



FFR in Bifurcation Treatment



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Background

PTCA

- $\approx 20\%$ of all
- Challenging

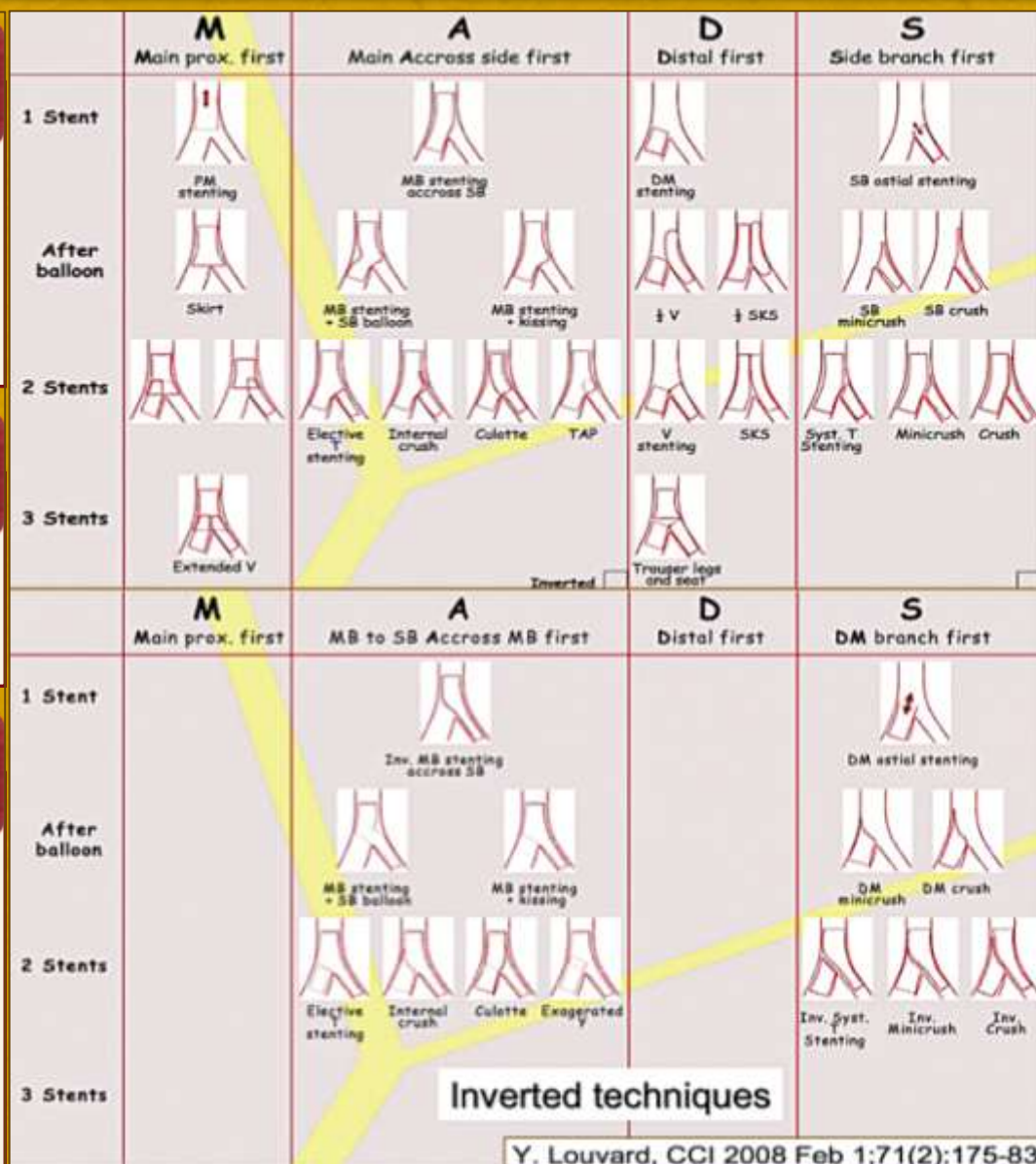
Treatment

- Debatable

EBC

- 2004
- Terminology
- Treatment

EBC – Coronary Bifurcations



Background

MB FFR

- Guide-lines

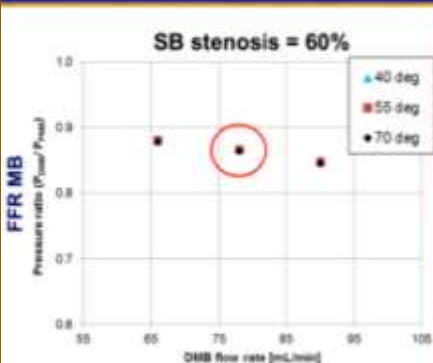
SB FFR

- Generally

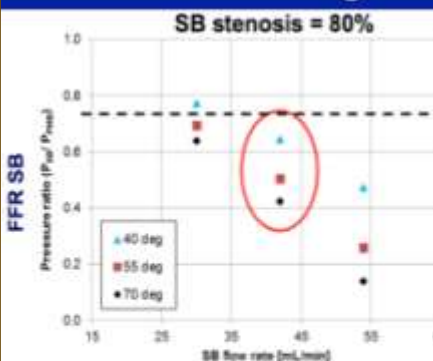
LAD/D1 Medina 0.0.1

EBC – Consensus in FFR

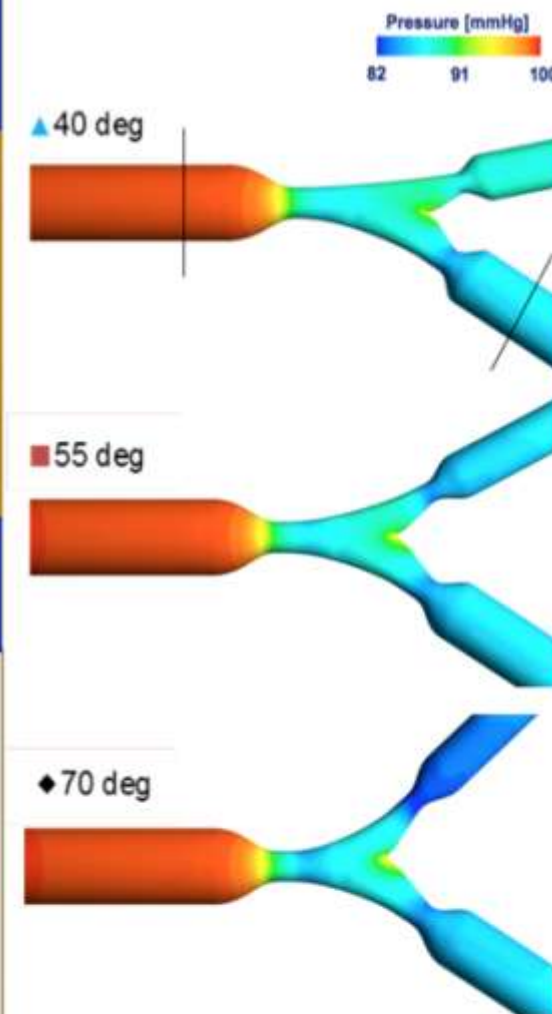
FFR MB influence of SB stenosis & angle



FFR MB influence of SB stenosis & angle



- ▲ 80% - 40°
- 80% - 55°
- ◆ 80% - 70°



$\Delta P_{SB} = 0.010 Q_{SB}^2 + 0.45 Q_{SB}$
 $\Delta P_{SB} = 0.015 Q_{SB}^2 + 0.56 Q_{SB}$
 $\Delta P_{SB} = 0.017 Q_{SB}^2 + 0.69 Q_{SB}$

Background

EBC – Consensus in FFR

MB FFR

- Guide-lines

SB FFR

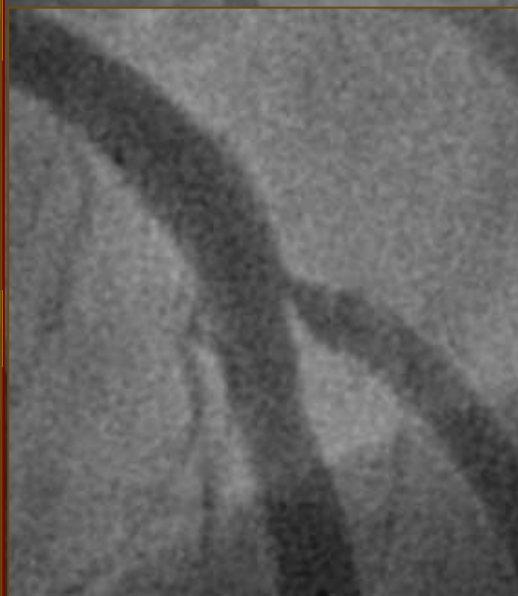
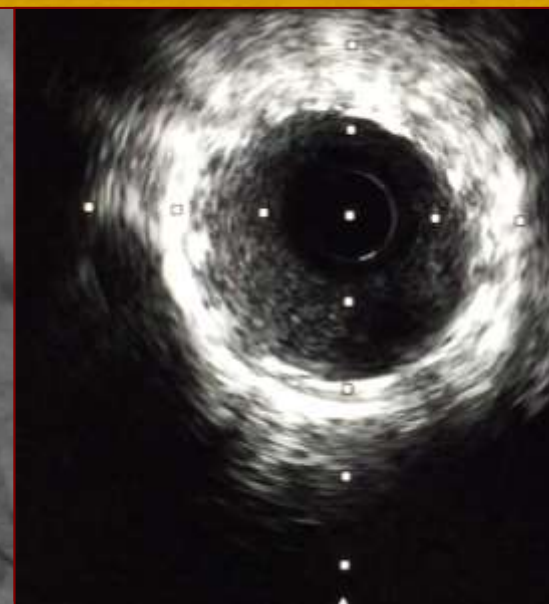
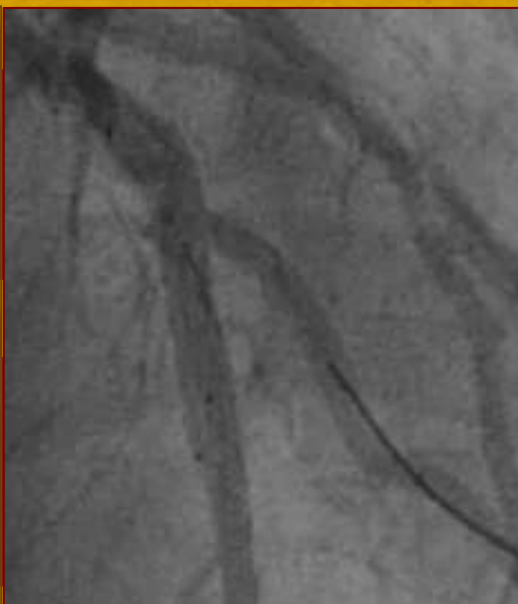
- Generally

SB FFR

- Routine

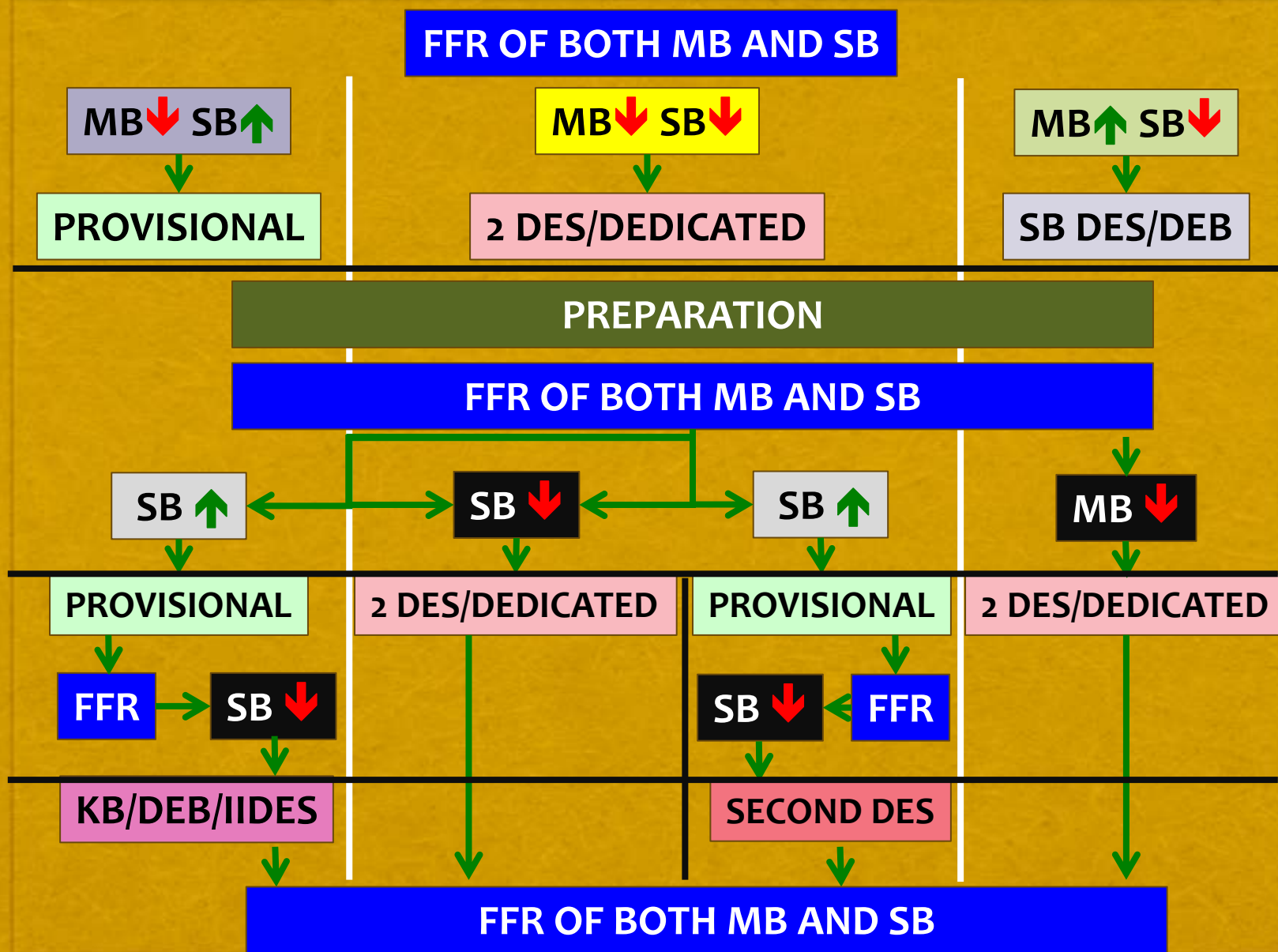
SB FFR

- After



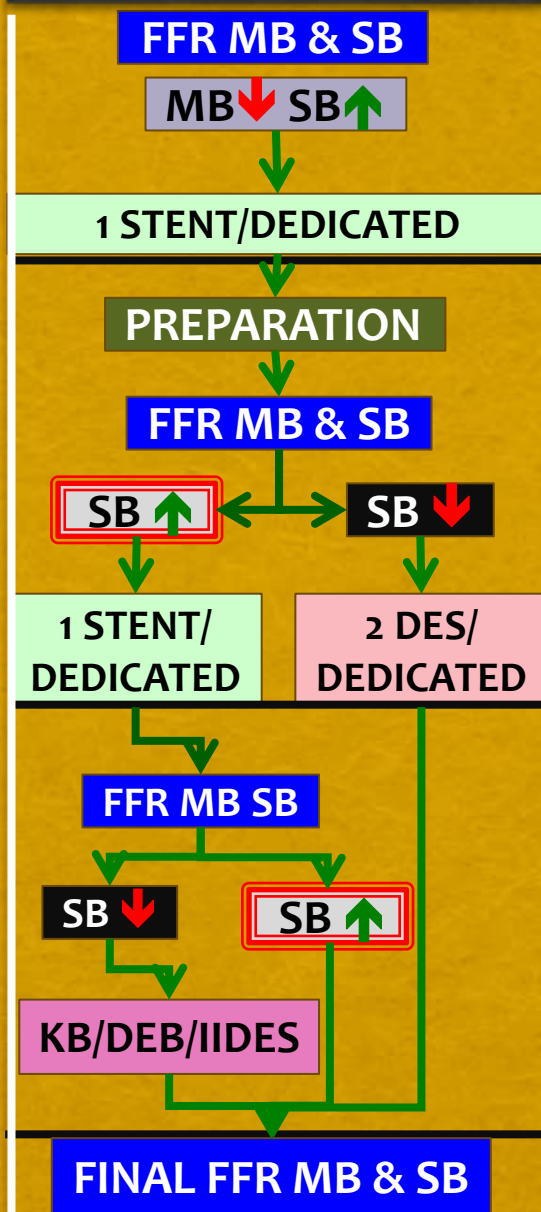
Protocol

FFR basal, preparation, final

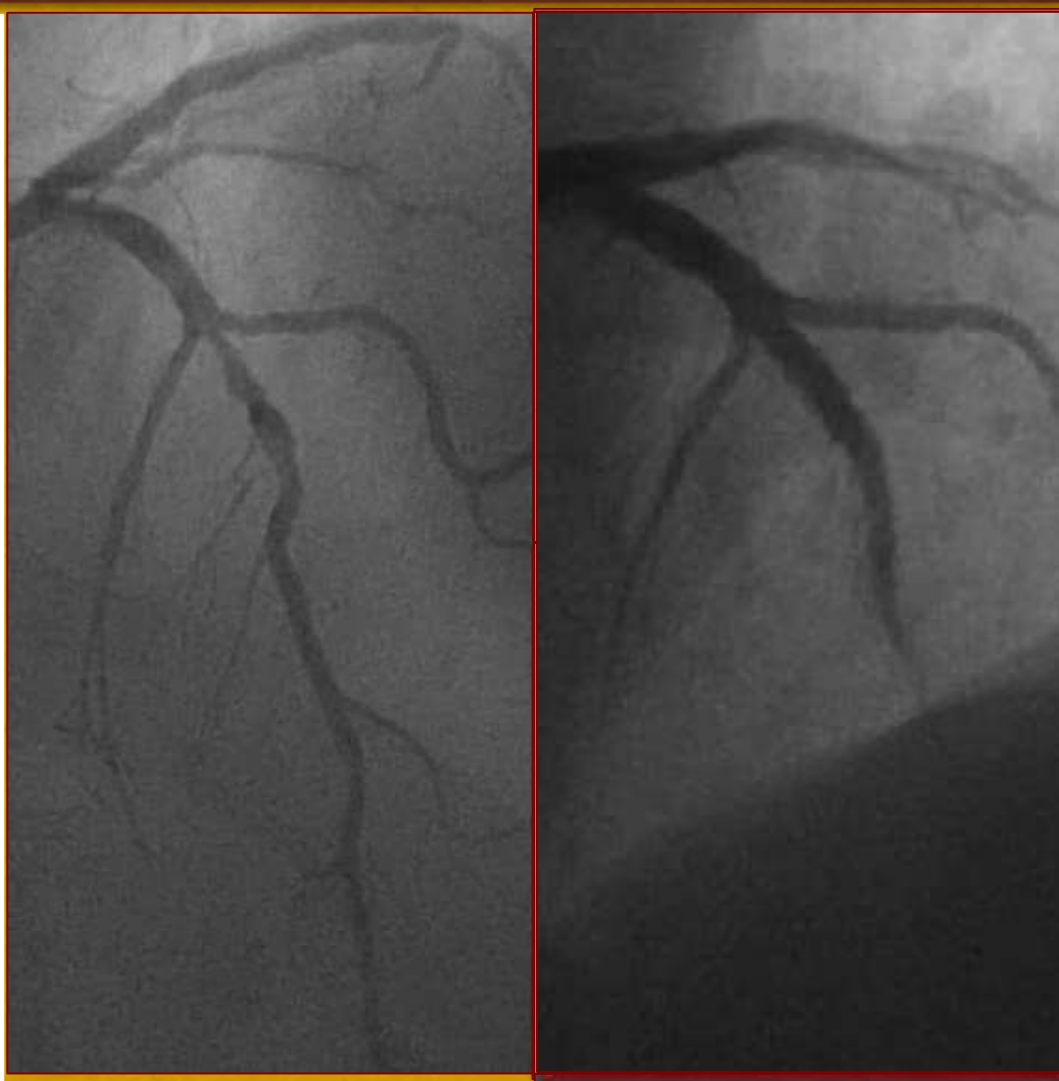




Protocol FFR

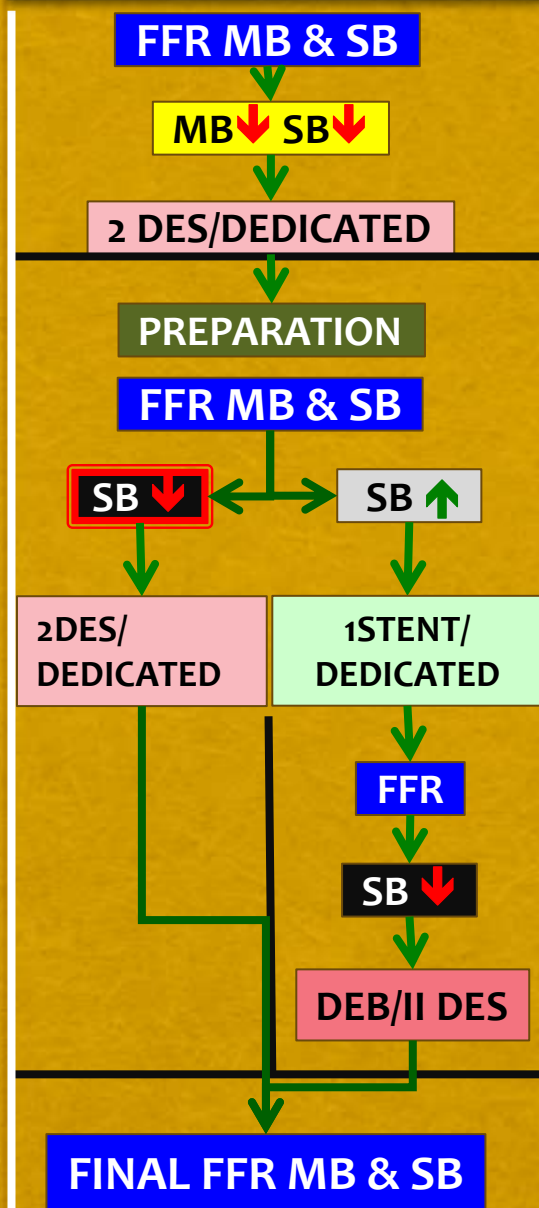


Bifurcation FFR – Protocol

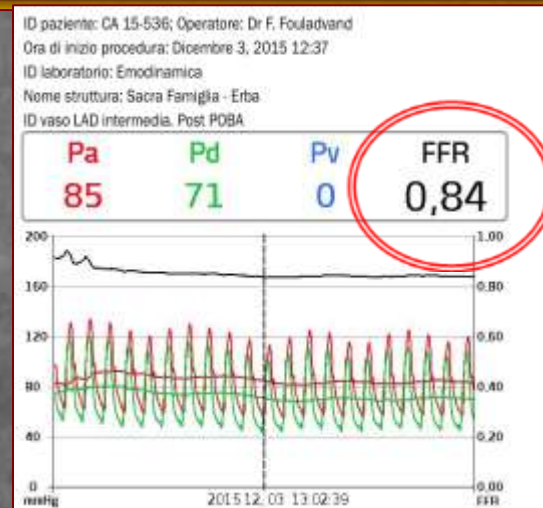
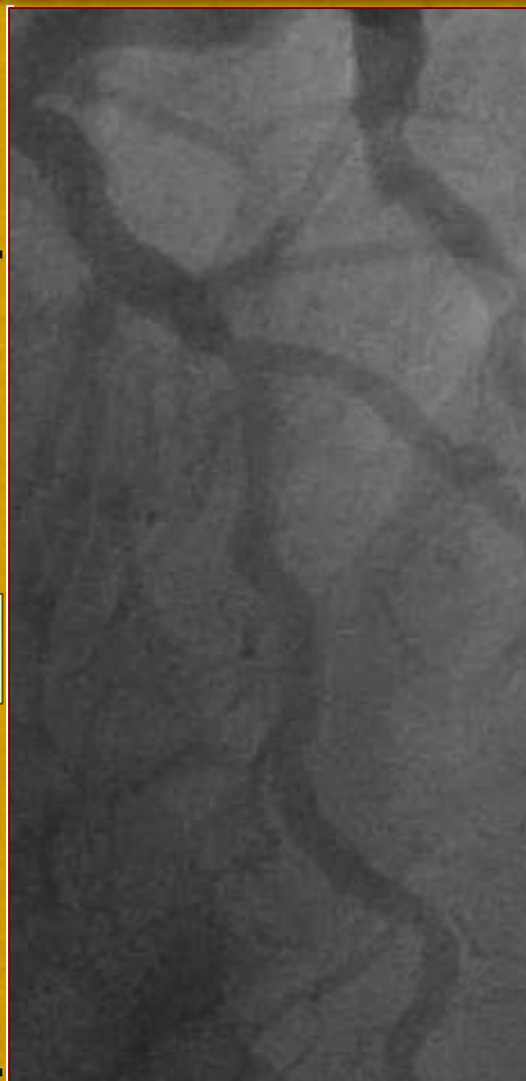




Protocol FFR

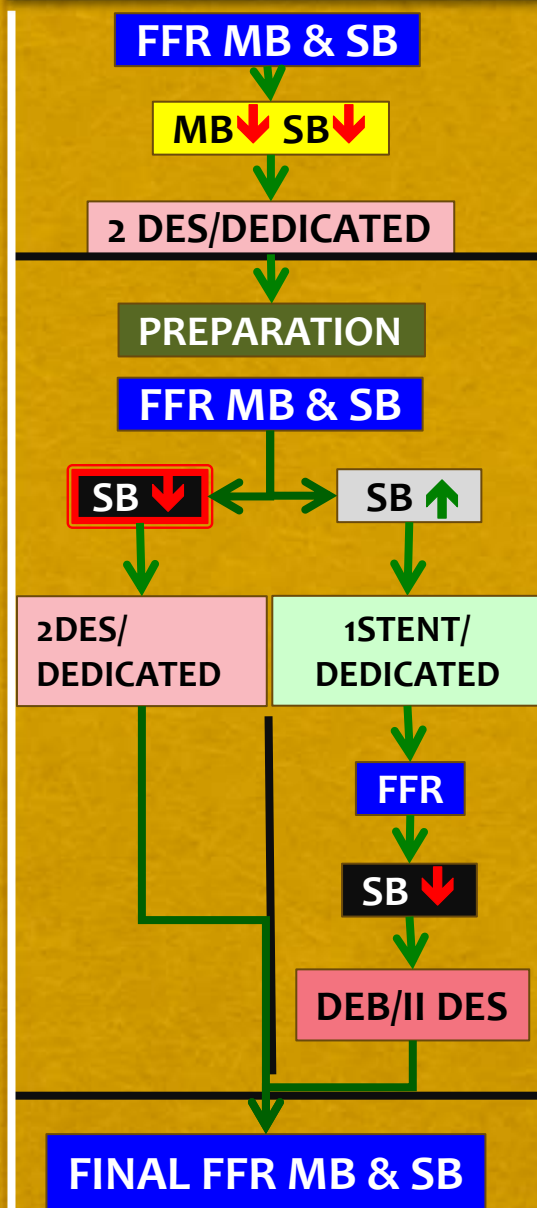


Bifurcation FFR Protocol - case

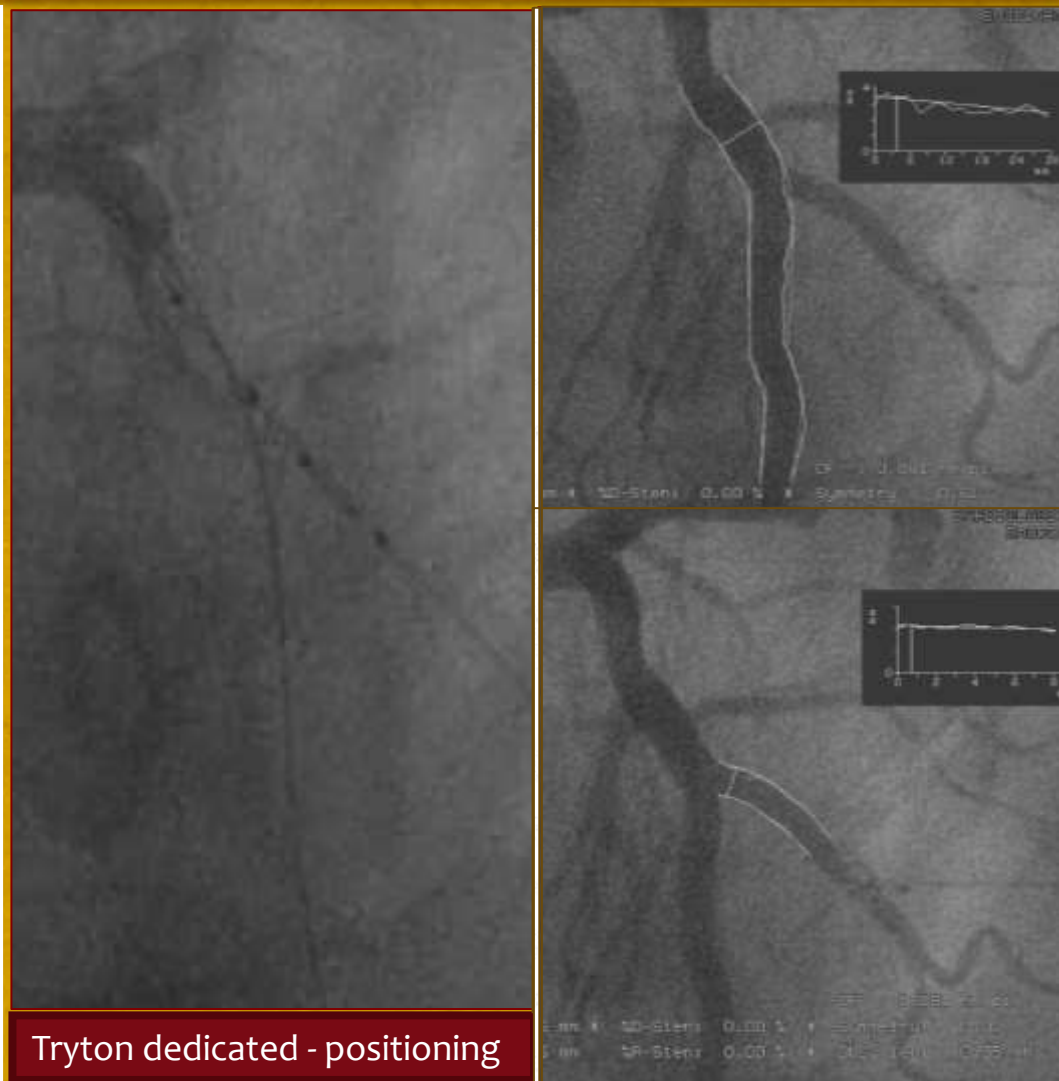




Protocol FFR

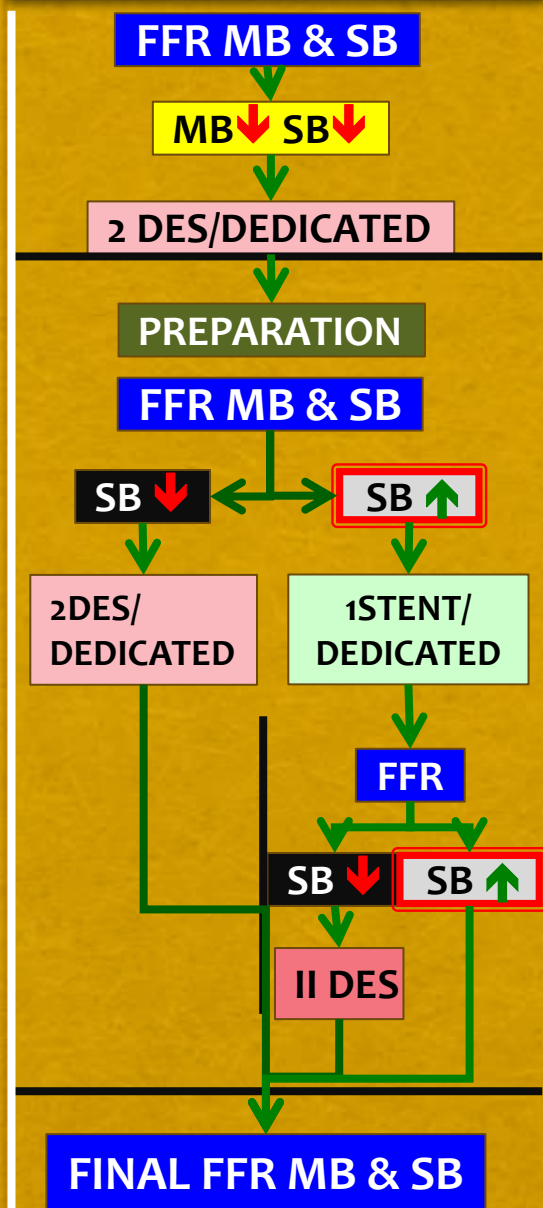


Bifurcation FFR Protocol - case





Protocol FFR



Bifurcation FFR Protocol - case



Final LM Bioss Result



Final LM Bioss Result

Protocol FFR

Bifurcation FFR Protocol - case

FFR MB & SB

MB ↑ SB ↓

SB DES/DEB

PREPARATION

FFR MB & SB

MB ↓

2 DES/DEDICATED

FINAL FFR MB & SB



ID paziente: 15/177 FR

Ora di inizio procedura: Aprile 17, 2015 9:46

ID laboratorio: Emodinamica Operator: Dr Fouladvand

Nome struttura: Sacra Famiglia-Erba

ID vaso: LAD Basal



ID paziente: 15/177 FR

Ora di inizio procedura: Aprile 17, 2015 9:46

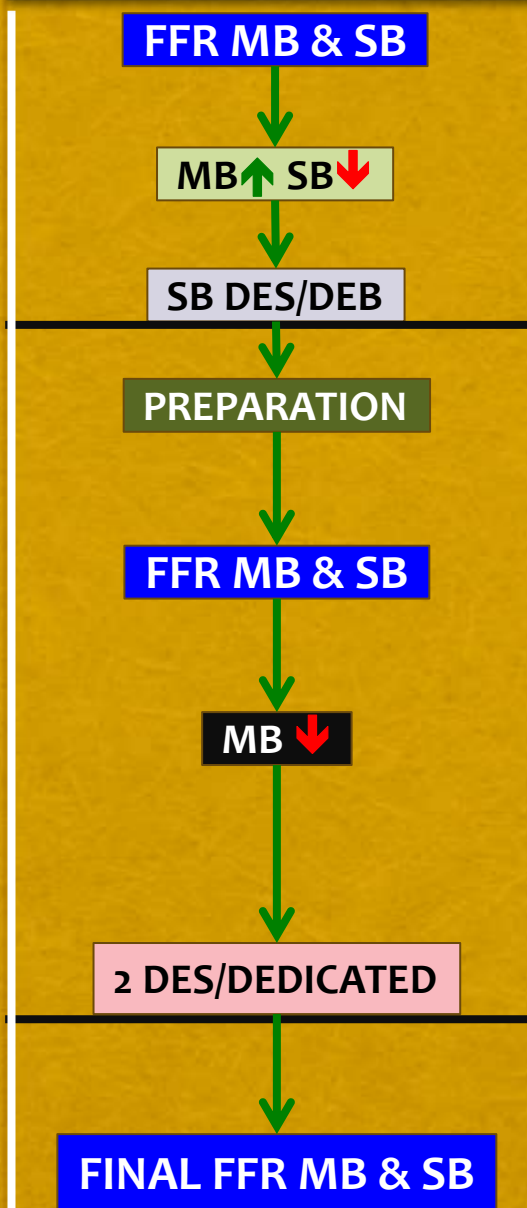
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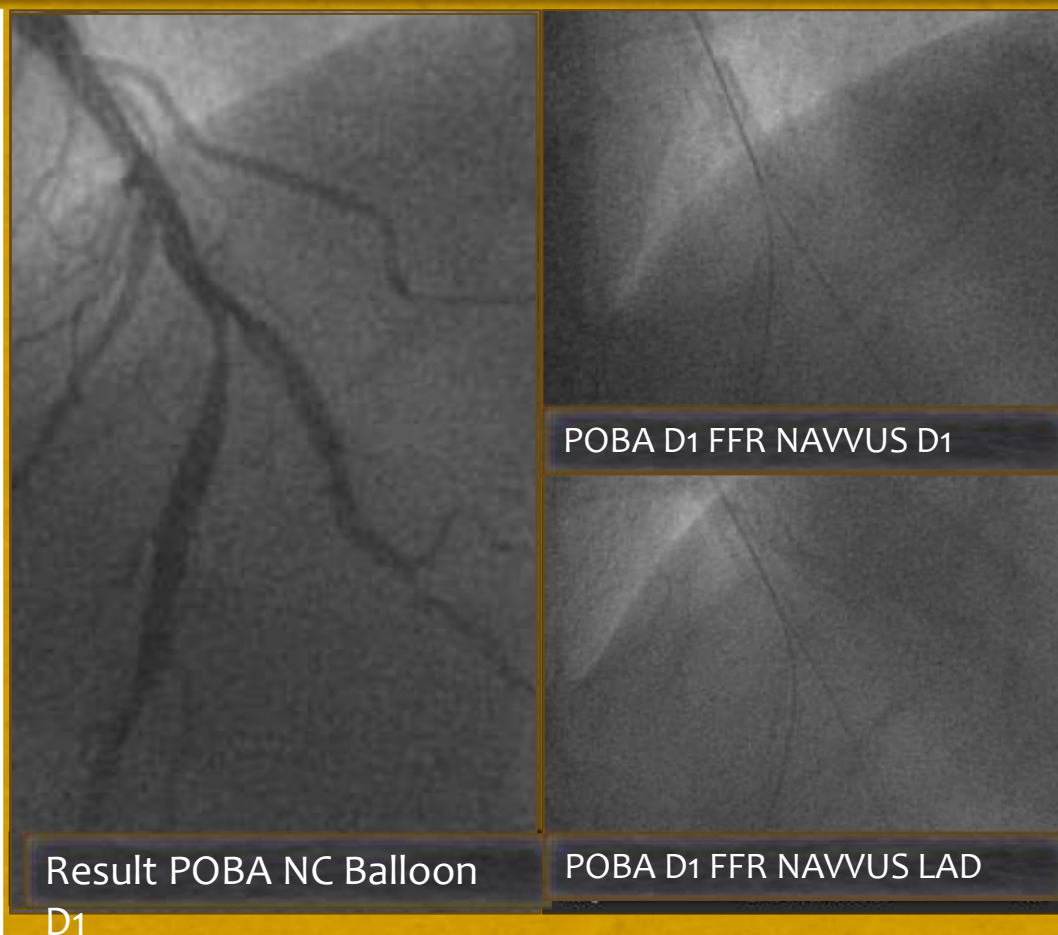
ID vaso: D1 Basal



Protocol FFR



Bifurcation FFR Protocol - case



Protocol FFR

FFR MB & SB

MB ↑ SB ↓

SB DES/DEB

PREPARATION

FFR MB & SB

MB ↓

2 DES/DEDICATED

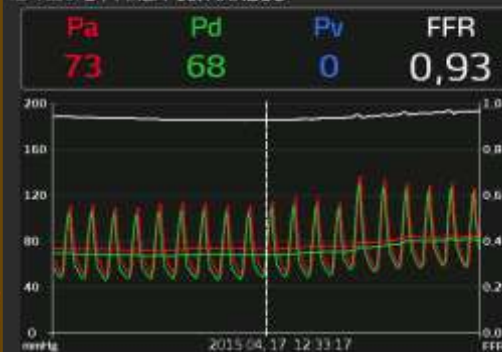
FINAL FFR MB & SB

Bifurcation FFR Protocol - case

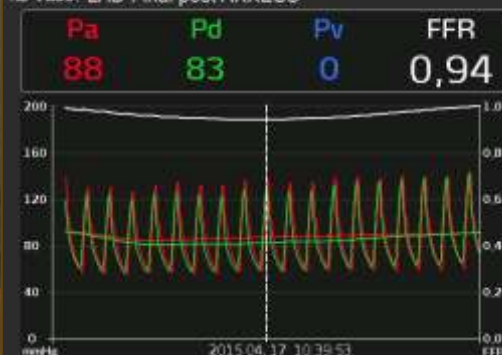


Final result AXXESS

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ID laboratorio: Emodinamica Operator: Dr Fouladvand
Nome struttura: Sacra Famiglia-Erba
ID vaso: D1 Final Post AXXESS



ID paziente: 15/177 FR
Ora di inizio procedura: Aprile 17, 2015 9:46
ID laboratorio: Emodinamica Operator: Dr Fouladvand
Nome struttura: Sacra Famiglia-Erba
ID vaso: LAD Final post AXXESS





Methods

Composition of patients

Group A – wire FFR

- Retrospective
- 65 patients
- FFR all steps – only in 35 pts

St Jude

- Pressure-wire Aeris

Device success

- 35 from 65 or 54%

Final N = 35

Variables

- Procedure time
- X-ray time
- MDC

Group B – catheter FFR

- Retrospective
- 35 Patients
- FFR all steps in 35 pts

Acist RXi

- NAVVUS catheter

Device success

- 35 from 35 or 100%

Final N = 35

Variable

- Procedure time
- X-ray time
- MDC

p<0.05



Methods

Medina and vessel distribution

	Group A	Group B
 1.0.0	2 6%	2 6%
 1.1.1	15 43%	16 46%
 1.1.0	5 14%	6 17%
 1.0.1	3 9%	4 11%
 0.1.1	6 17%	5 14%
 0.1.0	4 11%	3 9%
 0.0.1	2 6%	1 3%

Vessel	
Group A	Group B
RCA	
8 (23%)	7 (20%)
LAD	
15 (43%)	13 (37%)
CX	
10 (29%)	12 (34%)
LM	
2 (6%)	3 (9%)



Results

Strategy change based on FFR

All 70 Pts	QCA decision	FFR basal decision	FFR mid decision
	70	70	70
MB Provisional	37	49	56 p<0.08
2 DES Treatment	30	12 p<0.02	9 p<0.003
SB Treatment	3	9	5
All SB Treatment	33	21	14 p<0.01

Results

Wire-FFR vs catheter FFR

Groups	FFR	
	Wire-based	Catheter-based
	65 (final 35)	35 (final 35)
Device success	35 of 65	35 of 35
Procedure time (min)	148 ± 42	125 ± 38
X-Ray time (min)	41 ± 15	35 ± 8
Contrast (ml)	245 ± 97	201 ± 81

p<0.05

p<0.01

p<0.01

p<0.04



Conclusions Take home messages

Treatment of bifurcation based only on angiography

- Could lead to overestimation of the complexity
- And thus to excessive usage of stents

FFR on both vessels

- Identifies the significant lesion (or at least)
- Excludes the vessel with not significant stenosis
- Establish the PCI strategy (one/two stents)

Mid procedure FFR measurement

- Confirm or change the strategy
- In our study down-grading the procedure complexity
- Increasing the provisional and reducing the 2 stent strategy

Conclusions Take home messages

Acist RXi FFR with NAVVUS
microcatheter carried on the existing
coronary wires placed in MB and SB

- facilitates the evaluation of the FFR during the whole steps of the procedure maintaining the wire position
- reduce significantly the procedure time, the X-ray time and the contrast usage
- evaluate the coronary reserve at the end of the procedure and to confirmed the final result

21st CardioVascular Summit

TCTAP 2016

April 26-29, 2016
Coex, Seoul, Korea



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Ordine Ospedaliero San Giovanni di Dio
PROVINCIA LOMBARDO VENETA

