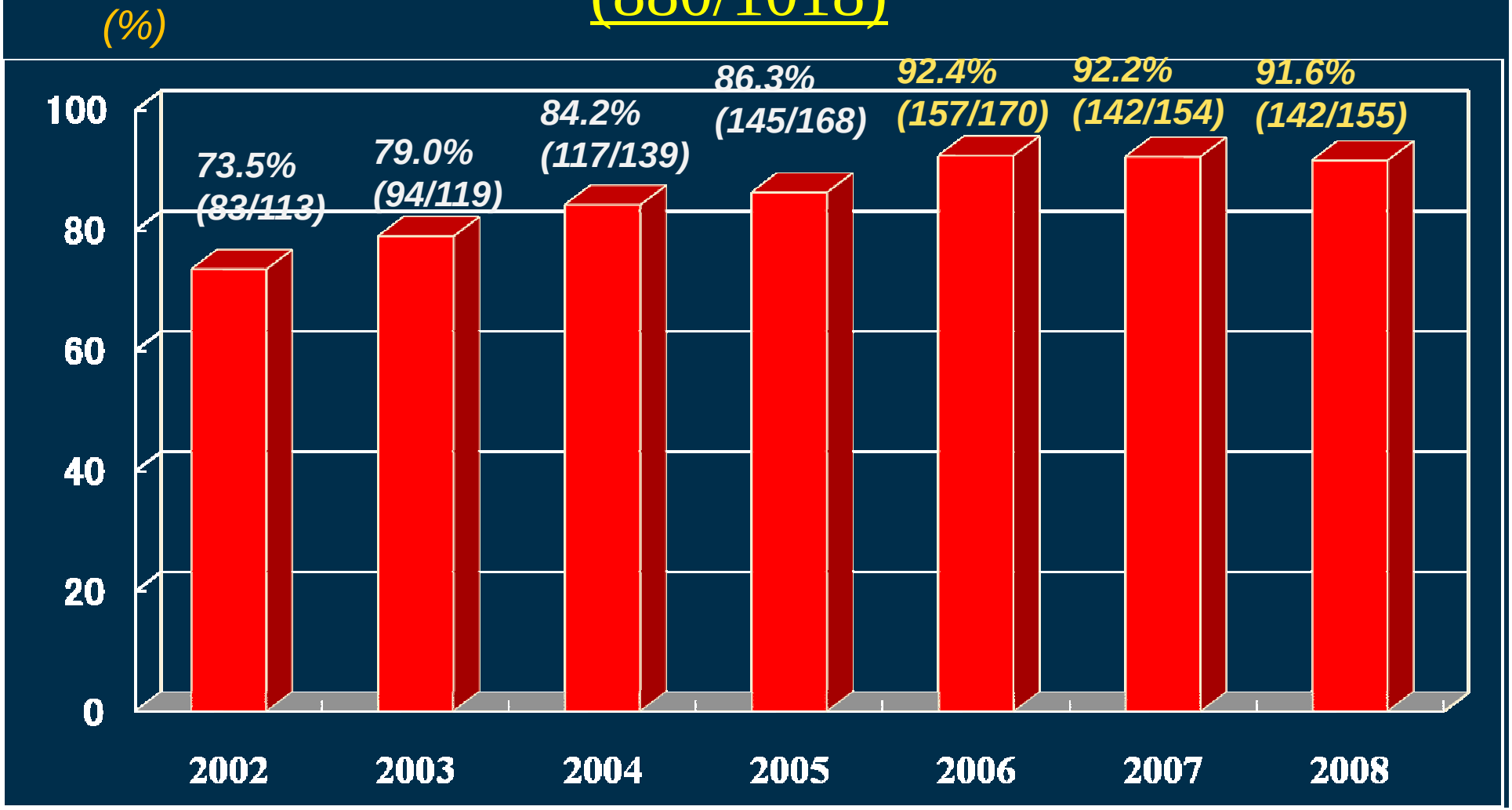
Complications

	N=498
Cardiac tamponade	0.4% (2)
Emergent PCI	0.4% (2)
Emergent CABG	0% (0)
Blood transfusion	1.6% (8)
Access site surgery	0.4% (2)
GI bleeding	0.2% (1)
Contrast induced nephropathy	1.2% (6)
Radiation dermatitis	0% (0)

J. Am. Coll. Cardiol. Intv, in press

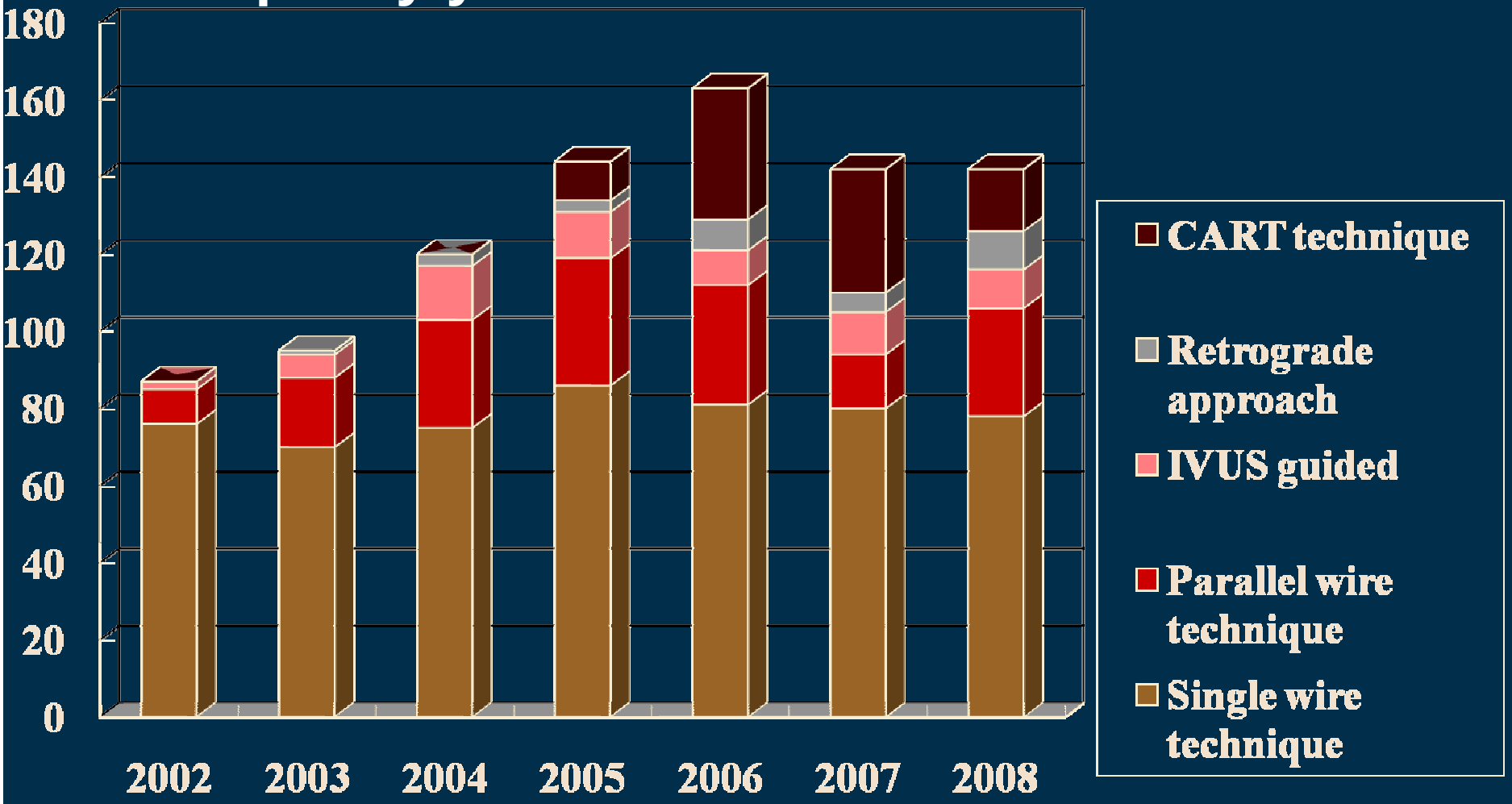
Toyohashi Experience

Initial Success Rate: 86.4% (880/1018)



Toyohashi Experience

Successful guide wire technique by year



Most CTO PCI Should be Performed by Dedicated Interventionalists
Top Ten Reasons

7. Has a narrow therapeutic window. Complications more serious and frequent than non-CTO PCI and benefits are often minimal

General Patient Informations & Clinical Presentation

Risk Factors	
Male, n (%)	947 (86.6)
Age (years) (mean ± SD)	63.8 ± 11.3
History of CAD, n (%)	370 (32.8)
Dislipidemia, n (%)	813 (72)
Diabetes, n (%)	315 (27.9)
Smoke, n (%)	511 (45.3)
Peripheral Disease, n (%)	121 (10.7)
COPD, n (%)	66 (33.7)
Chronic Renal Failure, n (%)	100 (51)
Prior Stroke, n (%)	30 (15.3)
Previous MI, n (%)	439 (40,1)
Previous CABG, n (%)	165 (15,1)
Previous PCI, n (%)	624 (57.1)

1094 PTS n(%)

1129 N° of Cath-Lab access

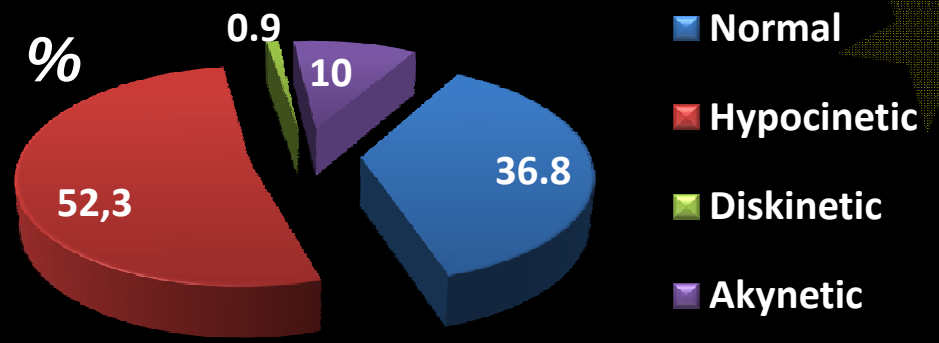
1146 CTO treated

- ACUTE MI (2,5 %)
- UNSTAB .ANG. (12,6 %)
- STABLE ANG. (70 %)
- ASINT. (14,9 %)

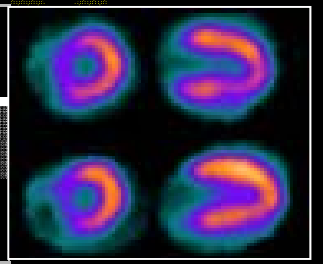
ECG CTO-Related Lesion	n (%)
Normal	890 (81,3)
Q-Waves	204 (18,6)

Clinical Features

LV global EF	n (%)
< 35%	90 (8)
35% ≤ and ≥ 50%	318 (28.2)
≥ 50%	721 (63.9)

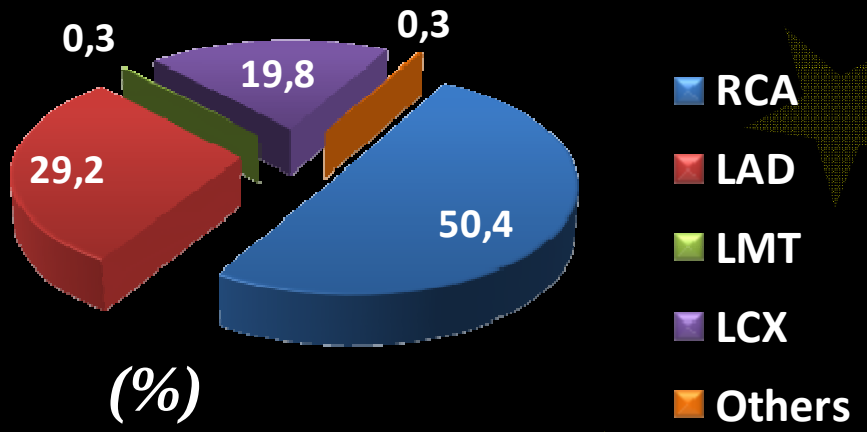


Viable myocardium n (%)	
Akynetic	77 (68,1)
Diskinetic	7 (70)



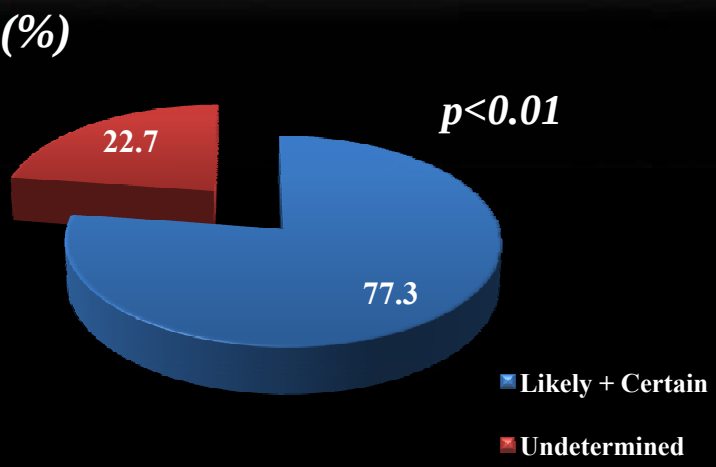
Angiographic Characteristics

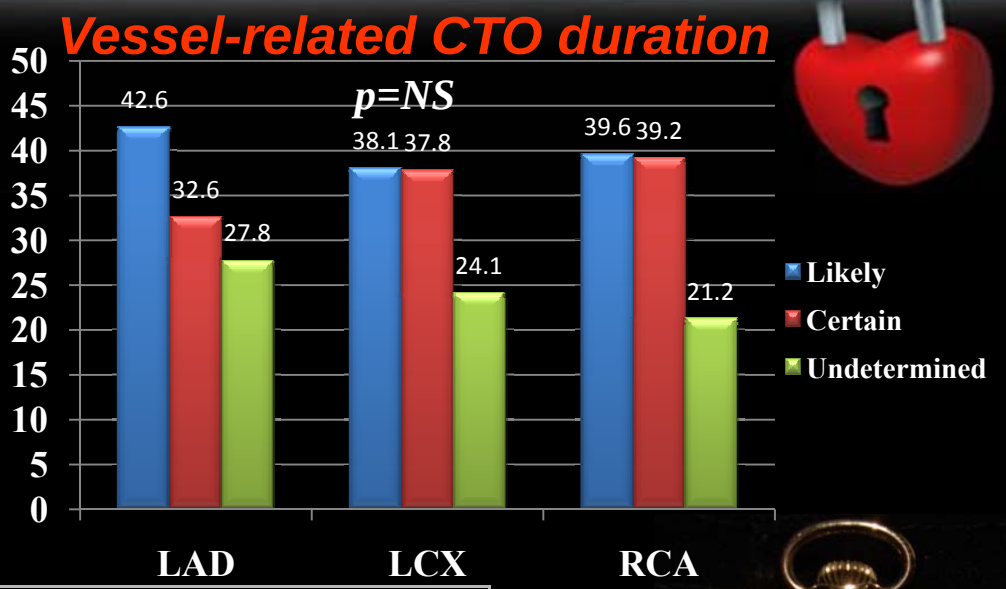
CTO DISTRIBUTION



(%)

Occlusion Duration



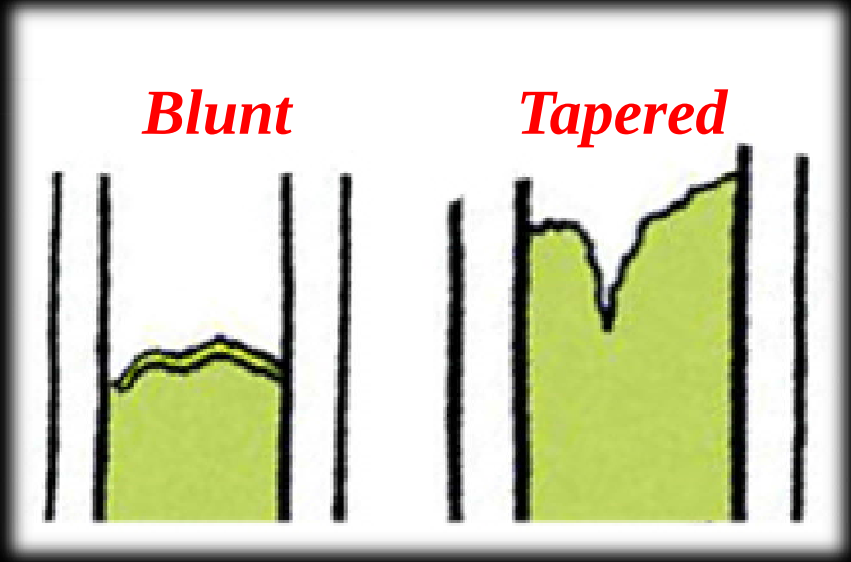


Occlusion Duration Months (Mean ± SD)

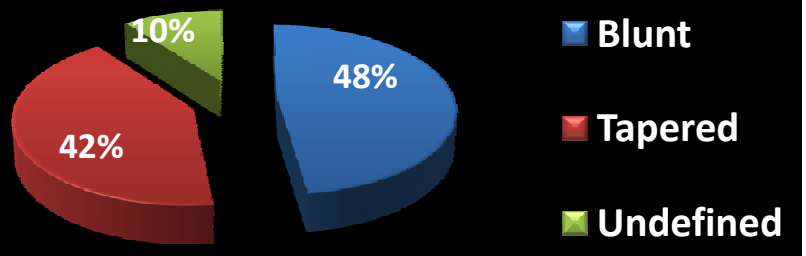
	Likely	Certain
LMT	3 ± 0	30,8 ± 35,9
LAD	17,7 ± 30,7	33,5 ± 55,4
LCX	19,1 ± 27,5	39 ± 47,9
RCA	24,2 ± 40,4	40,9 ± 52,6

	MEAN	ST-DEV	MEDIAN
OVERALL (Certain + Likely) months	29,6	45,3	12

Occlusion Characteristics



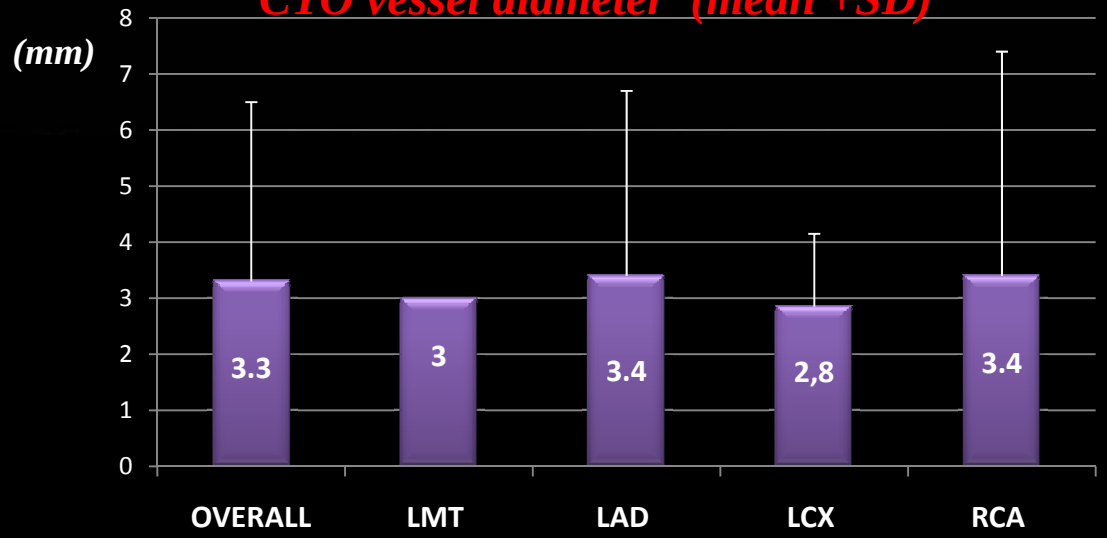
All CTO lesions



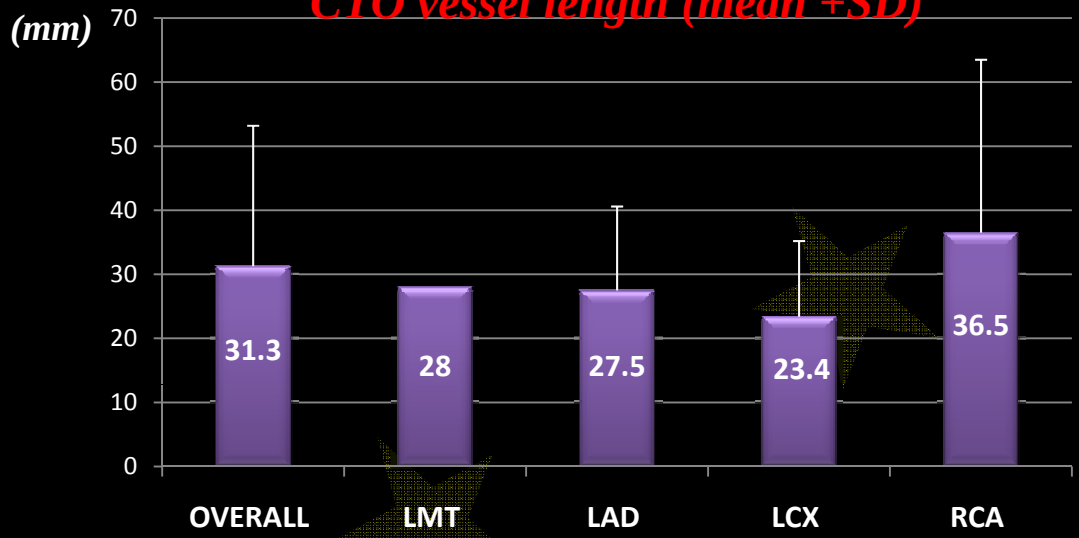
STUMP	Blunt	Tapered	Cannot be Identified
LMT n(%)	3 (75)	1 (25)	0
LAD n(%)	164 (48)	135 (39,6)	42 (12,3)
LCX n(%)	100 (45,5)	98 (44,5)	22 (10)
RCA n(%)	280 (48,5)	243 (42,1)	54 (9,35)

Occlusion Characteristics

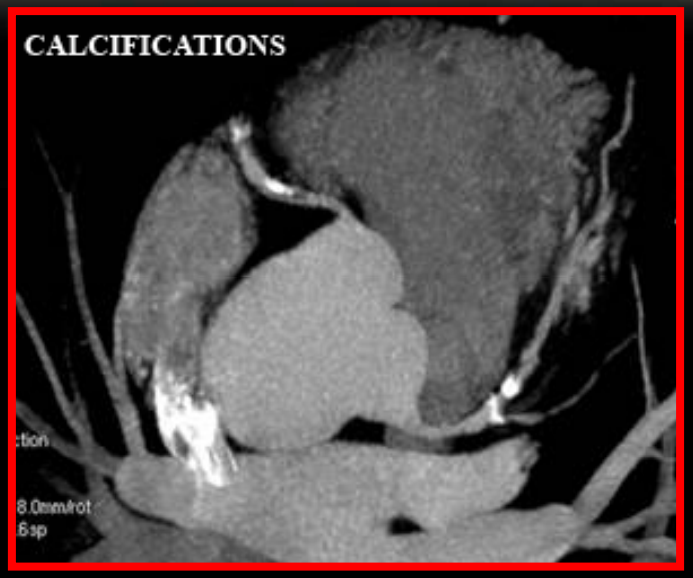
CTO vessel diameter (mean +SD)



CTO vessel length (mean +SD)



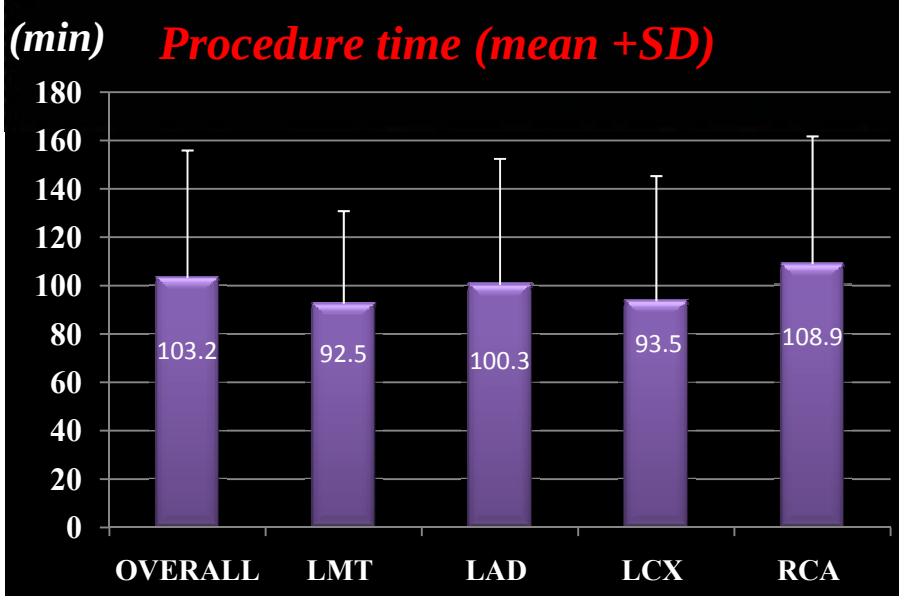
Occlusion Characteristics

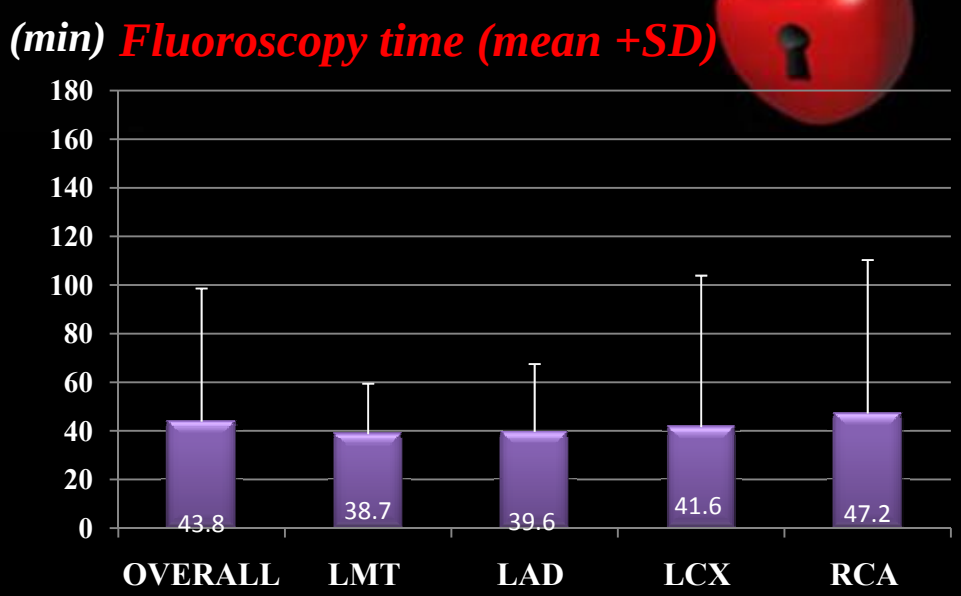


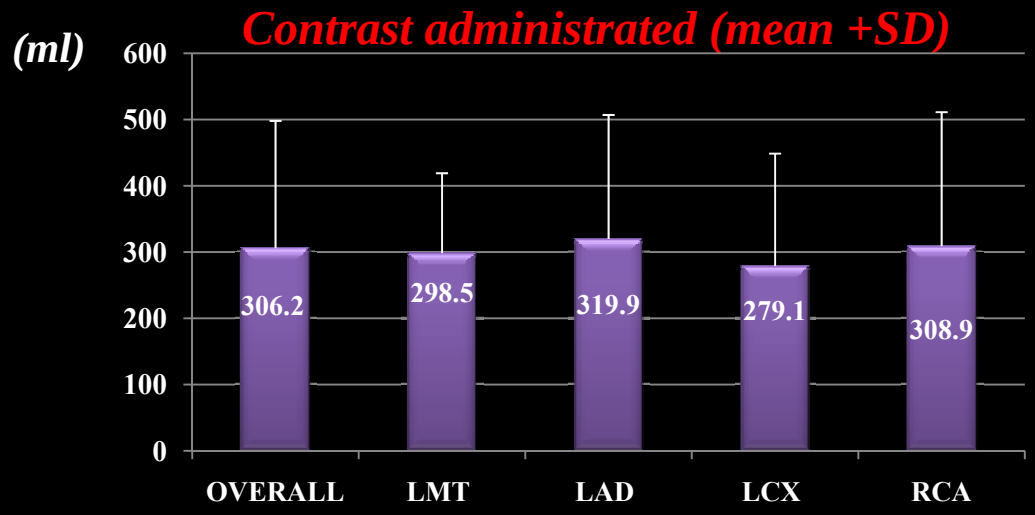
CALCIFICATIONS n (%)

	Mild	Moderate	Severe
OVERALL	**418 (36,5)**	**431 (37,6)**	**142 (12,4)**
LMT	2 (50)	0	1 (25)
LAD	129 (37,8)	139 (40,8)	37 (10,8)
LCX	98 (44,5)	62 (28.2)	18 (8,2)
RCA	189 (32,7)	228 (39,5)	86 (14,9)

Treatment:
Other procedural data







In Hospital Complications

MACE (Major Adverse Cardiac Events)	
MI (Q-Wave, Non Q-Wavw) n (%)	21 (1.4)
Cardiac Death n (%)	6 (0.4)
Emergency CABG n (%)	3 (0.2)
Emergency re-PCI n (%)	2 (0.1)

OTHER COMPLICATIONS	
Stent Trombosis n (%)	-
Stroke n (%)	1 (0,1)
Contrast Induced nephropathy) n (%)	17 (1.2)
Coronary Perforation n (%)	37 (2.5)
Cardiac Tamponade n (%)	11 (0.8)
Vascular Complications n (%)	12 (0.8)

BLEEDING	
Major Bleeding n (%)	-
Hb Reduction of > 5g/dL n (%)	1 (0.1)
All other Bleeding not included as major n (%)	4 (0.3)

EURO CTO CLUB

Euro Cto Club Annual Meeting

ECC 2009

› Dates October 2 fri - 3 sat 2009

› Venue Taormina, Sicily, Italy

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EURO CTO CLUB

The Experts "Live"

Workshop 2010

October 15-16, 2010
Thessaloniki, Greece
Hyatt Regency, Hotel

Course Director

Georgios Sianos
Director of Euro CTO club
AHEPA University Hospital
Thessaloniki, Greece

Co-Directors

Nicolaus Reifart
President of Euro CTO club
Main Taunus Klinik
Bad Soden, Germany

Gerald S. Werner
Vice-President of Euro CTO club
Medizinische Klinik
Klinikum Darmstadt
Darmstadt, Germany

Alfredo R. Galassi
Board of Euro CTO club
Ferrarotto Hospital
University of Catania
Catania, Italy

Hans Bonnier
Treasurer of Euro CTO club
University Hospital Brussel
Brussel, Belgium

Preliminary Programme

Endorsed by:

EAPCI

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