

Drug Eluting Stent Implantation For Unprotected Left Main Coronary Arteries

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Drug-Eluting Stent for Left Main Coronary Artery

1. Park SJ, Kim YH, Lee BK, et al.

Sirolimus-eluting stent implantation for unprotected left main coronary artery stenosis. Comparison with bare metal stent implantation.

J Am Coll Cardiol 2005;45:351-6

2. Jose Suarez de Lezo, Alfonso Medina, Manuel Pan, et al.

Rapamycin-eluting stents for the treatment of unprotected left main coronary disease.

Am Heart 2004;148:481-5

3. Marco Valgimigli, Carlos A.G. van Mieghem, Andrew T.L. Ong, et al.

Short- and Long-Term Clinical Outcome After Drug-Eluting Stent Implantation for the Percutaneous Treatment of Left Main Coronary Artery Disease.

Circulation. 2005;111:1383-1389

4. Alaide Chieffo, Goran Stankovic, Erminio Bonizzoni, et al.

Early and Mid-Term Results of Drug-Eluting Stent Implantation in Unprotected Left Main.

Circulation 2005;111:791-795

5. Marco Valgimigli, Patrizia Malagutti, Jiro Aoki, et al.

Sirolimus-Eluting Versus Paclitaxel-Eluting Stent Implantation for the Percutaneous Treatment of Left Main Coronary Artery Disease.

J Am Coll Cardiol 2006;47:507-14

6. Matthew J. Price, Ecaterina Cristea, Neil Sawhney, et al.

Serial Angiographic Follow-up of Sirolimus-Eluting Stents for Unprotected Left Main Coronary Artery Revascularization.

J Am Coll Cardiol 2006;47:871-7

Drug-Eluting Stent for Left Main Coronary Artery

1. S Nakamura, et al.

Initial clinical experience of Sirolimus-eluting stent for treatment of left main coronary artery disease.

JSC 2004

2. S Nakamura, et al.

Durable clinical benefit following Sirolimus-eluting stent deployment on the outcome of patients with unprotected left main coronary arteries.

TCT 2004, ACC 2005

3. S Nakamura, et al.

Comparison of efficacy and safety between Sirolimus-eluting stent and Paclitaxel-eluting stent in unprotected left main coronary.

ACC 2005, ESC 2005

-Multicenter Registry in Asia-

New Tokyo Hospital  Sunao Nakamura M.D., Ph.D. (Japan)

Damansara Heart Center  Tamil Selvan Muthusamy M.D. (Malaysia)

Konyang University Hospital  Jang-Ho Bae M.D. (Korea)

Husada Hospital  Yeo Hans Cahyadi M.D. (Indonesia)

Chest Disease Institute  Sudaratana Transapasawasdikul
M.D.(Thailand)

Siriaj Hospital  Damras Tresukosol M.D. (Thailand)

Saint Louis Hospital  Boonsert Chatlaong M.D. (Thailand)

King Chulalongkorn
Memorial Hospital  Wasan Udayachalerm M.D. (Thailand)

Far Eastern Hospital  Chao Loun Lai M.D. (Taiwan)

Study Patients : LMT

TAXUS: Asian Multicenter LMT Registry

Patients **n=118** > 2 years

Patients **n=211** > 1 year

Cypher: Asian Multicenter LMT Registry

Patients **n=89** > 3 years

Patients **n=193** > 2 years

Patients **n=288** > 1 year



BMS: Japanese Multicenter Registry

Patients **n=88** > 3 years

Patients **n=102** > 2 years

Can We Improve Clinical Outcome of LMT PCI ?

- **In hospital outcome**
- Can reduce restenosis ?
- Long term durability ?
- Cypher and TAXUS registry
- Other DES ?

In-Hospital Outcome

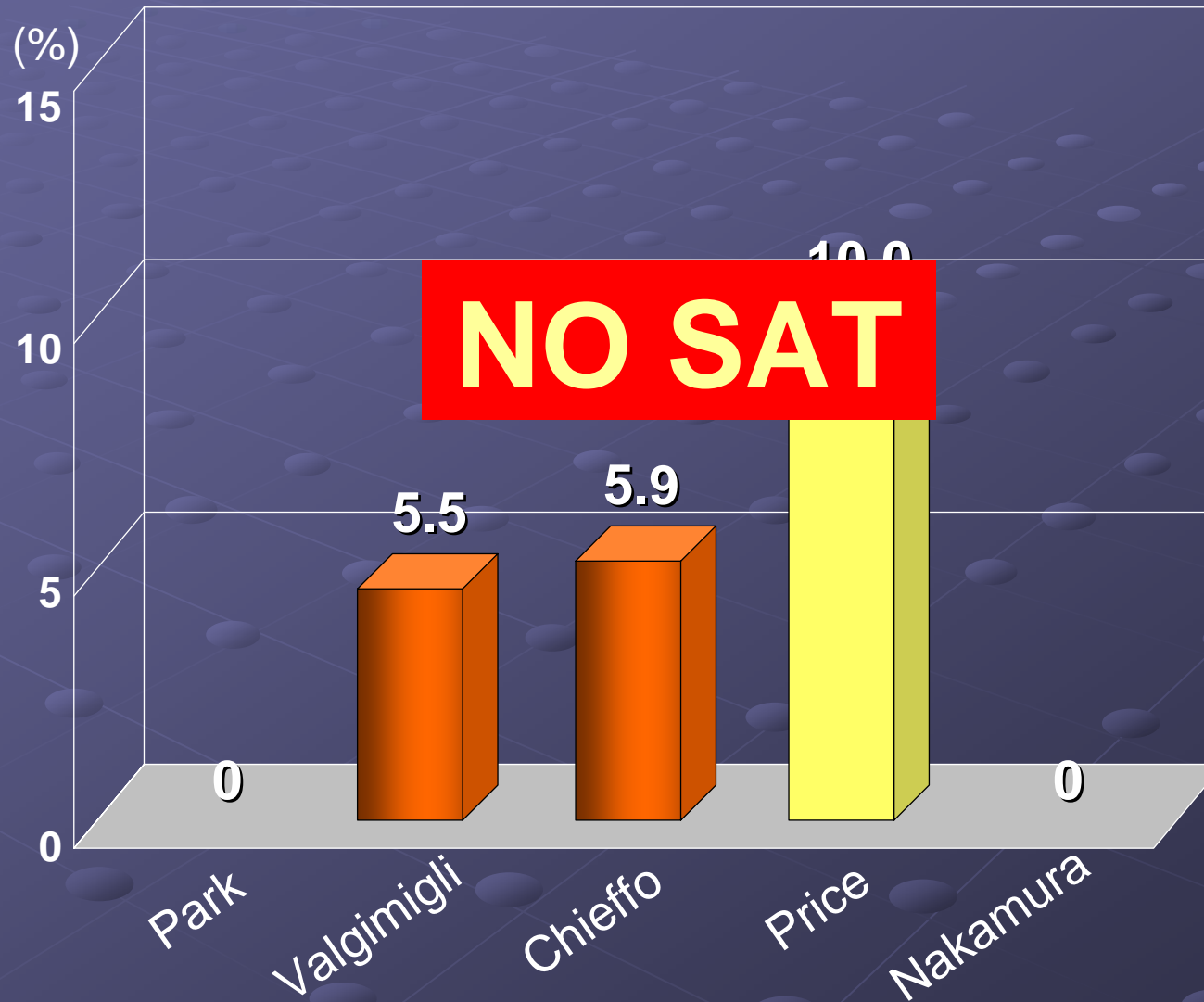
Cypher vs **TAXUS** 2years

	BMS (n=102)	Cypher (n=193)	TAXUS (n=118)	p
Angiographic success (%)	100	100	100	NS
Clinical success (%)	99.0	100	100	NS
MACE (n)				
Death	0			NS
QMI	1 (SAT)	0	0	NS
Urgent CABG	0	0	0	NS
Urgent PCI	1 (SAT)	0	0	NS
Minor complication (%)				
Vascular hematoma	4.9	5.2	6.0	NS

No SAT

30 DAYS: MACE

DES in LMT



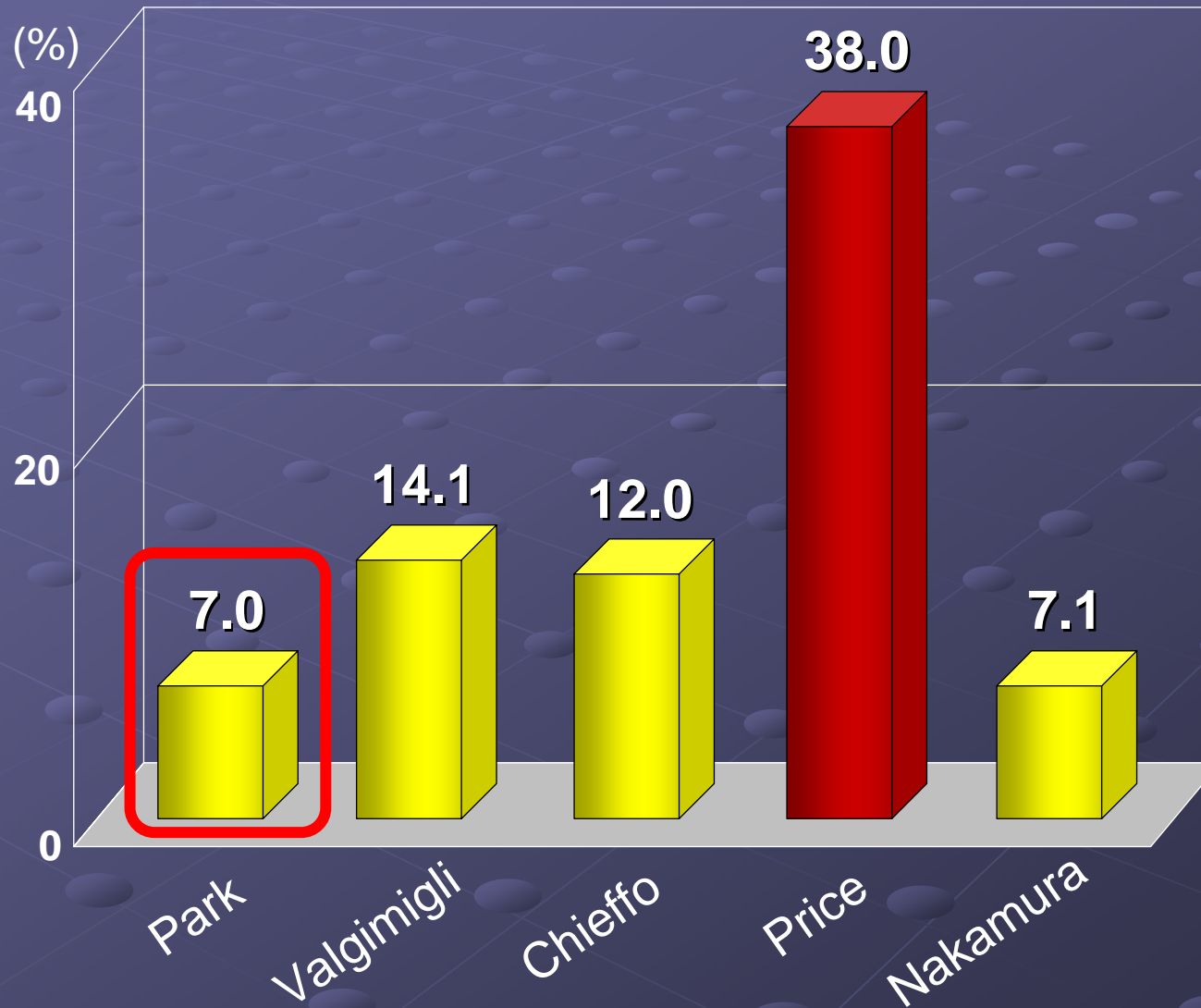
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Restenosis Rate

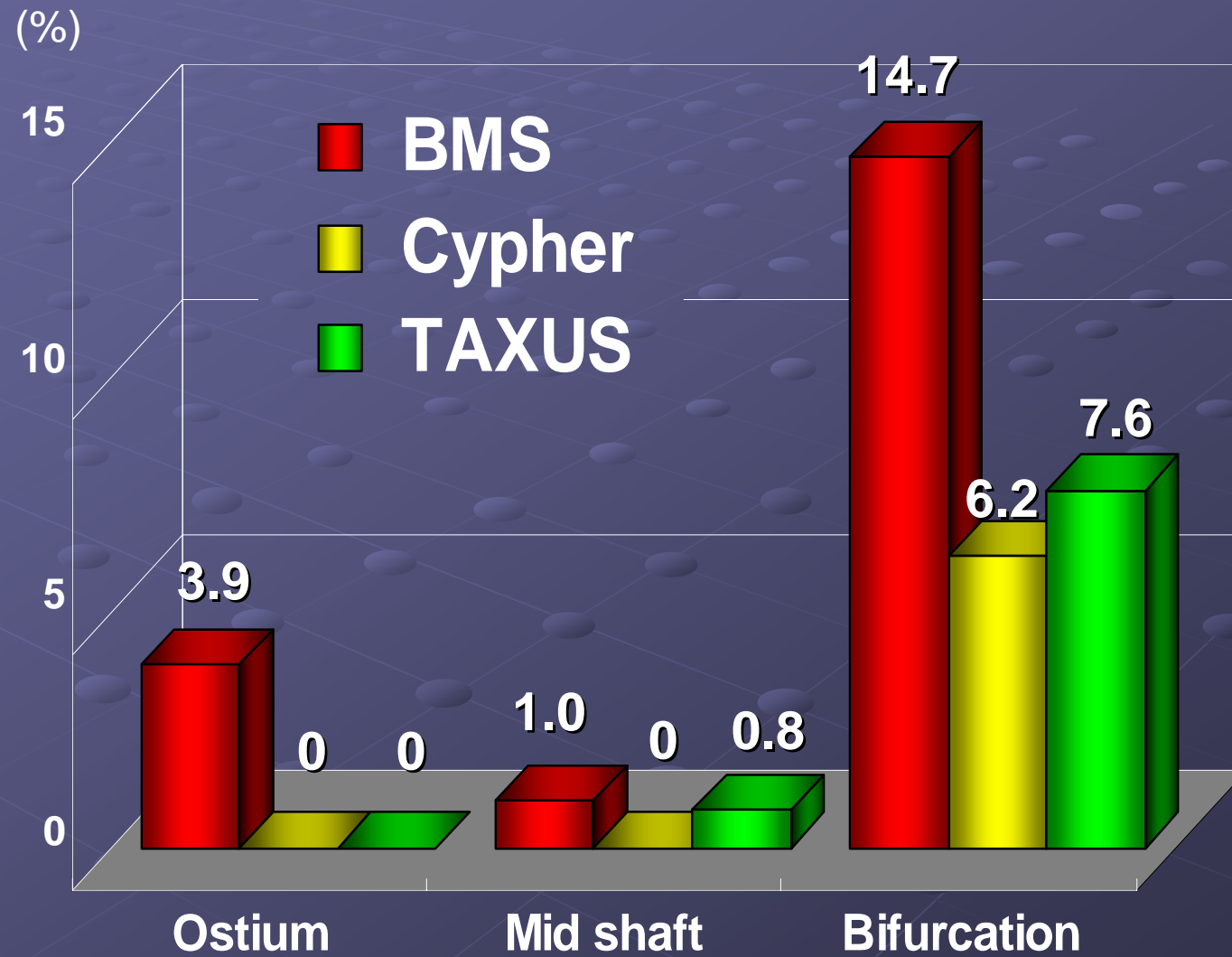


Angiographic Follow-Up

Cypher vs TAXUS 2years

	BMS 12 mo (n=102)	BMS 24 mo (n=102)	Cypher 12 mo (n=193)	Cypher 24 mo (n=193)	TAXUS 12 mo (n=118)	TAXUS 24 mo (n=118)	p
Clinical f/u (n)	102/102	102/102	193/193	193/193	118/118	118/118	NS
Angiographic f/u (n)	100/102	94/102	170/193	146/193	110/118	82/118	NS
Ref. diameter (mm:mean)	3.5	3.5	3.5	3.6	3.5	3.6	NS
MLD (mm:mean)	2.6	2.6	3.3	3.2	3.0	3.0	0.01
Late loss (mm:mean)	0.9	0.9	0.2	0.2	0.4	0.4	0.01
Loss index (%:mean)	36.0	36.0	8.0	8.0	12.6	12.6	0.01
Restenosis rate (%)	19.6	19.6	6.2	6.2	8.4	8.4	0.01
TLR (%)	14.7	14.7	4.7	4.7	7.6	7.6	0.01

Restenosis Patients !!



TLR Patients: 4.7%

Cypher

	Age	Gender	Lesion location	Stenting strategy	Location of restenosis
No.1	78	F	Bifurcation	Stenting across LCX	LCX ostium
No.2	54	M	Bifurcation	Culotte	LCX ostium
No.3	69	M	Bifurcation	Culotte	LCX ostium
No.4	77	M	Bifurcation	Culotte	LCX ostium
No.5	68	M	Bifurcation	Culotte	LCX ostium
No.6	77	M	Bifurcation	Modified T	LCX ostium
No.7	82	M	Bifurcation	Crushing	Distal stent edge LCX ostium
No.8	62	M	Bifurcation	Crushing	LAD ostium
No.9	65	F	Bifurcation	Crushing	LCX ostium

TLR Patients: 7.6%

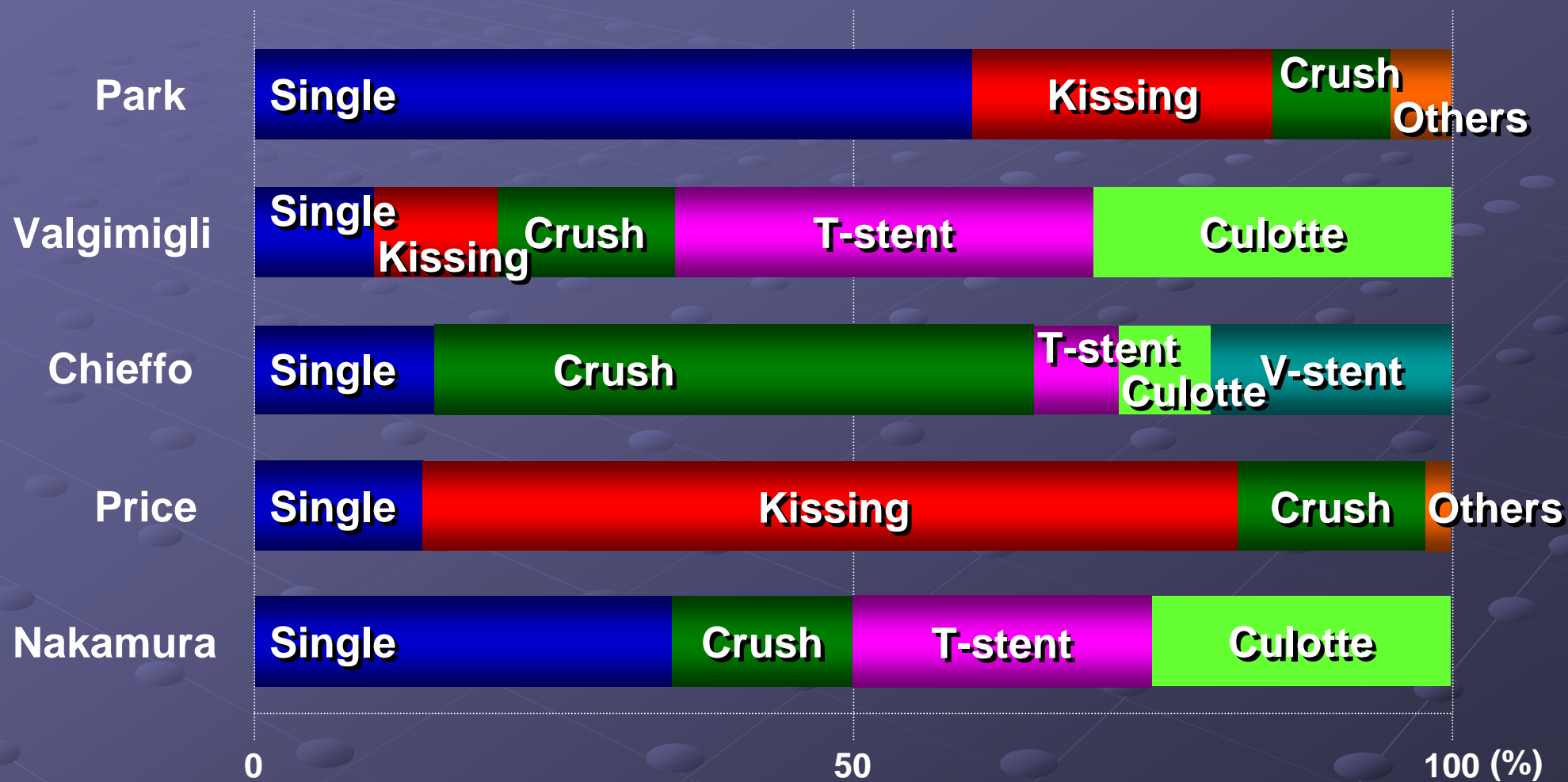
TAXUS

	Age	Gender	Lesion location	Stenting strategy	Stent	Location of restenosis	Timing of restenosis
No.1	69	M	Bifurcation	Culotte	TAXUS	LCX ostium	6 mo
No.2	77	M	Bifurcation	Culotte	TAXUS	LCX ostium	6 mo
No.3	70	M	Bifurcation	Culotte	TAXUS	LAD ostium	4 mo
No.4	73	M	Bifurcation	Crush	TAXUS	LCX ostium	7 mo
No.5	73	M	Bifurcation	Crush	TAXUS	LCX ostium	6 mo
No.6	78	F	Bifurcation	Stenting across LCX	TAXUS	LCX ostium	6 mo
No.7	82	M	Bifurcation	Kissing stent	TAXUS	Distal stent edge	4 mo
No.8	68	M	Bifurcation	Culotte	TAXUS	LCX ostium	6 mo
No.9	54	M	Bifurcation	Stenting across LCX	TAXUS	LMT - LAD diffuse	5 mo

Can We Perform LMT PCI in ALL Cases ?

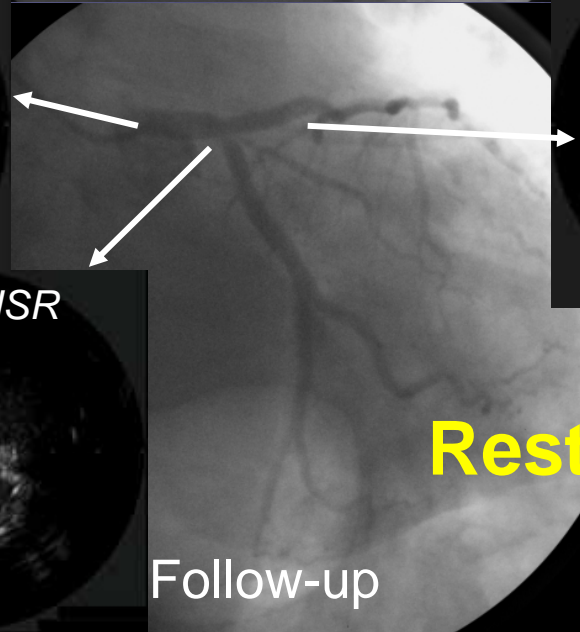
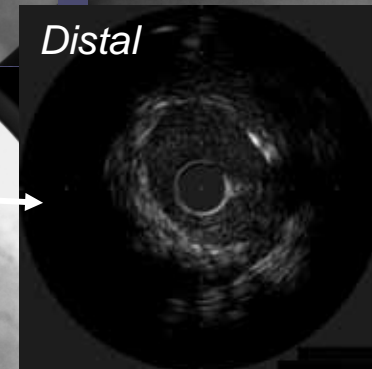
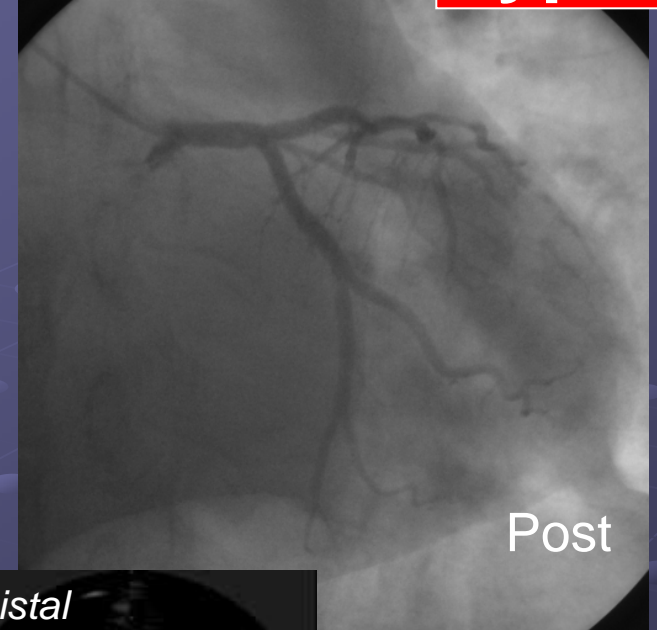
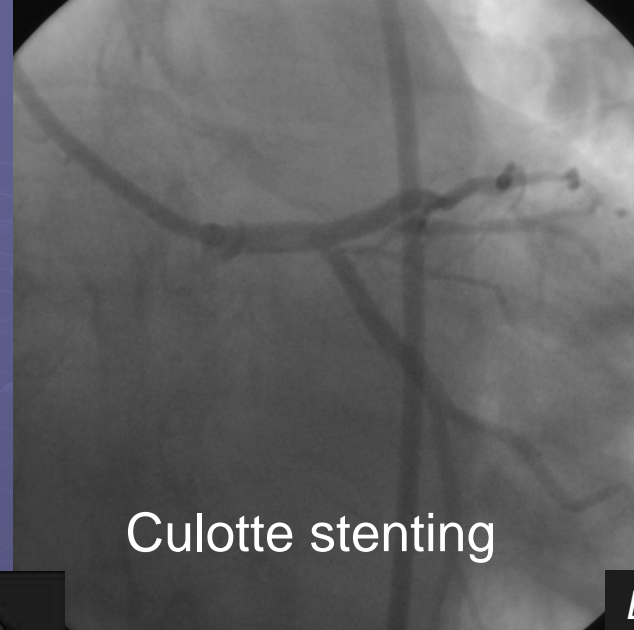
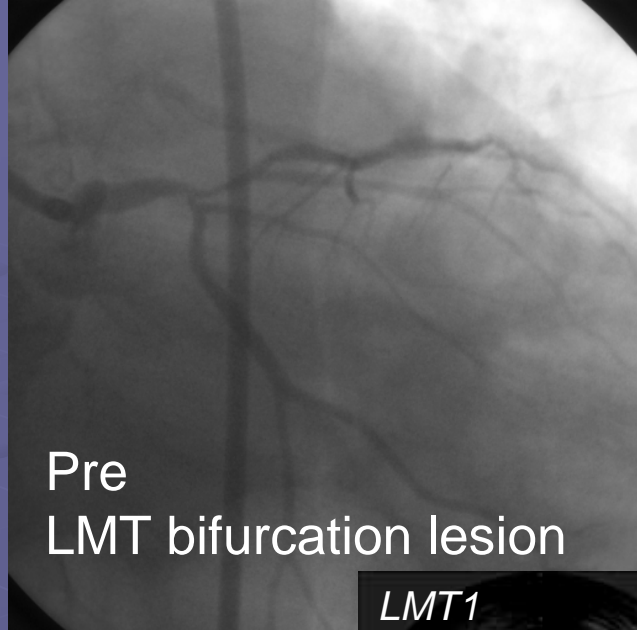
- Severely calcified cases
- Bifurcation lesion
- CTO
- ISR
- Low EF: Improve LV contraction ?

Stenting Procedure of bifurcation lesion in LMT



Case 7 :LMT bifurcation lesion

Cypher

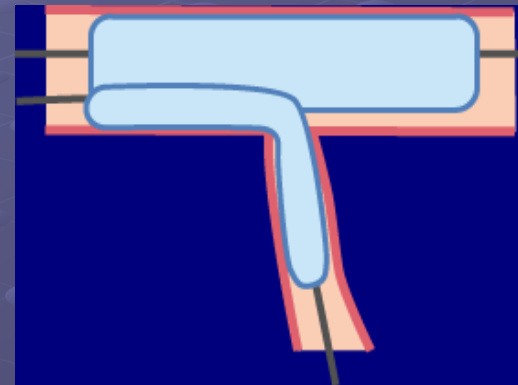
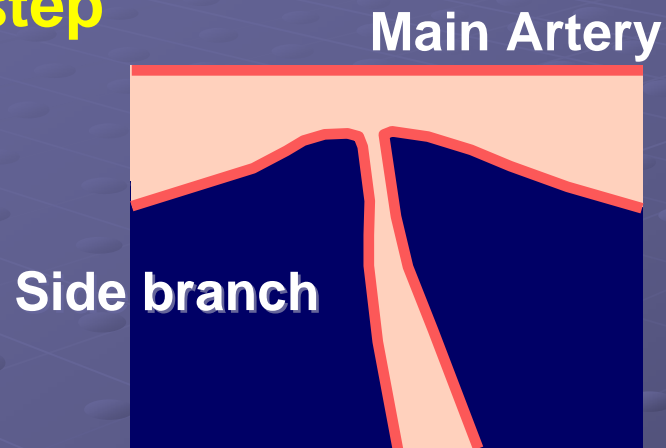


Restenosis LCX ost.

If we really want double stenting....

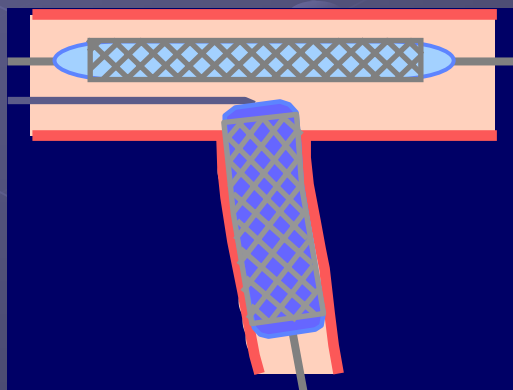
Mini-Crushing Stenting Technique (1)

1st step



Double wiring to the
both branch
and
kissing ballooning

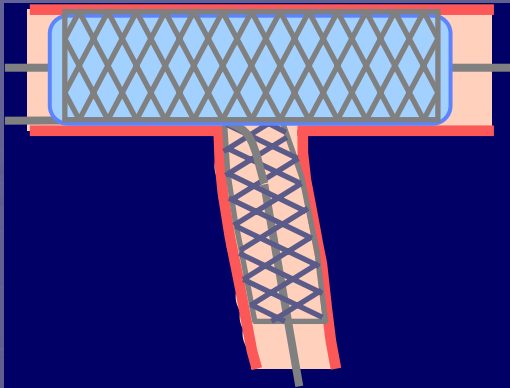
2nd step



Advance the two stents
in the bifurcation lesion simultaneously
and
dilate of stent in side branch only

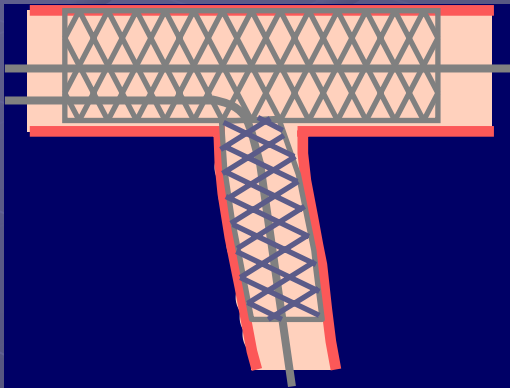
Mini-Crushing Stenting Technique (2)

3rd step



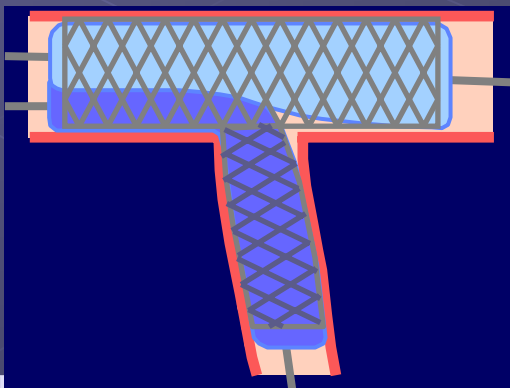
Remove the stent balloon and wire from the side branch and
Deploy the stent in the main vessels

4th step



Recross the wire through the stent strut in the main vessel to the side branch

5th step



Kissing ballooning to the both vessels

Follow-Up Results 12mo

Cypher

	Single stenting n=79	Culotte stenting n=46	Modified T-stenting n=42	Crushing stenting n=24
Angiographic follow-up (%)	88.6	91.3	85.7	91.7
Angiographic restenosis (n)				
Both	0	1	0	0
LMT - LAD	0	1	0	0
LMT - LCX	1	3	1	3
In-hospital MACE	0	0	0	0
12-month total MACE (n)				
Death	0	0	0	0
MI	0	0	0	0
CABG	0	0	0	0
TLR	1	4	1	3

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Conclusions

1. Treatment of unprotected left main trunk coronary artery disease with Cypher Sirolimus-eluting stent and Paclitaxel-eluting stent are safe and feasible.
2. Implantation of Cypher Sirolimus-eluting stent and Paclitaxel-eluting stent result in a larger MLD at follow-up and dramatically decrease the restenosis rate and target lesion revascularization compared with implantation of bare metal stent.
3. Implantation of Cypher Sirolimus-eluting stent and Paclitaxel-eluting stent with modified T-stenting with mini-crush stenting technique and single stenting technique seems to be able to decrease the restenosis rate at follow-up compared with other stenting techniques.
4. These clinical benefits with Cypher Sirolimus-eluting stent and Paclitaxel-eluting stent are durable at least 2 years.