

Antegrade Wire Escalation

**Update From the Japanese CTO PCI
Expert Registry**

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*On behalf of the Japanese CTO PCI Expert Registry
Investigators*

Disclosure Statement of Financial Interest

I, **[Hiroyuki Tanaka]** DO NOT have a financial interest/arrangement or affiliation with one or more organizations that could be perceived as a real or apparent conflict of interest in the context of the subject of this presentation.

Faculty disclosure information can be found on the app

Design of the Japanese CTO PCI Expert Registry

Enrollment	From January 2014 to December 2022
Participants operators	49 operators
Criteria for participants	More than 300 CTO-PCI cases in total More than 50 CTO-PCI cases per year
Registry secretariat	Clinical Research Center, Kurashiki Central Hospital, Ohara Healthcare Foundation, Okayama, Japan Yoshiharu Yamamoto, Keiko Oka, Sawako Itadani
Angiographic core lab	Cardiovascular Imaging Center, Aichi, Japan
Data safety monitoring board	Harumi Katoh, Hironobu Tokumasu
Organization	Japanese Board of CTO Interventional Specialists
Principal investigator	Hiroyuki Tanaka Etsuo Tsuchikane (initiated by Osamu Katoh and late Kazuaki Mitsudo)

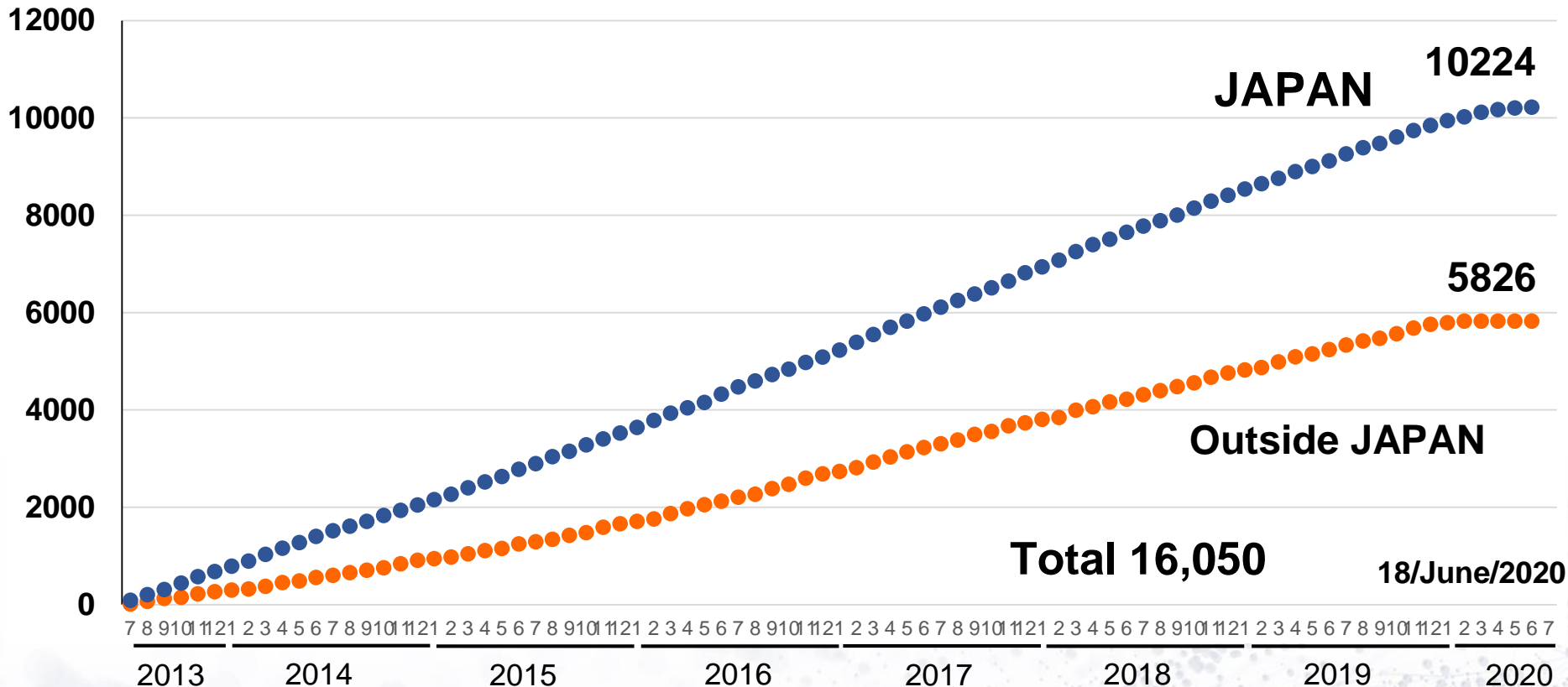
Participating Operators

Yasumi Igarashi Tokeidai Memorial Hospital
Tsutomu Fujita Sapporo Cardio Vascular Clinic
Yoshifumi Kashima Sapporo Cardio Vascular Clinic
Takahide Suzuki Asahikawa Kosei General Hospital
Yoshito Yamamoto Iwaki City Medical Center
Kaname Takizawa JCHO Sendai Hospital
Toru Takahashi Akita Cerebrospinal and Cardiovascular Center
Jiro Ando The University of Tokyo
Yuichi Noguchi Tsukuba Medical Center Hospital
Yuji Oikawa The Cardiovascular Institute
Akitsugu Oida Takase Clinic
Shinya Okazaki Juntendo University
Yuji Hamazaki Otakanomori Hospital
Makoto Muto Saitama Prefecture Cardiovascular and
Respiratory Center
Makoto Sekiguchi Fukaya Red Cross Hospital
Toshiya Muramatsu Tokyo General Hospital
Masahisa Yamane Saitama Sekishinkai Hospital
Kazuhiro Ashida Seirei Yokohama Hospital
Yasushi Asakura Hakujikai Memorial Hospital
Yoshiki Uehara Mito Brain Heart Center
Yuta Nagaoka Ebina General Hospital
Yuichi Kobori Todachuo General Hospital
Kenichiro Shimoji Saiseikai Utsunomiya Hospital
Yoshiaki Ito Saiseikai Yokohama-City Eastern Hospital

Hisayuki Okada Seirei Hamamatsu General Hospital
Yoshihisa Kinoshita Toyohashi Heart Center
Etsuo Tsuchikane Toyohashi Heart Center
Kenya Nasu Toyohashi Heart Center
Fumitaka Hosaka Okamura Memorial Hospital
Kinzo Ueda Rakuwakai Marutamachi Hospital
Satoru Otsuji Higashi Takarazuka Satoh Hospital
Atsunori Okamura Sakurabashi-Watanabe Hospital
Osamu Katoh Kusatsu Heart Center
Eisho Kyo Kusatsu Heart Center
Yoshihiro Takeda Rinku General Medical Center
Satoru Sumitsuji Osaka University
Wataru Nagamatsu Hokusetsu General Hospital
Ryohei Yoshikawa Sanda City Hospital
Kenji Kawajiri Matsubara Tokushukai Hospital
Shigeru Nakamura Kyoto Katsura Hospital
Masaki Tanabe Nozaki Tokushukai Hospital
Takafumi Tsuji Kusatsu Heart Center
Shozo Ishihara Mimihara General Hospital
Tomohiro Kawasaki Shin-Koga Hospital
Koichi Kishi Tokushima Red Cross Hospital
Yoshisato Shibata Miyazaki Medical Association Hospital
Takeshi Serikawa Fukuoka Wajiro Hospital
Hiroyuki Tanaka Kurashiki Central Hospital

Japanese CTO PCI Expert Registry

Patients Enrolled in the Japanese CTO PCI Expert Registry



Outcomes of Percutaneous Coronary Interventions for Chronic Total Occlusion Performed by Highly Experienced Japanese Specialists

The First Report From the Japanese CTO-PCI Expert Registry

This study assessed 2,596 patients undergoing CTO PCI between January 2014 and December 2015.

Patient Flow-Chart

**Patients enrolled in the Japanese CTO-PCI Expert Registry: 14,659 consecutive patients
From January 2014 to December 2019**

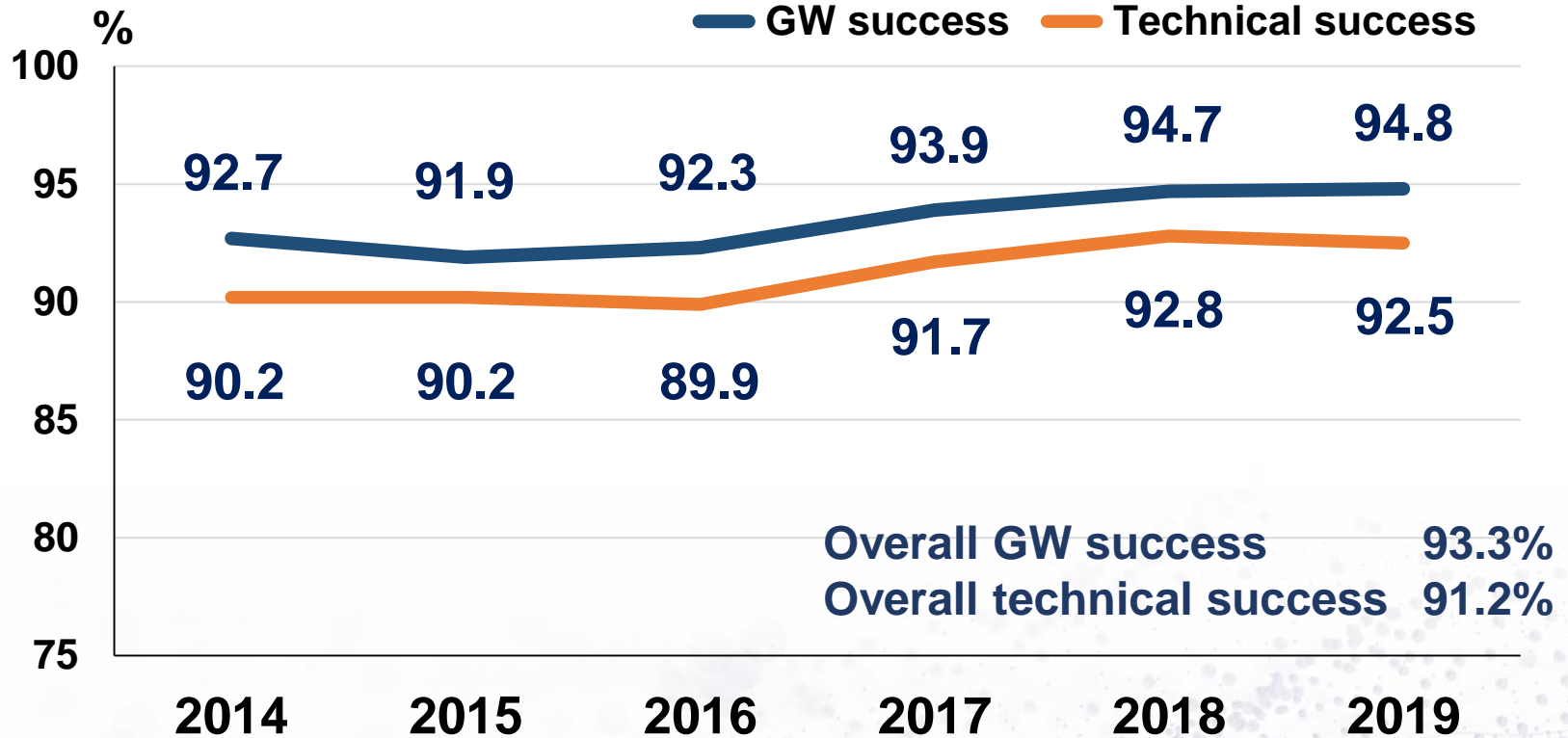
↓ → **Outside Japan: 5,494 patients**

CTO-PCI in Japan: 9,165 patients

↓ → **2 CTO lesions in one procedure**
↓ → **Inadequate anatomical indication**
↓ → **Unanalyzable lesion**
↓ → **Inappropriate data of pt./lesion background**

Current Study Population: 8,761 patients

The Rates of GW success and Technical success



Selected CTO-PCI Strategies

Primary antegrade approach
72.7% (6,371 patients)

Antegrade success
4,770 patients

Antegrade failure
1,601 patients

Rescue retrograde
22.9% (1,371 patients)

Retrograde success
962 patients

Retrograde failure
409 patients

Re-switched to antegrade
285 patients

Primary retrograde approach
27.3% (2,390 patients)

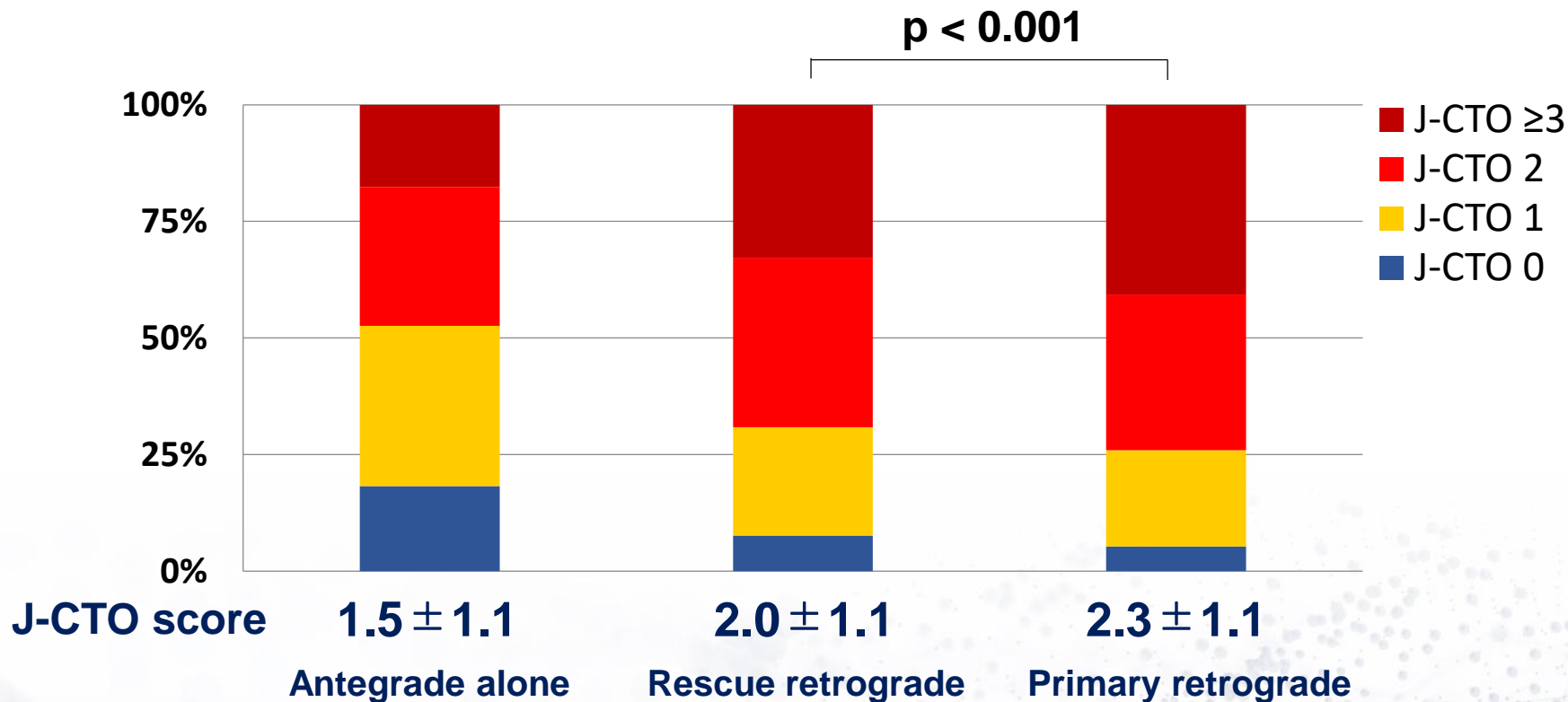
Retrograde success
1,849 patients

Retrograde failure
541 patients

Switched to antegrade
391 patients

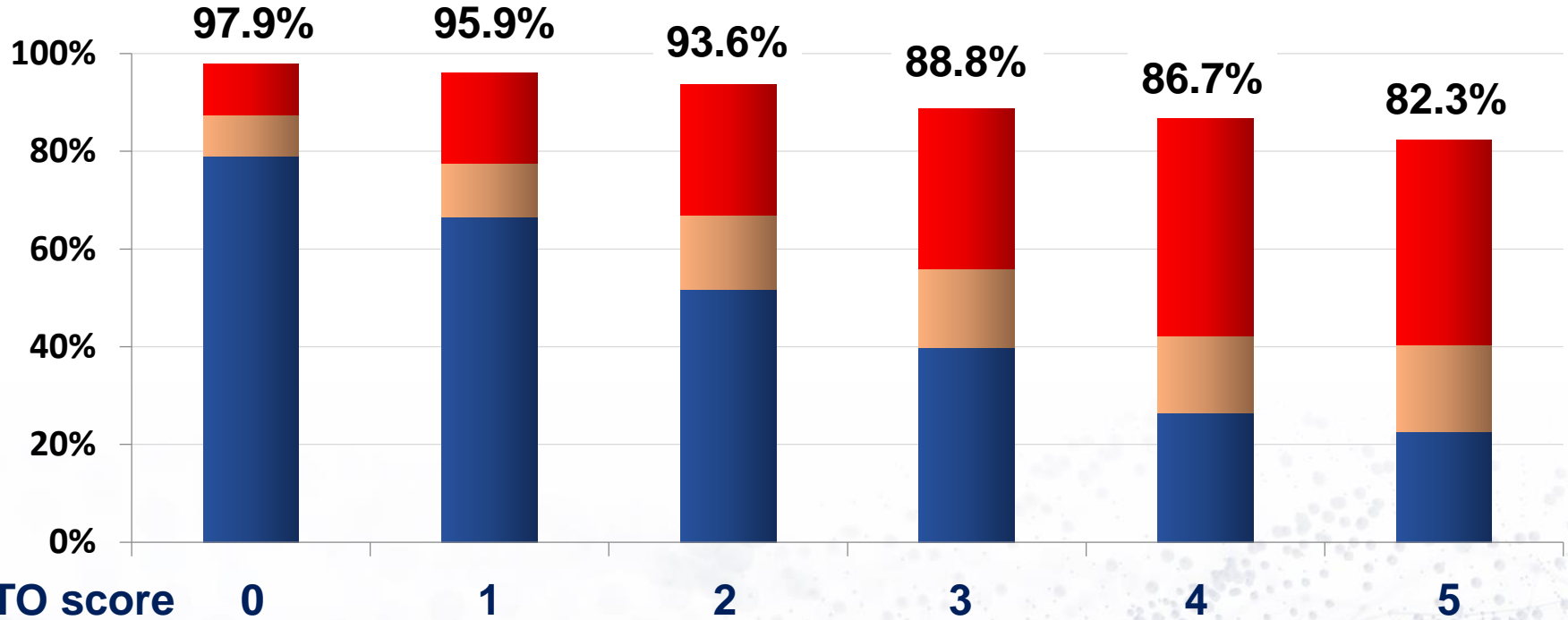
Overall retrograde PCI 42.9% (3,761/8,761)

J-CTO Score and Each CTO-PCI Strategy

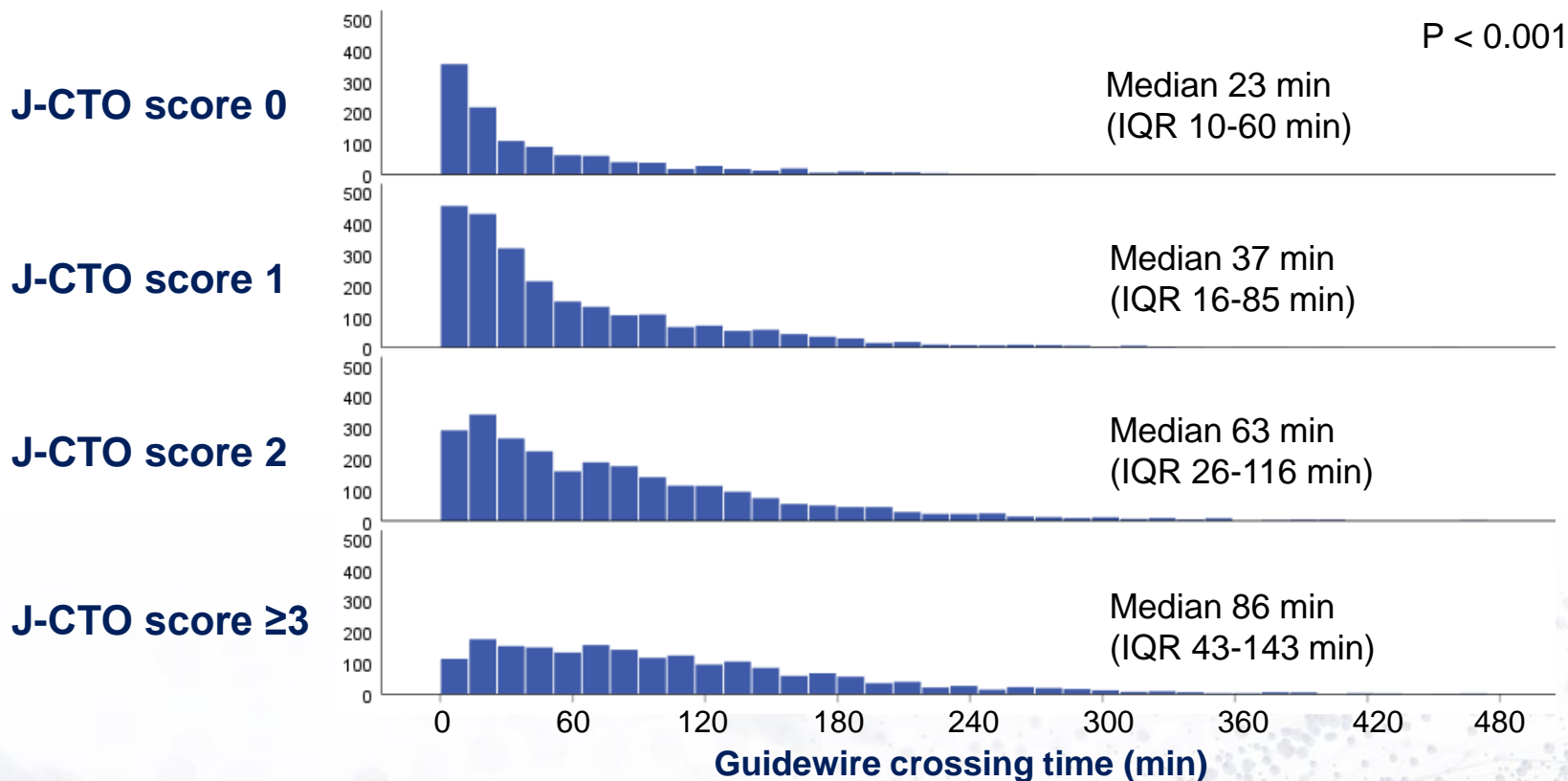


J-CTO Score and Corresponding GW Success Rate

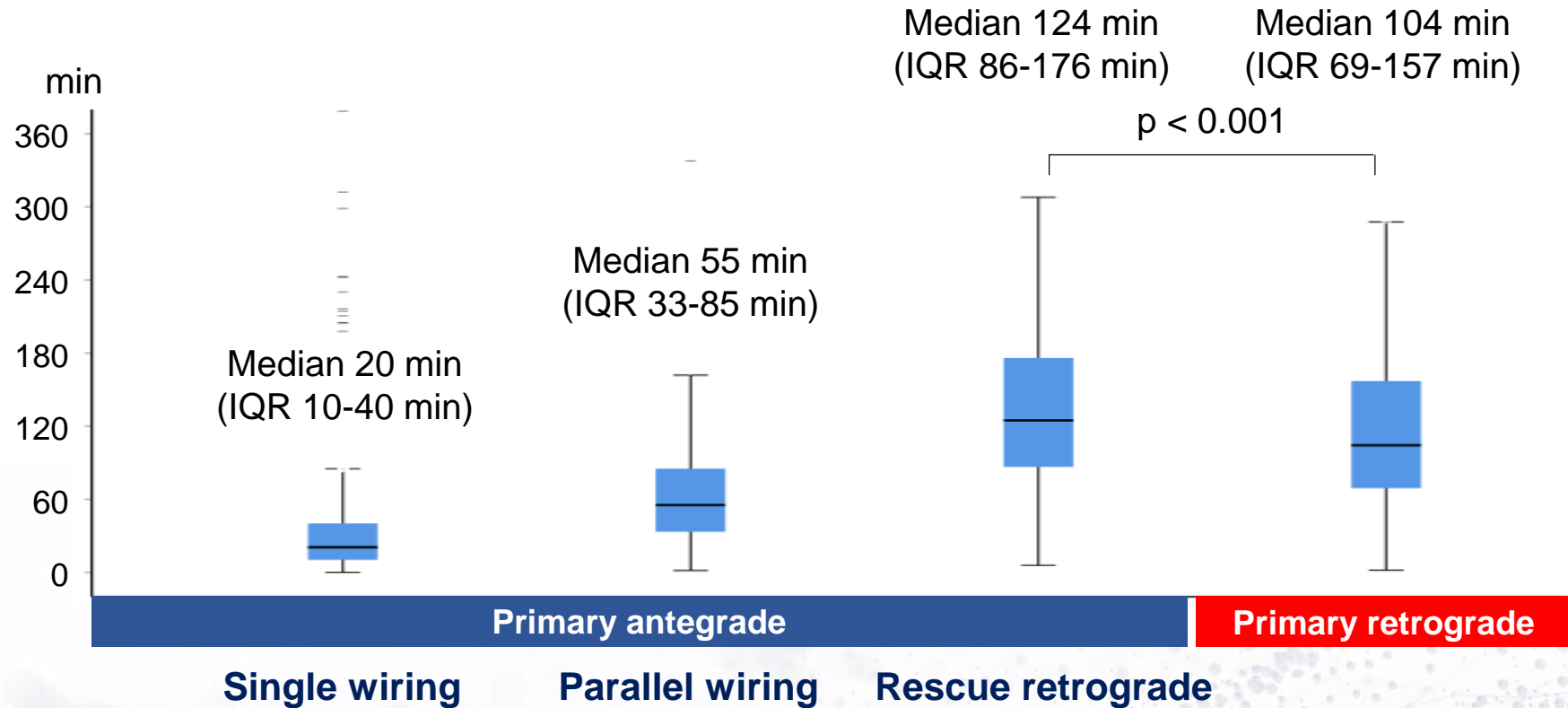
■ Primary retrograde ■ Rescue retrograde ■ Antegrade alone



Successful GW Crossing Time According to J-CTO Score



Successful GW Crossing Time for Each CTO-PCI Strategy



In-Hospital Adverse Outcomes

	Overall (n=8,761)	Primary Antegrade (n=6,371)	Primary Retrograde (n=2,390)	p Value
MACCE	1.7% (145)	1.4% (91)	2.3% (54)	<0.01
Death	0.3% (24)	0.3% (16)	0.3% (8)	0.51
Stroke	0.2% (20)	0.2% (14)	0.3% (6)	0.79
Myocardial infarction	1.2% (106)	1.0% (62)	1.8% (44)	<0.01
Acute stent thrombosis	0.1% (10)	0.1% (6)	0.2% (4)	0.37
Emergent CABG	0% (2)	0% (1)	0% (1)	0.47
Emergent PCI	0.1% (8)	0.1% (7)	0% (1)	0.35
Coronary embolism	0.1% (10)	0.1% (4)	0.3% (6)	0.02
Coronary perforation	2.9% (258)	2.0% (130)	5.4% (128)	<0.01
Cardiac tamponade	0.3% (30)	0.2% (15)	0.6% (15)	<0.01
Complication of puncture site	1.4% (124)	1.2% (76)	2.0% (48)	<0.01
Contrast-induced nephropathy	4.6% (406)	4.2% (267)	5.8% (139)	<0.01

Different Registries in CTO PCI

	Japanese CTO Expert registry: 2014-2019 (n=8,761)	PROGRESS CTO registry: 2012-2019 (n=3,661)	ERCTO registry: 2014-2015(1/2) (n=4,314)
Procedural success	91.2%	83.7%	87.6%
In-hospital mortality	0.3%	0.5%	0.1%
J-CTO score	1.8±1.1	2.4±1.3	2.1±1.0
Procedure time (min)	140	120	108
AWE	56.7%	49.5%	64.6%
ADR	0.7%	16.3%	5.5%
Retrograde	42.6%	20.8%	29.9%

Summary

- For CTO lesions ranged from easy to intermediate (J-CTO score < 2), Japanese expert operators mainly performed the antegrade alone and achieved a very high success rate (more than 95%).
- The primary retrograde approach (27.3%) was selected, especially for more complex CTO lesions.
- The high success rate for more complex CTO lesions was achieved at the expense of long procedure time using more strategies.
- The frequency of ADR remains low (0.7%).

Conclusion

**CTO-PCI performed by well-skilled specialists
achieved a high technical success rate and a low rate
of major complications.**