Summary of 5yr Japanese Retrograde Summit Registry

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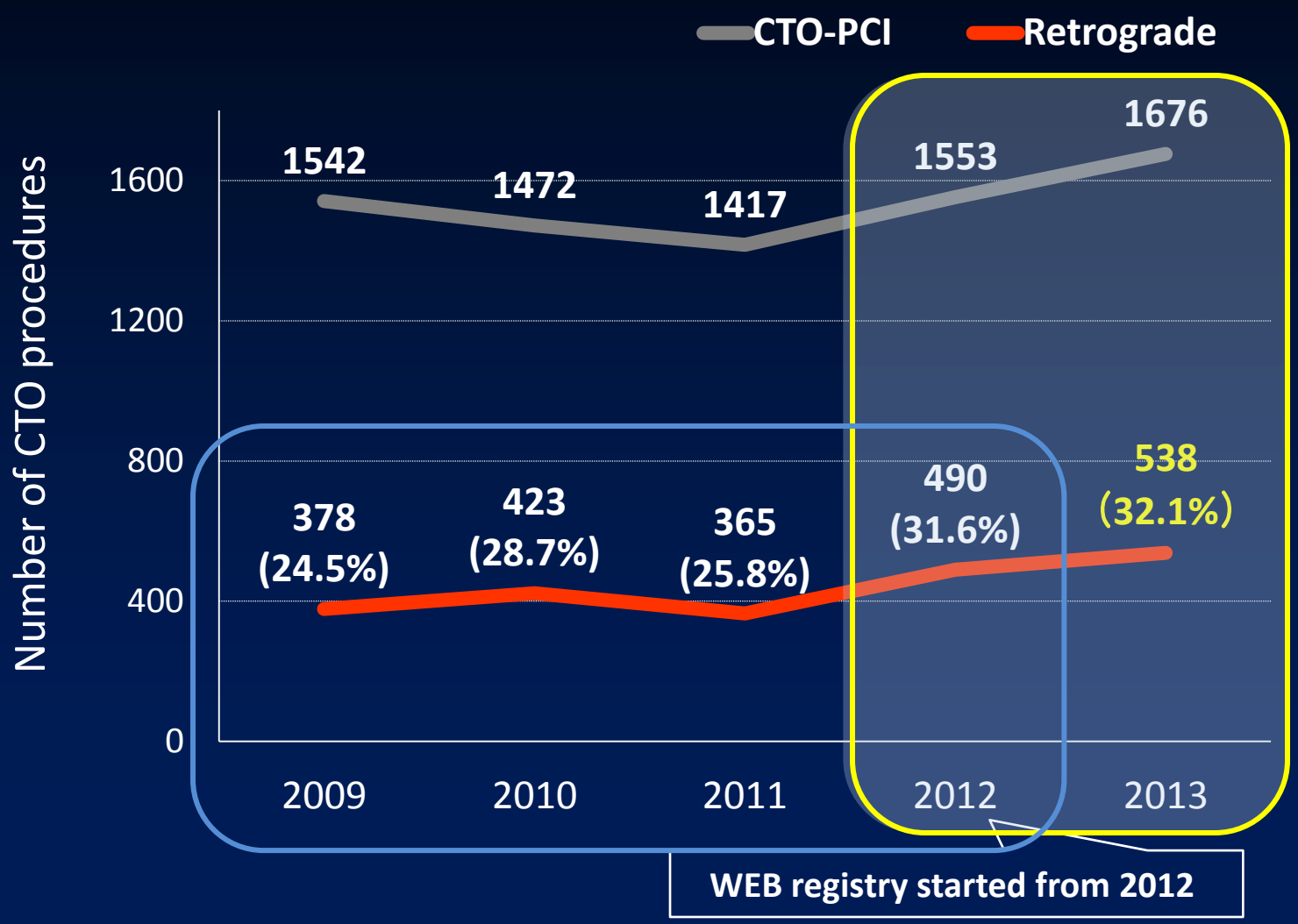
On behalf of Retrograde Summit Investigators

Retrograde Summit

- Society for the study of retrograde approach since 2009
- More than 25 Japanese centers involved
- Evaluation of retrograde approach from annual registry
- Prospective study regarding retrograde approach (J-PROCTOR, etc)

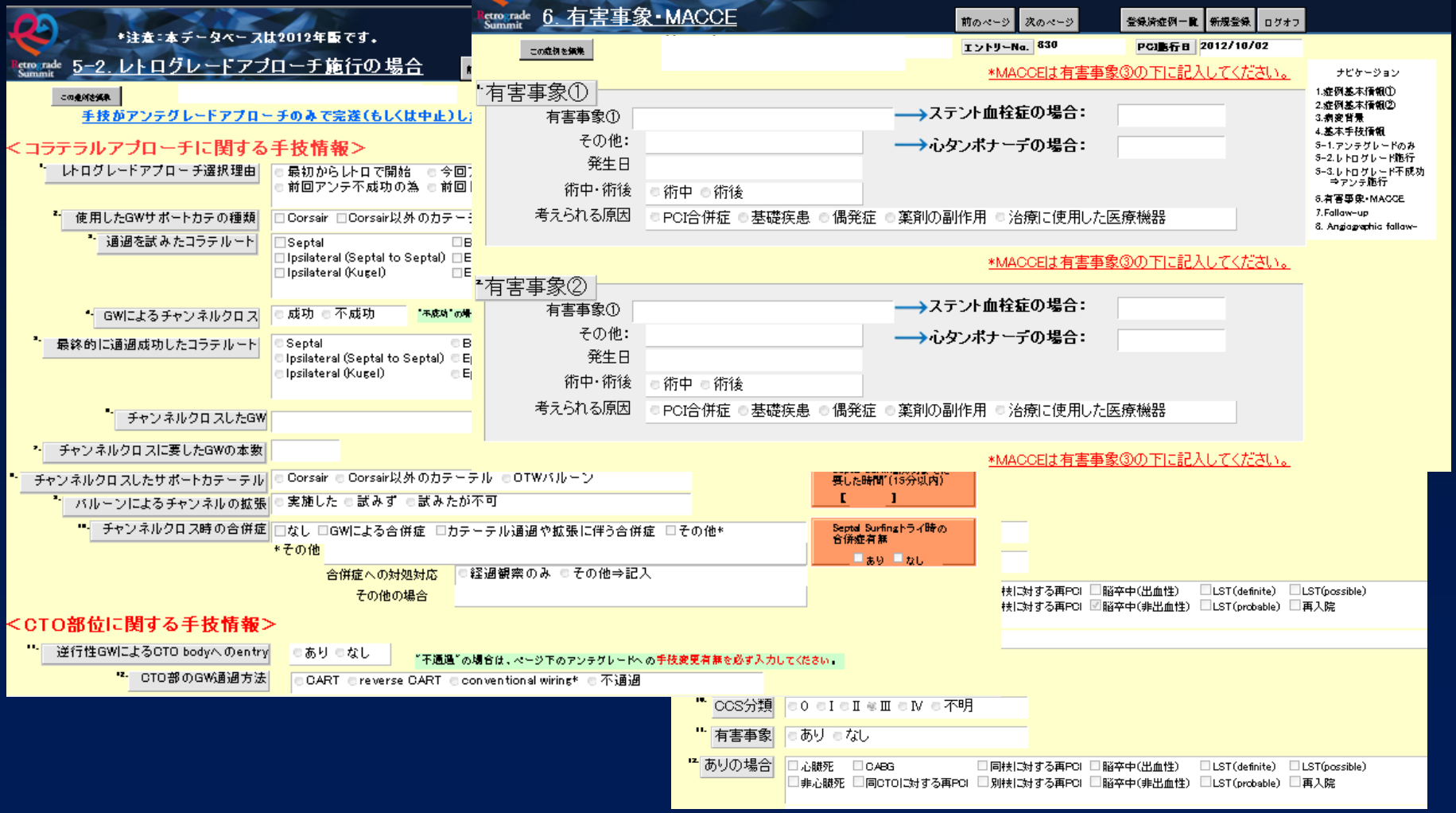
Annual change of enrollment



Retrograde Summit

Latest Annual Report from 2012 and 2013 Registry

WEB Registry started at 2012



57 Participant Hospitals (2013)

Retrograde Summit

Saiseikai Yokohama-City Eastern Hospital
Sapporo Cardio Vascular Clinic
Sakurabashi Watanabe Hospital
Toyohashi Heart Center
Saitama Ca
Saitama Se
Takase Clin
The Cardio
Higashi Tak
Sanda City
Edogawa H
Nagoya He
Seirei Ham
Hoshi Gene
Tokorozawa
Saiseikai Fu
Hokkaido S
Yotsuba Cir
Shiga Medical Center for Adults
Nagoya Tokushukai Hospital
Rinku General Medical Center
Kusatsu Heart Center
Kakogawa East City Hospital
Fukaya Red Cross Hospital
Hokko Memorial Hospital
Showa University Hospital
Nagoya Daini Red Cross Hospital
Daini Okamoto General Hospital
Mie Heart Center

Kyoto Katsura Hospital
Kushiro City General Hospital
Showa General Hospital
Shinkoga Hospital
iratory Center
tal
Tokuyama Chuo Hospital
Osaki Citizen Hospital
Tokushima Red Cross Hospital
Kobe Redcross Hospital
Yokohama Shintoshi Neurosurgical Hospital
Ohta General Hospital Ohta Nishinouchi Hospital
Toho University Omori Medical Center
Tsukuba Memorial Hospital
Mimihara General Hospital
Kansai Medical University Takii Hospital

Jan 2012 – Dec 2013

The number of registry : 3294

Registered Hospital : 57

In order of entry number

Registry Data 2012-2013

Retrograde Summit

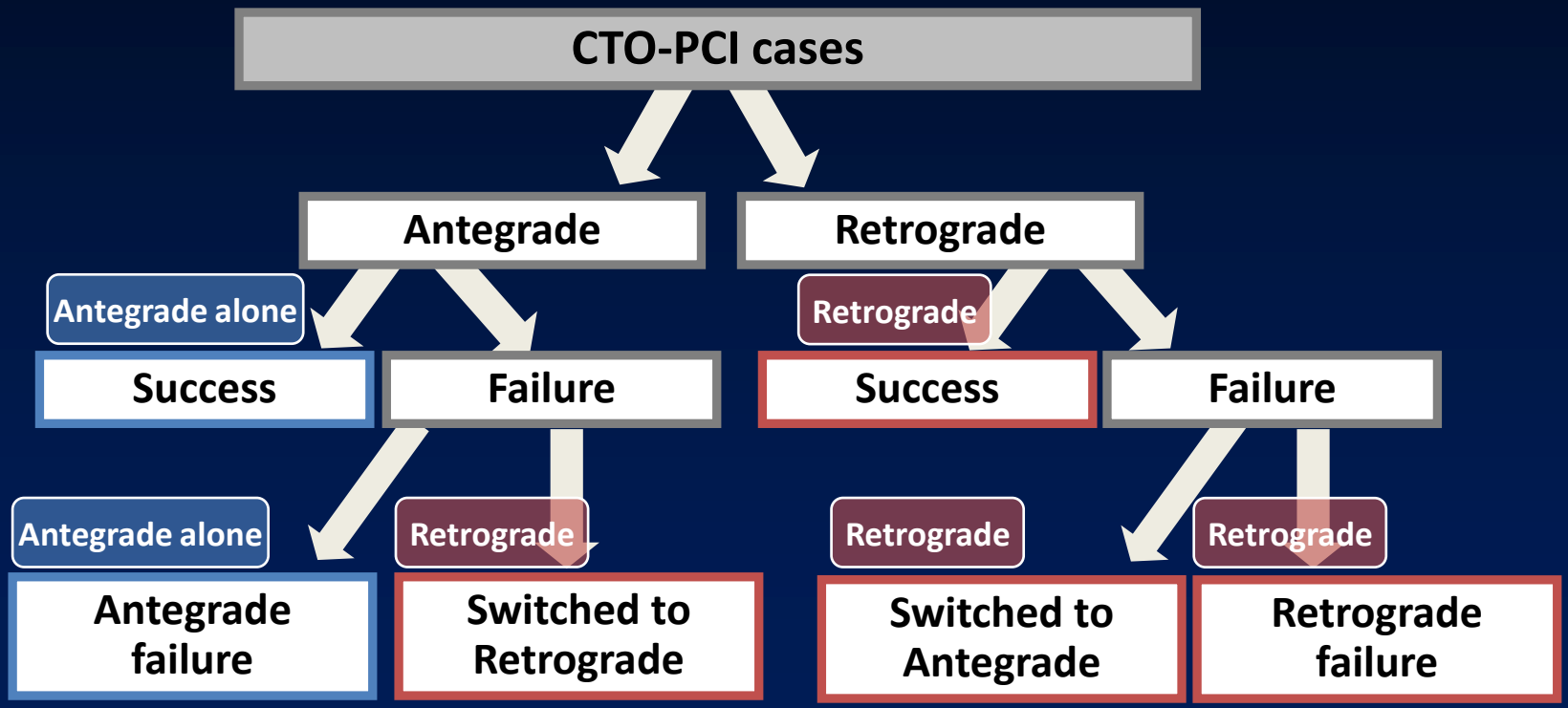
Case enrollment : 3,294 CTO-PCIs

65 cases were excluded due to insufficient case card information

Final subject for analysis: 3,229 CTO-PCIs

	Total (n)	2012 (n)	2013 (n)
CTO-PCIs	3,229	1,553	1,676
- Antegrade alone	2,201	1,063	1,138
- Retrograde	1,028	490	538

Procedure flowchart based on each procedure



Patient characteristics (1)

	2012 (1553)	2013 (1676)	P
Age, yo	67.8±10.3	67.7±10.5	0.9133
Male	82.8%	84.1%	0.3262
Family history of CAD	17.0%	18.0%	0.5247
Previous MI	38.9%	40.8%	0.2831
Previous CABG	8.8%	8.5%	0.7667
Previous PCI	60.0%	61.7%	0.3235
# of diseased vessel - 1-vessel - 2-vessel - 3-vessel	 35.4% 38.2% 26.4%	 41.1% 37.1% 21.8%	**0.0009**
Hypertension	80.1%	79.7%	0.7689
Diabetes	43.3%	45.6%	0.1839
Diabetes, type 1	6.5%	8.2%	0.0682
Hyperlipidemia	69.9%	70.9%	0.5131

Patient characteristics (2)

	2012 (1553)	2013 (1676)	P
Smoker	47.8%	47.6%	0.9364
Unstable angina	8.6%	7.6%	0.3255
CCS classification - 0 - I - II - III - IV	 30.7% 29.1% 31.0% 6.9% 2.3%	 27.7% 30.6% 33.7% 5.6% 2.4%	0.1626
NYHA classification - I - II - III - IV - Not applicable	 30.5% 15.2% 4.1% 2.6% 47.6%	 31.6% 15.7% 3.7% 2.6% 46.4%	0.9158
Pre creatinine ≥2.5mg/dl	7.5%	8.3%	0.3661
Hemodialysis	5.9%	7.3%	0.1071
LVEF <35%	10.0%	10.3%	0.7565

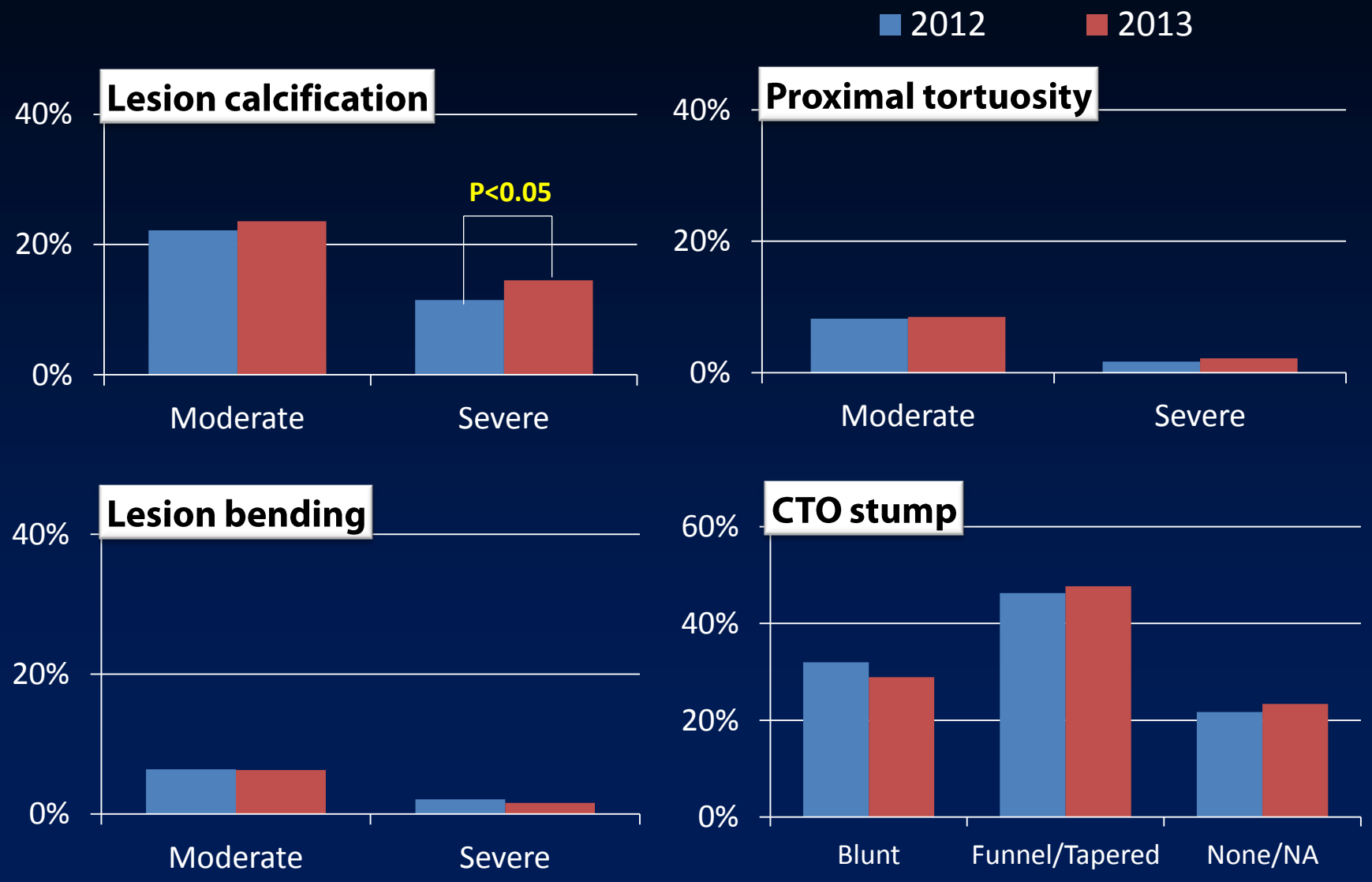
Lesion characteristics (1)

	2012 (1553)	2013 (1676)	P
Re-attempt case	11.6%	9.0%	**0.0155**
Previous strategy in re-attempt case			
- Antegrade	79.7%	64.2%	**0.0206**
- Retrograde	2.8%	4.7%	
- Both	11.3%	20.9%	
- NA	6.2%	10.1%	
Previous failure reason			
- Failure to cross CTO by GW	79.1%	80.4%	0.1468
- Failure to cross collateral by GW	1.1%	4.0%	
- Delivery failure of treatment device	4.5%	6.0%	
- NA	15.3%	9.5%	

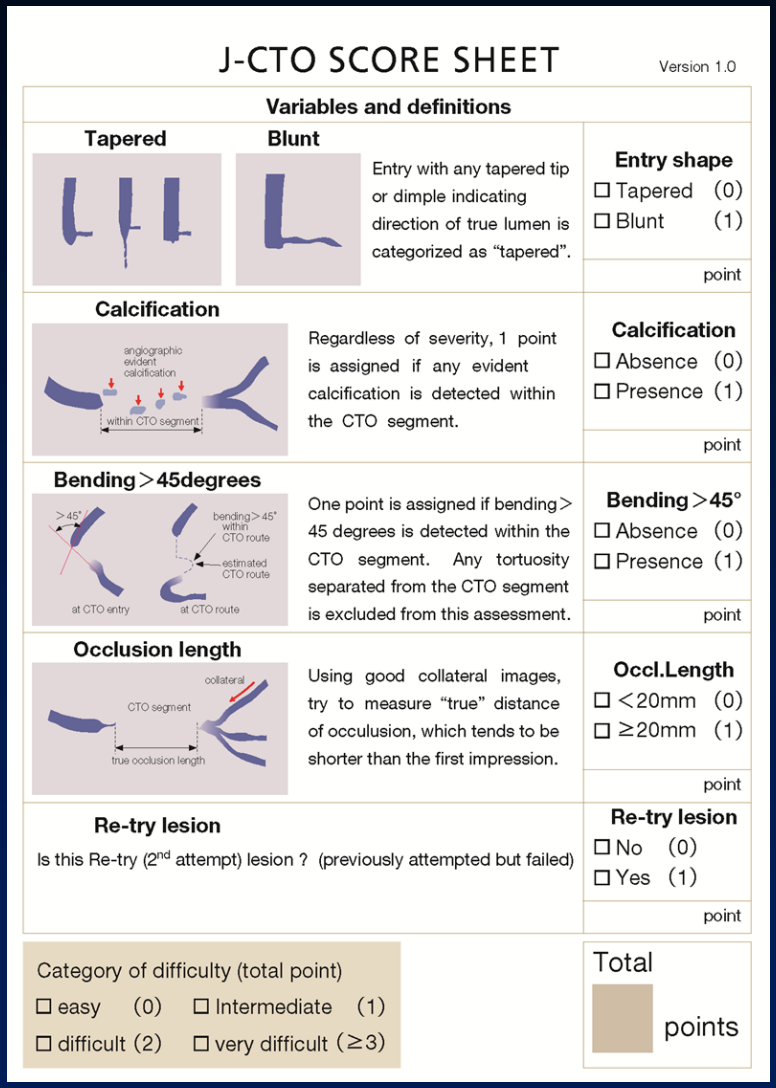
Lesion characteristics (2)

	2012 (1553)	2013 (1676)	P
Target vessel - RCA - LAD - LCx - LMT	 46.6% 31.8% 21.4% 0.3%	 49.0% 29.9% 20.9% 0.2%	0.5070
Reference diameter <3.0mm	41.0%	38.8%	0.2262
Occlusion length ≥20mm	61.7%	55.8%	**0.0017**
Instent occlusion	14.7%	14.9%	0.9256
Occlusion period - ≥ 1 year - 3m - 1 year - Unknown	 8.4% 9.0% 82.5%	 9.3% 6.4% 84.2%	**0.0188**
Collateral filling grade - CC 0 - CC 1 - CC 2	 9.6% 57.7% 32.7%	 7.1% 59.4% 33.4%	0.0774

Lesion characteristics (3)



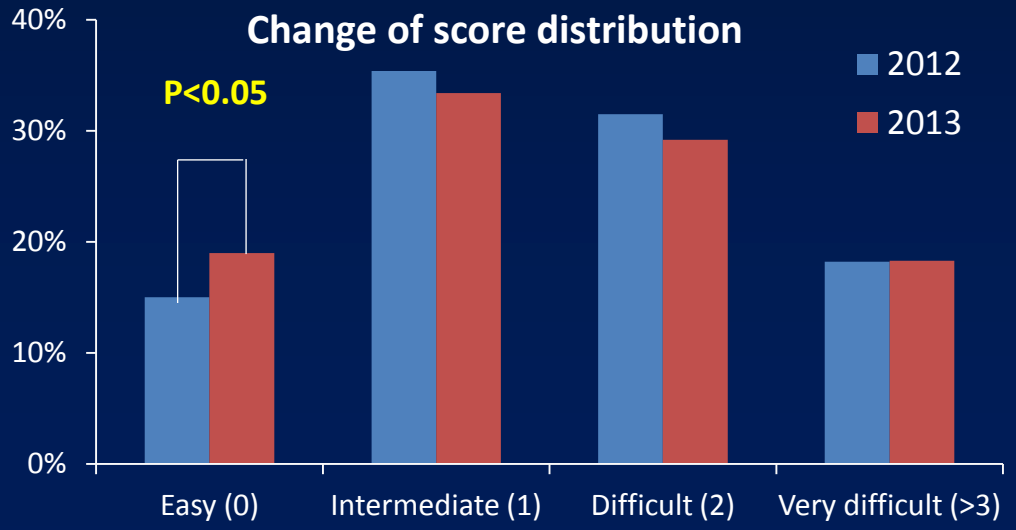
J-CTO score



Morino et al. JACC Interv 2011;4:231-211)

	2012 (1553)	2013 (1676)	P
Blunt tip/none or unclear tip	53.7%	52.3%	0.4235
Calcification*	33.7%	37.9%	**0.0132**
Bending*	8.5%	7.9%	0.5504
Occlusion length ≥20mm	61.7%	55.8%	**0.0017**
Re-try lesion	11.6%	9.0%	**0.0155**
Average JCTO-score	**1.6±1.1**	**1.5±1.1**	**0.0610**

**Score was counted based on judgment more than "moderate" grade for calcification and bending*



Procedure outcome

	2012 (1553)	2013 (1676)	P
Successful CTO crossing by GW	89.6%	89.6%	0.9925
Number of guidewire used for CTO approach	3.1±2.2	3.2±2.3	0.1788
Stent deployment	93.5%	100.0%	**<0.0001**
Number of stent	1.8±1.0	1.9±0.9	**0.0033**
Total stent length, mm	51.8±24.9	55.4±27.9	**0.0008**
Use of drug-eluting stent	98.0%	98.8%	0.0907
Procedure success	**88.3%**	**88.4%**	**0.9437**
Procedure time, min	142.7±83.4	153.2±88.0	**0.0012**
Contrast dose, ml	228.7±107.2	226.2±103.4	0.5187
Fluoroscopy time, min	64.2±42.4	70.6±47.8	**0.0002**
Air Kerma, mGy	4715.8±3760.8	4920.3±3879.7	0.2031

MACCE

	2012 (1553)	2013 (1676)	P
MACCE	**0.7% (11)**	**0.7% (11)**	**NS**
- Cardiac death	0.2% (3)	0.2% (3)	NS
- Non cardiac death	0.1% (2)	0.2% (4)	NS
- MI	0.3% (4)	0.1% (1)	NS
- Stroke / non-bleeding	0.1% (2)	0.1% (1)	NS
- Emergent CABG	-	0.1% (2)	NS

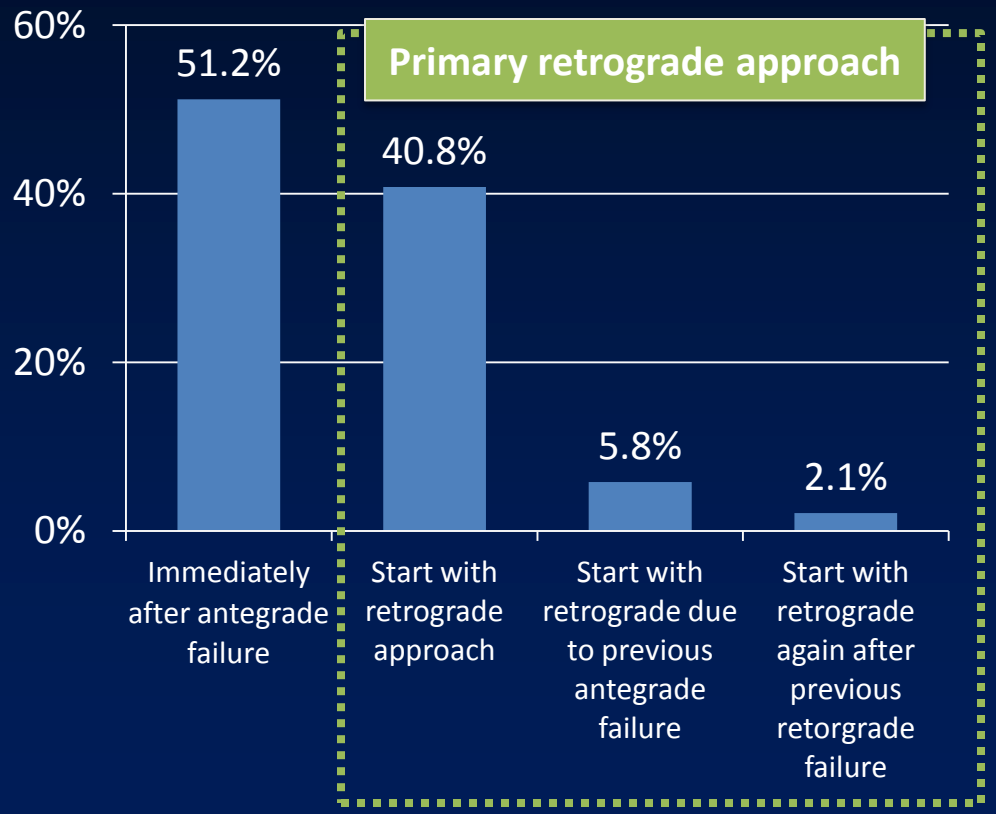
Procedure characteristics breakdown based on procedure

"Retrograde cases"
N=1028

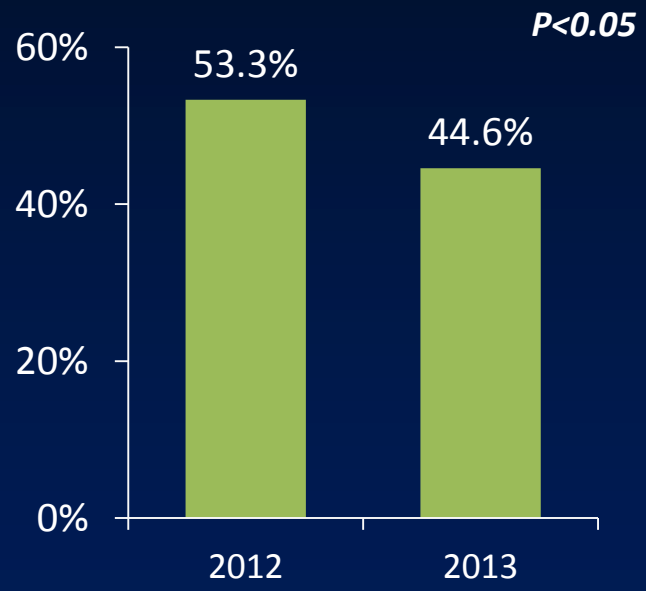
Procedure characteristics (1)

Retrograde cases

Background of retrograde approach



Annual change from 2012 to 2013



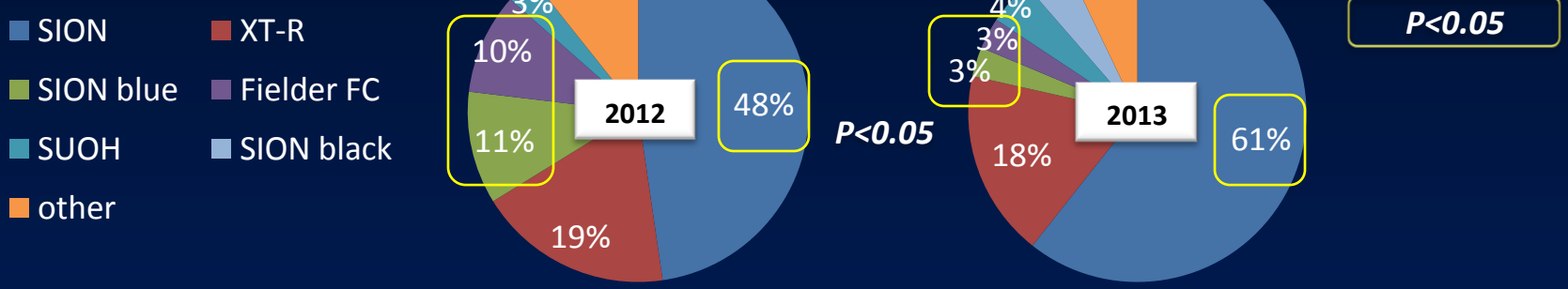
Primary retrograde approach has been decreasing

Procedure characteristics (2)

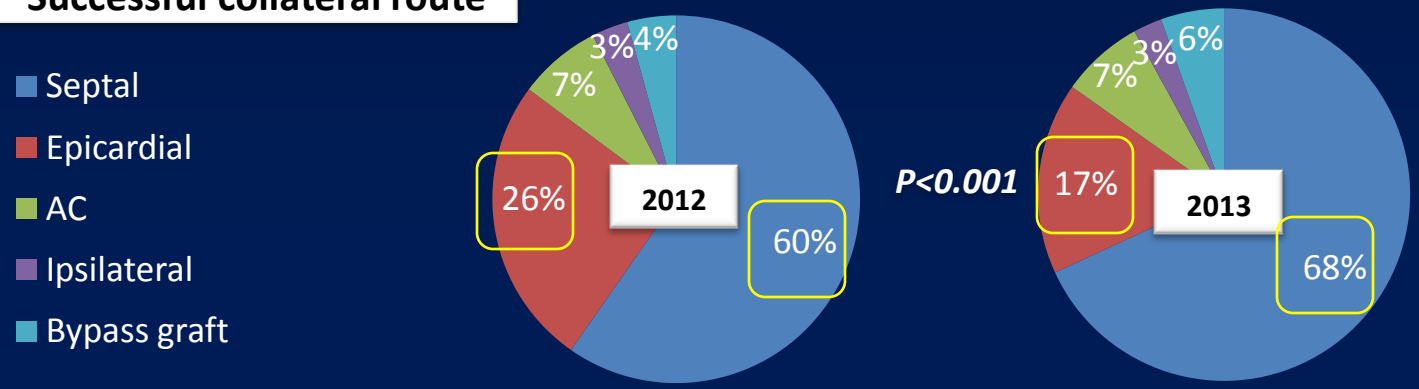
Collateral approach

	Total (1028)	2012 (490)	2013 (538)	P
Guidewire cross	76.9% (791)	77.6% (380)	76.4%(411)	0.6600

Successful guidewire



Successful collateral route



Procedure characteristics (3)

CTO crossing

	Total (1028)	2012 (490)	2013 (538)	P
Guidewire cross	65.5% (673)	69.0% (338)	62.3%(335)	0.0033

Patterns of Success in Retrograde Approach

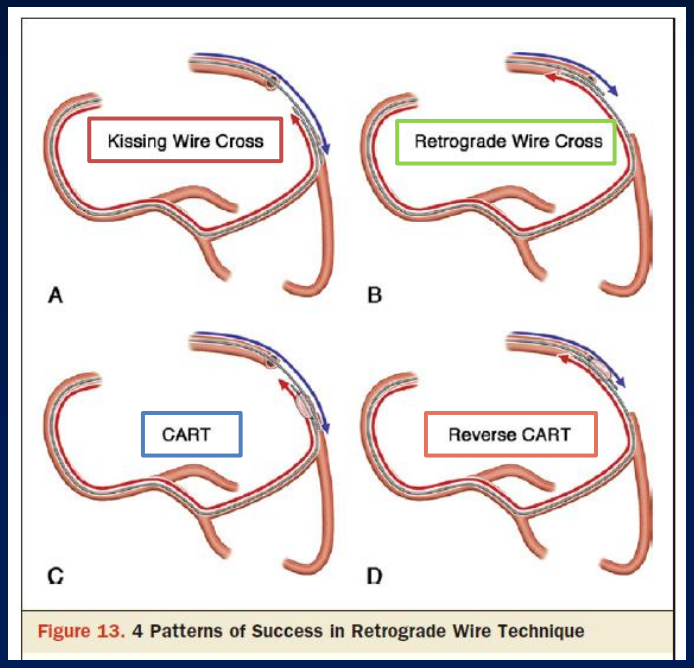
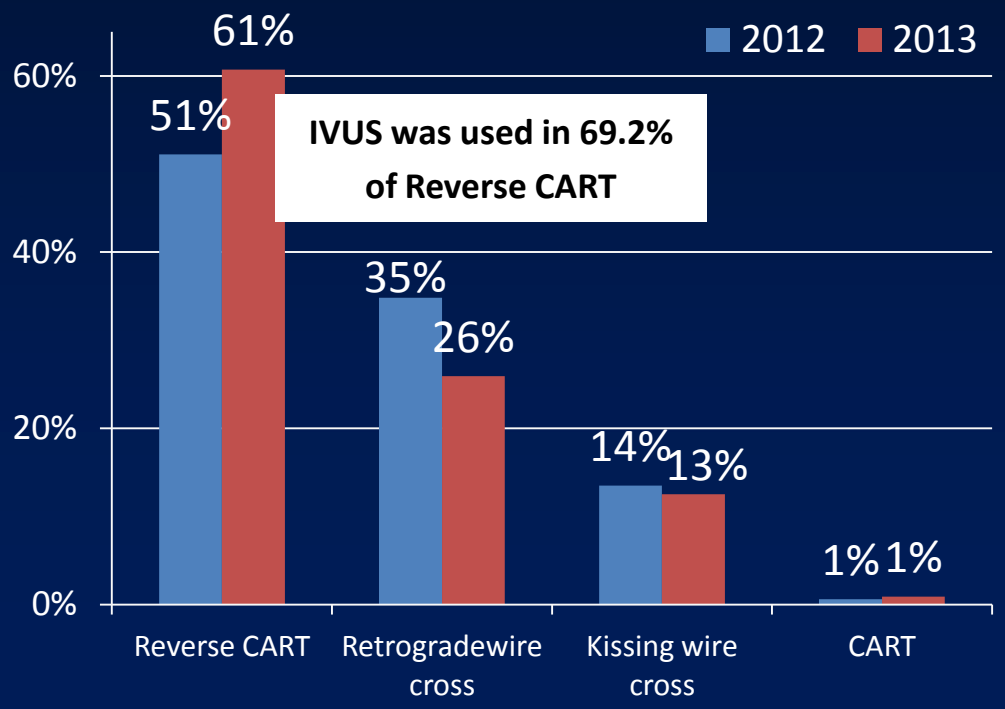


Figure 13. 4 Patterns of Success in Retrograde Wire Technique

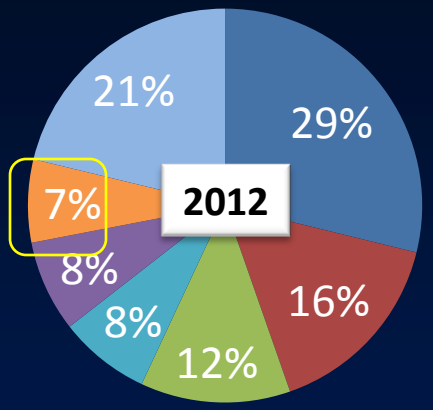
Sumitsuji et al. JACC Cardiovasc Interv 2011



Guidewire for CTO crossing (1)

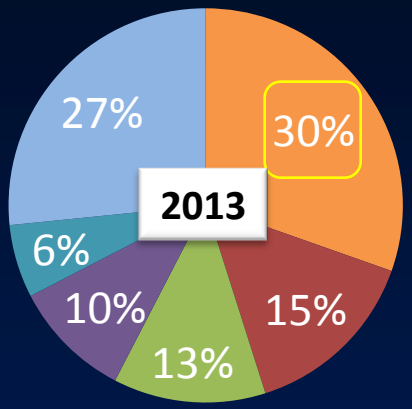
Retrograde cases

Reverse CART



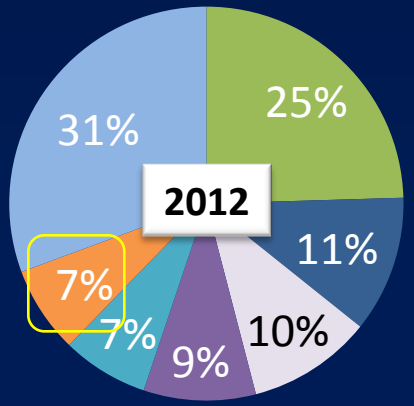
FFC
SION
ULTIM3
XT-R
Gaia 1
Gaia 2
other

P<0.05

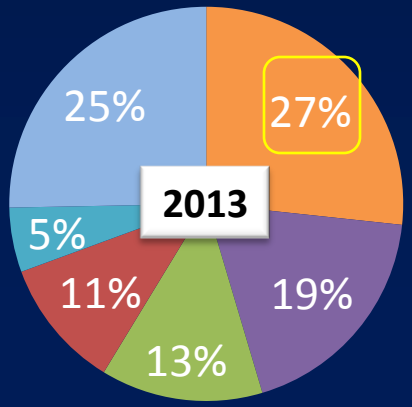


Gaia 2
SION
ULTIM3
Gaia 1
XT-R
Other

Retrograde wire cross



ULTIM3
FFC
ConPro
Gaia 1
XT-R
Gaia 2
other

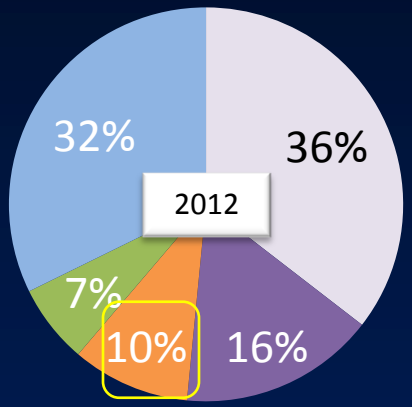


Gaia 2
Gaia 1
ULTIM3
SION
XT-R
other

Guidewire for CTO crossing (2)

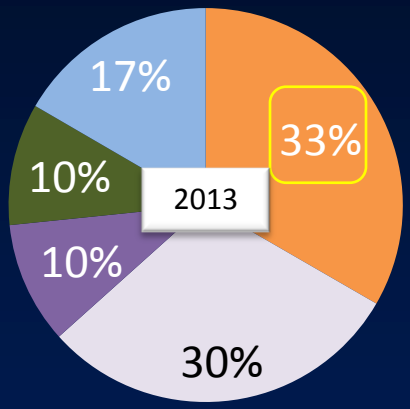
Retrograde cases

Kissing wire cross



ConPro
Gaia 1
Gaia 2
ULTIM3
other

P<0.05



Gaia 2
ConPro
Gaia 1
Gaia 3
Other

Retrograde Procedure Outcome (1)

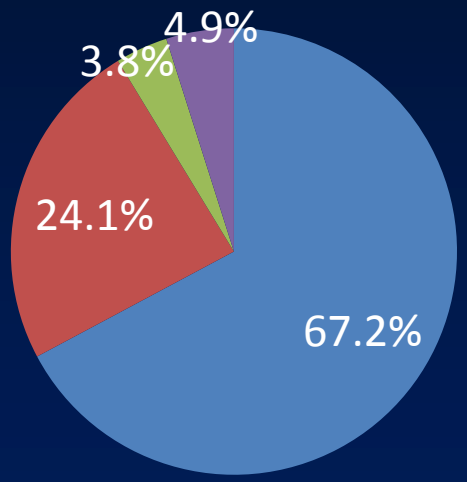
Retrograde cases (1028)

	Total (1028)	2012 (490)	2013 (538)	P
Procedure success	64.0% (658)	66.5% (326)	61.7%(332)	0.1078

↓

Reason of retrograde procedure failure (370)

- Couldn't cross collateral channel
- Couldn't cross CTO by GW
- Couldn't cross CTO by any catheter
- Procedure discontinuation due to complication



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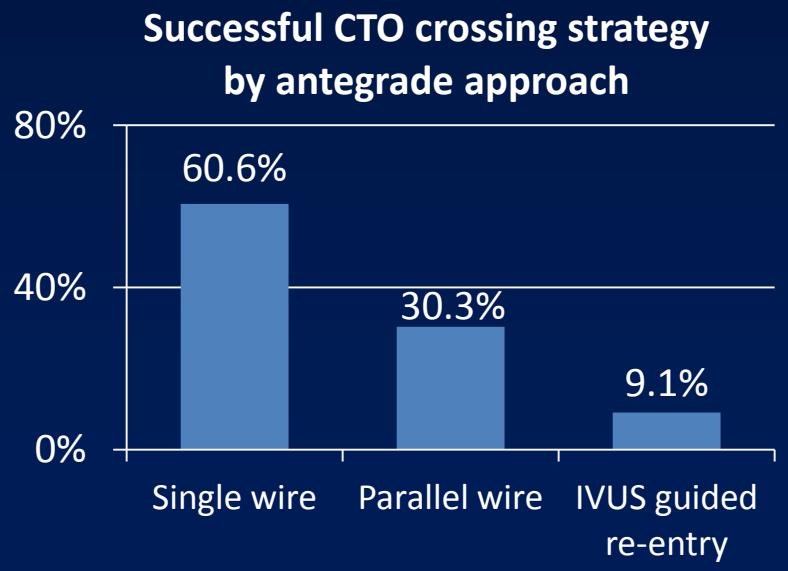
Switched to antegrade approach ; 80.0% (296)

Retrograde Procedure Outcome (2)

In case switched to antegrade after retrograde (n=296)

	Total	2012	2013	P
Antegrade procedure success switched after retrograde failure	60.8% (180/296)	64.8% (81/125)	57.9% (99/171)	0.2294
Overall procedure success in retrograde cases	81.5% (838/1028)	83.1% (407/490)	80.1% (431/538)	0.2236



Failure reason	N=116
Couldn't cross CTO by guidewire	84.5% (98)
Couldn't cross CTO by any catheter	7.8% (9)
Procedure discontinuation due to complication	5.2% (6)
NA	2.6% (3)

Retrograde approach relevant complications

Including minor events

	2012 (490)	2013 (538)	P
Retrograde approach relevant	**11.8% (58)**	**8.2% (44)**	**NS**
- Channel injury	11.0% (54)	8.0% (43)	
➢ Additional treatment required	4.1% (20)	3.0% (16)	NS
➢ Cardiac tamponade	0.4% (2)	0.2% (1)	
- Donor artery trouble	0.2% (1)	-	NS
- Other events	0.6% (3)	0.2% (1)	NS

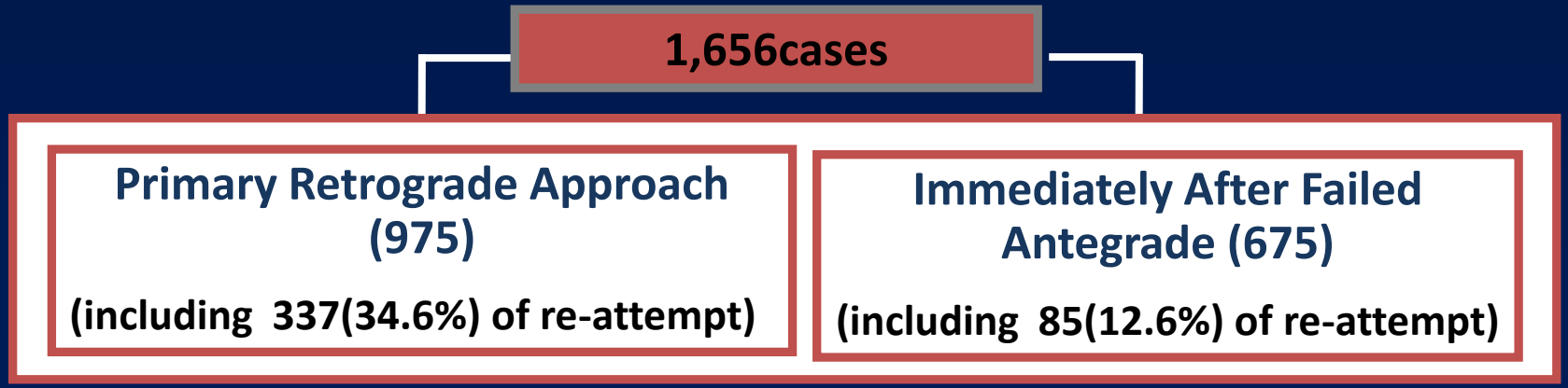
Sub Analysis from 2009-2012 Registry for the Retrograde Approach

Complication

Retrograde Summit registry data
Jan 2009 – Dec 2012

Registered hospital:45 centers

	Total	2009	2010	2011	2012
CTO PCI cases	**5,984**	1542	1472	1417	1553
Retrograde approach	**27.7% (1,656)**	24.5% (378)	28.7% (423)	25.8% (365)	31.6% (490)



No data for 6 cases

Procedure outcome
Jan 2009 – Dec 2012

	N =1656
Retrograde procedure success	**70.3% (1164)**
Retrograde clinical success	69.4% (1149)
Overall procedure success	**84.1% (1392)**
Overall clinical success	83.1% (1376)
MACCE	1.4% (24)
Procedure time (min)	196.2±85.8
Contrast dose (ml)	291.9±131.1
Fluoroscopic time (min)	94.5±48.4
Air Kerma (mGy)	6374.4±4657.7

Complications(2009-2012)

Including minor events

	N =1656
Retrograde approach relevant	**11.5% (191)**
At CTO site	3.1% (52)
Other events during/after procedure	2.1% (35)
Channel injury	**10.0% (166)**
➢ Additional treatment required	2.7% (44)
➢ Cardiac tamponade	0.4% (6)
Donor artery trouble	**0.7% (11)**
➢ Dissection requiring stent	0.5% (8)
➢ Thrombus formation	0.0% (0)
➢ Spasm	0.1% (2)
➢ Ischemia due to pre-existing lesion	0.06% (1)
Other	**0.8% (14)**

Retrograde Summit

Sub Analysis from 2012 Registry

Impact of Operator Experience on Procedural Results

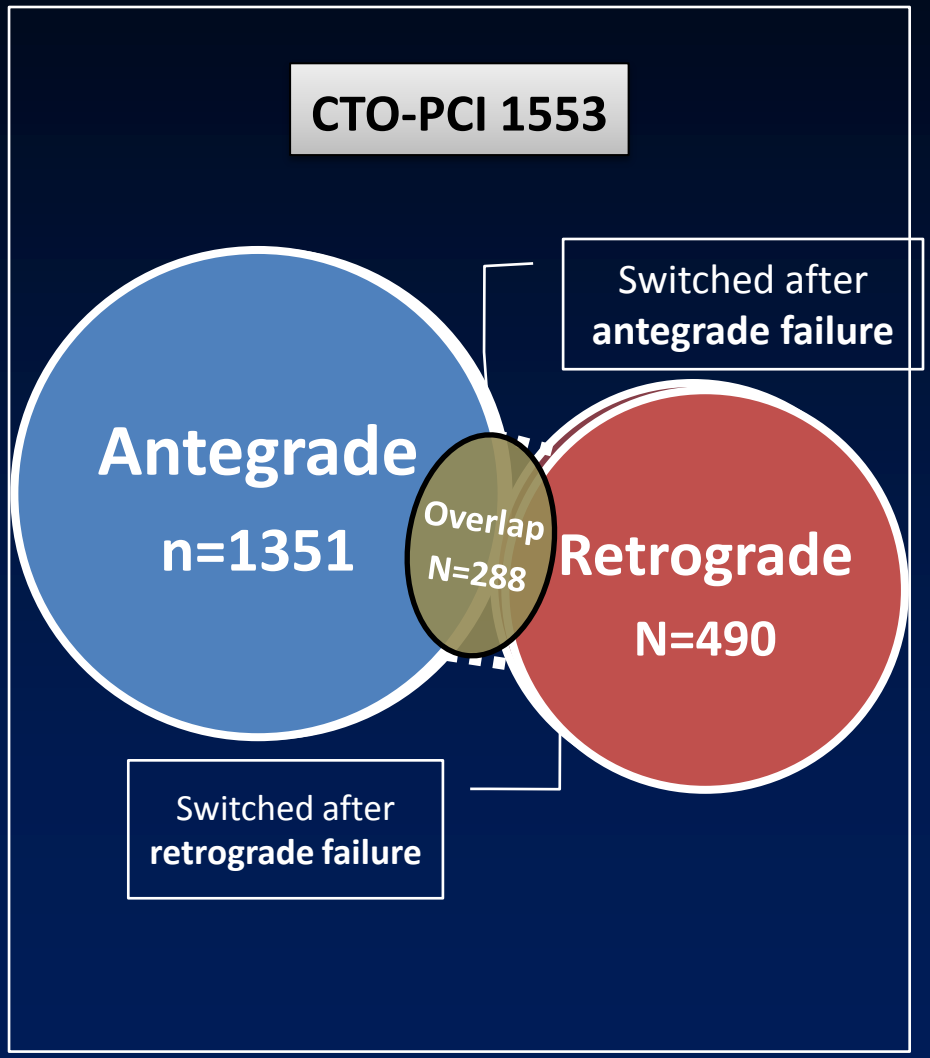
(ACC 2014)

Enrollment (Jan – Dec 2012)

- Total 1553 CTO procedure
- Registered hospital : 44

- **Higher volume center (HC)**
  There is one or more operator with estimated CTO-PCI volume > 50 per year* --- 17 center
  (* Including oversea cases)

- **Lower volume center (LC)**
  There is not such higher volume operator --- 27 center



Lesion characteristics (1)

	HC (967)	LC (586)	P value
Re-attempt	12.3%	10.4%	0.2554
Previous strategy			
- Antegrade	82.1%	75.0%	
- Retrograde	4.3%	0%	0.1114
- Both	9.4%	15.0%	
- NA	4.3%	10.0%	
Previous failure reason			
- Failure to cross CTO by GW	88.0%	86.7%	
- Failure to cross collateral by GW	0%	3.3%	0.3104
- Delivery failure of treatment device	5.0%	5.0%	
- NA	7.0%	5.0%	

Lesion characteristics (2)

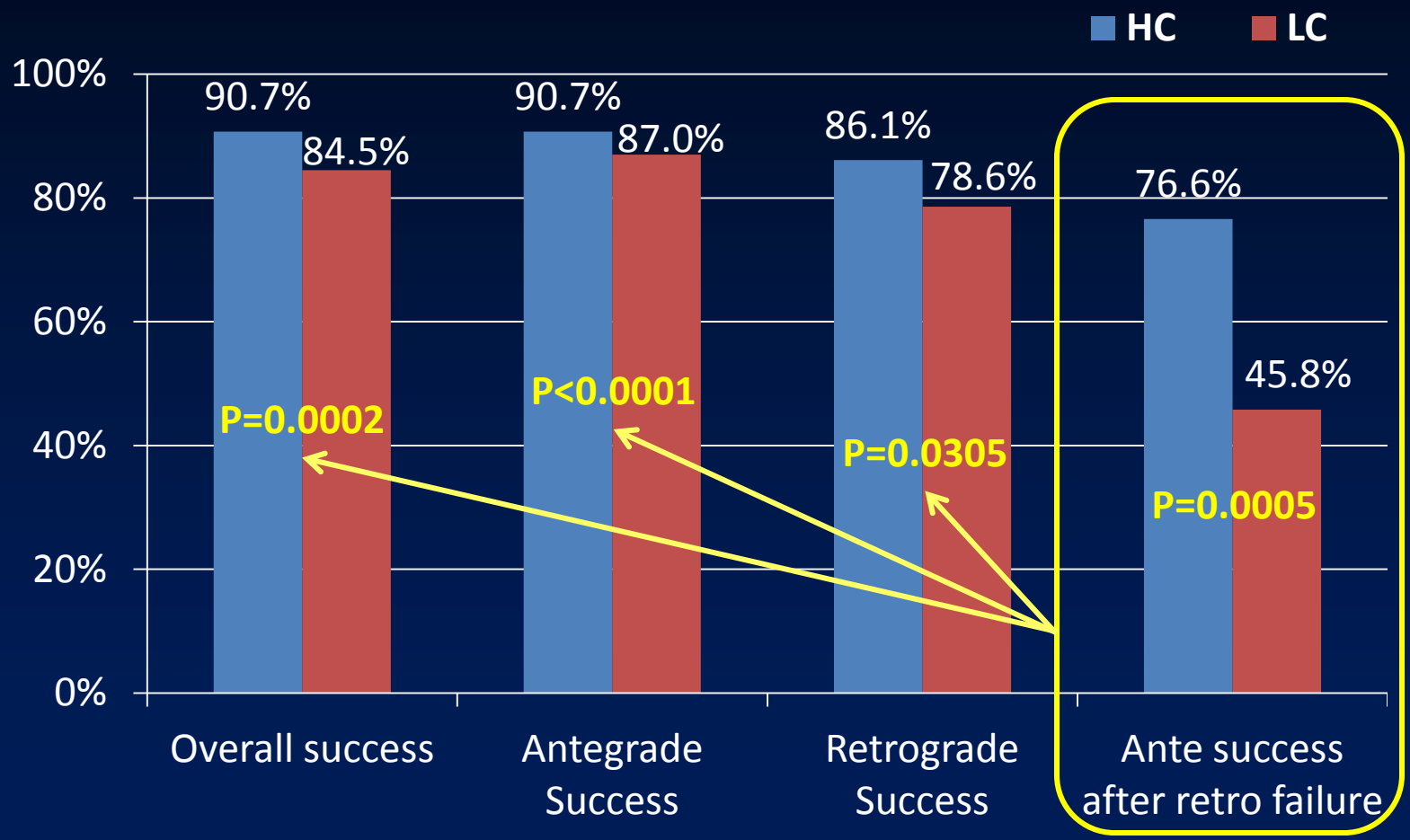
	HC (967)	LC (586)	P value
Target vessel - RCA - LAD - LCx - LMT	 46.6% 32.0% 21.1% 0.3%	 46.4% 31.6% 21.8% 0.2%	0.9419
Reference diameter	2.9±0.5	3.1±1.6	0.1009
Occlusion length	25.7±16.4	25.7±18.2	0.9283
ISR-CTO	14.5%	15.1%	0.7587
Occlusion period - ≥ 1 year - < 1 year - Unknown	 7.8% 7.4% 84.9%	 9.6% 11.8% 78.7%	0.0044
Collateral filling grade - CC 0 - CC 1 - CC 2	 8.5% 58.9% 32.6%	 11.3% 55.9% 32.9%	0.2449

Procedure outcome (1)

	HC (967)	LC (586)	P value
Successful CTO crossing by guidewire	**91.6%**	**86.2%**	**0.0007**
Number of guidewire used for CTO approach	3.3±0.1	3.2±0.1	0.3244
Procedure success	**90.7%**	**84.5%**	**0.0002**
Stent deployment	92.5%	94.1%	0.2662
Number of stent	1.9±0.9	1.9±0.9	0.5347
Total stent length, mm	51.8±24.4	52.0±25.7	0.8717
Use of drug-eluting stent	98.5%	97.2%	0.0952
Procedure time, min	**134.5±80.4**	**155.9±86.6**	**<0.0001**
Contrast dose, ml	**235.7±110.2**	**217.3±101.3**	**0.0014**
Fluoroscopy time, min	**60.8±39.6**	**70.1±46.3**	**0.0001**
Air Kerma, mGy	4589.2±3833.5	4905.6±3709.1	0.1772
MACCE	0.5%	1.0%	0.2483

Comparison of Success Rate

High volume center vs. Low volume center



Retrograde Summit

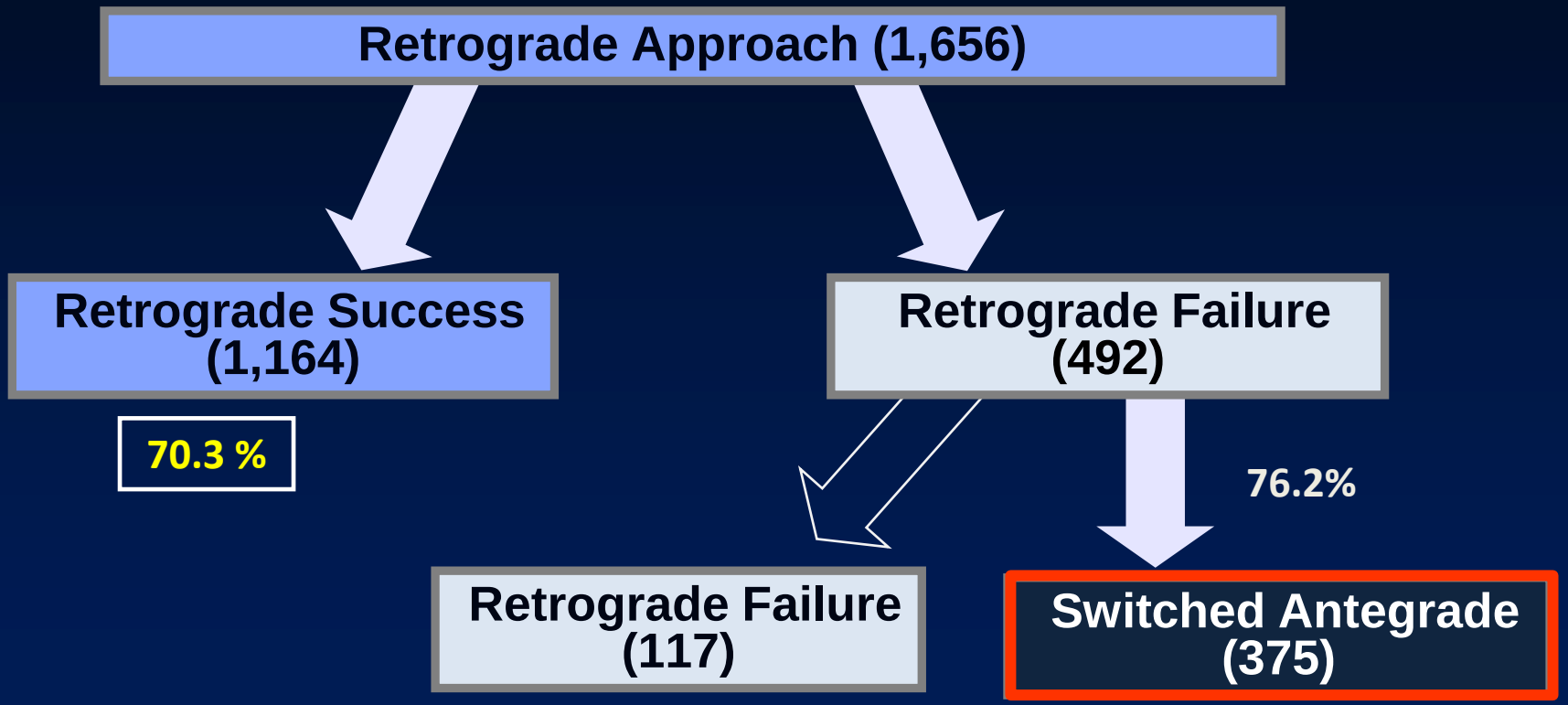
Sub Analysis from 2009-2012 Registry for the Retrograde Approach

Predictors of Antegrade Procedural Failure After Retrograde Procedural Failure

(ACC 2014)

Registry Data 2009-2012

N = 4,656



Clinical Results

	N=375
Antegrade success after retrograde failure	60.8%(228)
Antegrade clinical success after retrograde failure	60.0%(225)
MACCE	0.8%(3)
Procedure time (min)	210.5±83.0
Contrast dose (ml)	324.1±156.2
Fluoroscopic time (min)	102.2±50.2
Air Kerma (mGy)*	7125.4 ±4816.3

*No data in 2009

Univariate analysis for procedure results

Retrograde Summit

*Predictors for antegrade procedure failure in cases switched after retrograde attempt

	Antegrade success n=228	Antegrade failure n=147	P value
Male	81.6%	86.4%	0.2204
Age (years) >= 65	65.4%	59.9%	0.2821
Previous MI	**42.5%**	**53.7%**	**0.0339**
Previous CABG	**10.5%**	**20.4%**	**0.0078**
Multivessel disease	62.7%	67.4%	0.3605
Hypertension	73.3%	76.9%	0.4307
DM	41.7%	45.6%	0.4553
Hyperlipidemia	68.0%	65.3%	0.5907
Smoking	35.1%	42.9%	0.1305
Re-attempt CTO	18.4%	26.5%	0.0625

Univariate analysis for procedure results

*Predictors for antegrade procedure failure in cases switched after retrograde attempt

	Antegrade success n=228	Antegrade failure n=147	P value
Target –RCA	51.8%	53.1%	0.8046
Target –LAD	34.7%	32.0%	0.5922
Target –LCx	13.2%	15.0%	0.6209
Corsair use	77.6%	74.2%	0.4391
Lesion calcification	**51.3%**	**64.6%**	**0.0111**
Prox. Tortuosity	**21.9%**	**32.0%**	**0.0301**
Lesion Bending	**19.3%**	**32.7%**	**0.0033**
Occlusion length (≥20mm)	72.4%	73.5%	0.8151
Ref. Diameter (<3.0mm)	29.8%	32.0%	0.6596

Univariate analysis for procedure results

*Predictors for antegrade procedure failure in cases switched after retrograde attempt

	Antegrade success n=228	Antegrade failure n=147	P value
Occlusion duration (>12M)	23.7%	31.3%	0.1038
Instent occlusion	9.2%	8.2%	0.7267
Previous antegrade attempt*	**43.9%**	**60.5%**	**0.0016**
Procedure time (min)	206.2±81.9	217.4±84.7	0.2608
Contrast dose (ml)	325.9±155.4	321.2±158.1	0.7856
Fluoroscopic time (min)	101.8±48.5	102.8±52.8	0.8615
Air Kerma (mGy)	6977.2±4986.2	7370.2±4546.6	0.5940
MACCE	1	2	0.3673

*Previous antegrade attempt: Either previous or in same session

Multivariate Analysis

Independent predictors of antegrade failure in cases switched after retrograde attempt

	Odds ratio	95% CI	P
Previous antegrade attempt	2.0580	1.3293-3.2112	0.0012
Previous CABG	2.0790	1.1223-3.8890	0.0200

Retrograde Summit

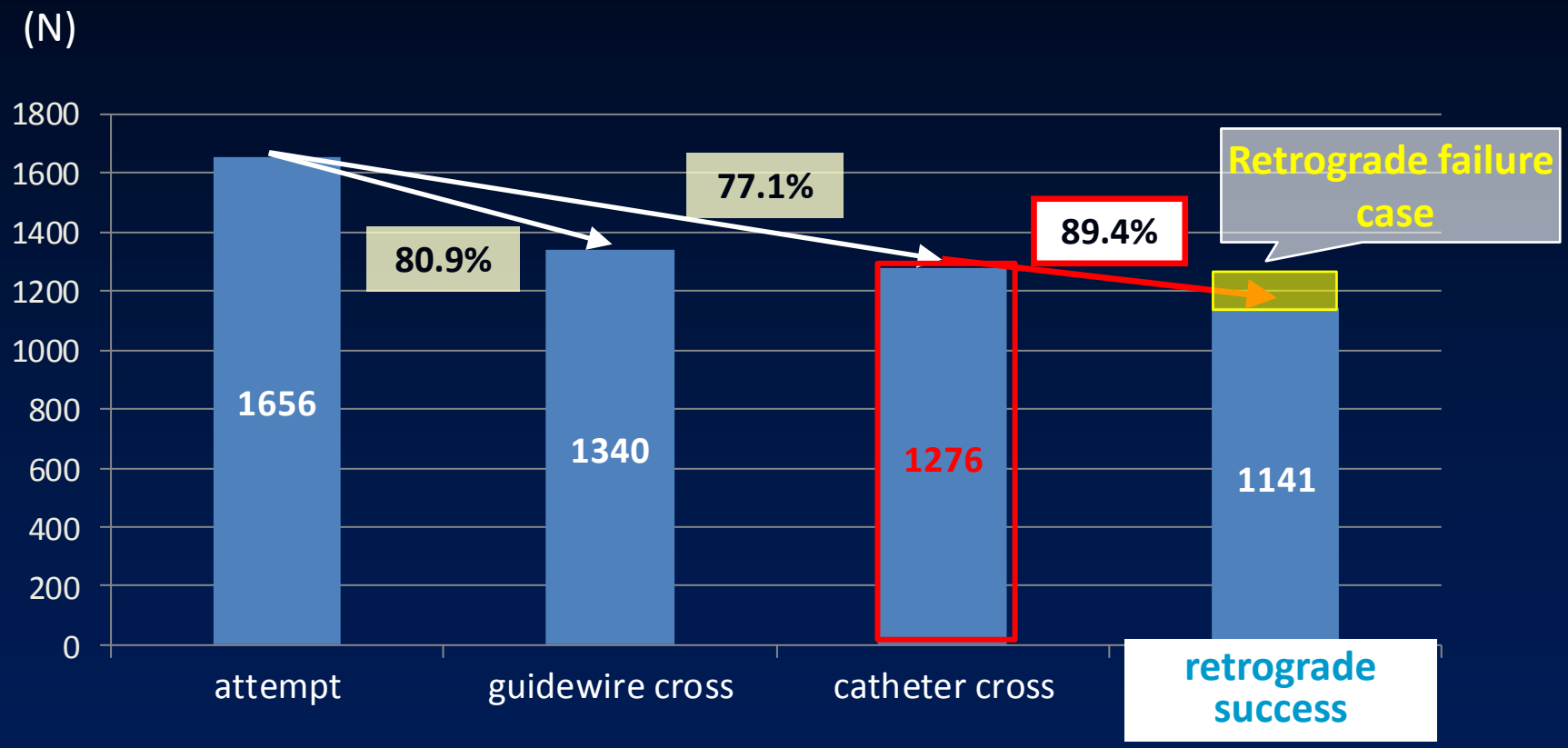
Sub Analysis from 2009-2012 Registry for the Retrograde Approach

Predictors of Procedural Failure After Successful Collateral Channel Crossing

(ACC 2014)

Clinical Results

Collateral crossing and retrograde success



Successful channel crossing with both wire and catheter is very important factor in retrograde approach, as fact 89.4% of procedure success was achieved after successful collateral crossing.

Univariate analysis(1)

Predictors for retrograde procedure failure after successful collateral channel crossing with catheter (n=1,276)

Parameter	Odds	95% CI	P
Male	0.6149	0.3752 – 1.0076	0.0517
Age ≥65 y.o	1.2572	0.8749 – 1.8065	0.2150
Previous MI	1.2194	0.8529 – 1.7435	0.2761
Previous CABG	1.4378	0.9147 – 2.2601	0.1139
Multivessel disease	1.3155	0.8941 – 1.9354	0.1629
Hypertension	1.0100	0.6771 – 1.5066	0.9608
DM	1.2845	0.8986 – 1.8361	0.1688
Hyperlipidemia	0.7072	0.4915 – 1.0175	0.0611
Smoking	1.0858	0.7564 – 1.5585	0.6552
In-Stent Restenosis	**1.9829**	**1.1783 – 3.3370**	**0.0088**

Univariate analysis(2)

Retrograde Summit

Predictors for retrograde procedure failure after successful collateral channel crossing with catheter (n=1,276)

Parameter	Odds	95% CI	P
Re-attempt CTO	0.7172	0.4636 – 1.1095	0.1340
Corsair use	1.1934	0.7084 – 2.0104	0.5057
Target vessel - RCA	1.0015	0.6922 – 1.4490	0.9935
Target vessel - LAD	1.1286	0.7581 – 1.6801	0.5510
Target vessel - LCx	0.8300	0.4455 – 1.5464	0.5569
Lesion calcification	**1.9233**	**1.2463 – 2.9679**	**0.0027**
Prox. tortuosity	1.2784	0.8899 – 1.8364	0.1830
Lesion bending	**1.5244**	**1.0618 – 2.1883**	**0.0216**
Occlusion length(≥20mm)	1.0073	0.6559 – 1.5469	0.9734
Ref. Diameter (<3.0mm)	0.8211	0.5475 – 1.2314	0.3399
Occlusion duration (>12M)	1.2116	0.8336 – 1.7610	0.3138

Multivariate analysis

Retrograde Summit

Independent predictors for retrograde procedure failure after successful collateral channel crossing with catheter (n=1,276)

Parameter	Odds	95% CI	P
Lesion calcification	**1.3472**	**1.0614 – 1.7169**	**0.0141**
Lesion bending	1.1793	0.9418 – 1.4747	0.1501
In-Stent restenosis	1.2415	0.8483 – 1.7949	0.2615

Summary

- Contemporary CTO-PCI showed a high procedural success rate (88.3%) with an acceptable complication rate.
- Particularly retrograde approach relevant complication was low.
- Collateral channel crossing is a key for successful retrograde approach, however lesion calcification is still a major obstacle even after successful channel crossing.
- Operator experience may affect procedural results in terms of antegrade approach after retrograde failure.

It's time to move forward!

Japanese CTO PCI Expert Registry

Retrograde Summit

The need to accumulate quantitative data to identify issues such as stagnation in the development of CTO-PCI techniques was recognized. Therefore, the Japanese Board of CTO Interventional Specialists was established in 2013. Starting from 2014, ***Japanese CTO PCI Expert Registry*** began establishing a database of CTO-PCI performed by certified physicians who have a certain level of CTO-PCI skills in able to compare the registry data internationally. In this registry, patients are enrolled by certified physicians. Procedure success is adjudicated by a Corelab.

Japanese CTO PCI Expert Registry

Currently,

'Retrograde Summit General Registry'

and

'Japanese CTO PCI Expert Registry'

are being conducted in Japan.

Registry Overview

	Retrograde Summit General Registry	Japanese CTO PCI Expert Registry
Organization	Retrograde Summit	Japanese Board of CTO interventional specialist
Participants As of Nov. 2014	57 of Japanese Centers	31 of Japanese expert Physicians
Criteria for the Participants	Centers which were approved by administrative board	• More than 300 cases of experience of CTO-PCI • More than 50 cases of CTO-PCI per year • Recommendation from two or more steering committee member
Core lab	—	QCA, QCU & Adjudication of Success

Definition

	Retrograde Summit General Registry	Japanese CTO PCI Expert Registry
CTO	TIMI flow grade 0 on coronary angiogram and occlusion period with > 3 months or unknown	And, include CTO of main branch (Seg1-3, 5-8, 11, 13) or branch(Seg4PL, 9/10, 12) which has significant coronary territory that is determine by Corelab or bypass graft.
Procedure Success	Recanalization of target lesion with restoration of TIMI flow grade 3 and residual stenosis <50%	• TIMI 3 or TIMI 2 with competitive flow for collateral flow • Residual stenosis <30% • No major side branch occlusion • No major complication (Em CABG, MI, Death)

Registry Data

Retrograde Summit

Patient Information	General	Expert
Basic Information, Past History, Risk Factor, Comorbidities, Clinical indication, Classification, Examination	○	○
Euro score	–	○
Lesion information		
AHA Classification, Target vessel , location, Reference diameter, Occlusion length, Collateral filling, Entry shape, CTO distal opacification, Calcification, Proximal tortuosity	○	○
Syntax score, Jeopardized Collateral, Adequacy of anatomically-based case selection	–	○
Procedure information		
Access, System, Recanalization approach, Used device, GW technique for CTO body crossing, Channel cross success, CTO cross success, Ante/Retro procedure success, Technical success, Clinical success, Reason of failure, Procedure time, Contrast dose, Fluoroscopic time, air kerma (Frontal/Lateral)	○	○

○ Determined by Corelab

Registry Data

	General	Expert
Procedure information (Antegrade)		
Contralateral angiography, GW technique for CTO crossing,	○	○
Step up/Step down, Preparation of Retrograde	—	○
Procedure information (Retrograde)		
Retrograde indication, Attempted/Used collateral channel	○	○
Procedure changing way to switch to Ante approach	—	○
Complications		
Procedure/Retro approach related complications, MACCE	○	○
Detailed information of CIN	—	○
Other		
Therapeutic strategy, Medication,	—	○
Follow up (3yrs for General Registry, 5yrs for Expert Registry)		
CCS, MACCE	○	○
Creatinine	—	○

Obtainable Results

Procedure Outcome	General	Expert
Trend of the devices/Procedural technique, Procedure success ratio (Residual stenosis ratio, TIMI flow, Main side branch occlusion),	○	○
Procedure success ratio of the physicians	—	○
Clinical Outcome		
Complications include CTO procedure related, MACCE	○	○
Radiation dermatitis (1 month FU), CIN/Cancer (Annual FU)	—	○

○ Determined by Corelab

Japanese CTO PCI Expert Registry

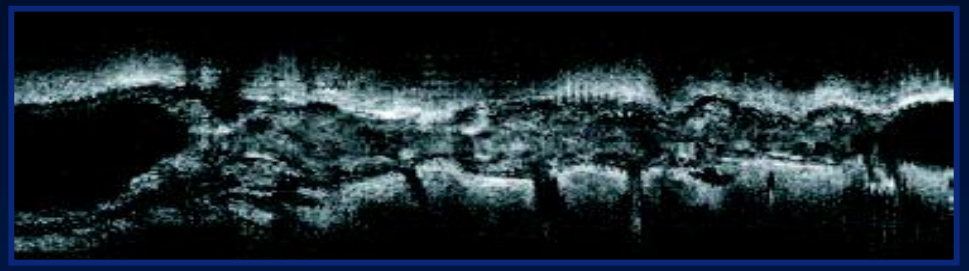
Retrograde Summit

will provide the data about

- Procedural outcomes of Japanese CTO experts such as success rate and complication rate adjudicated by Core Labo
- Comparison with data by other general physicians
- Long-term follow-up clinical results of pts with CTOs treated by experts

Retrograde Summit

16th CTO Club



June 19-20, 2015, Nagoya, Japan

www.cct.gr.jp/ctoclub