

DECISION Making: Endovascular vs Surgical Approach Acute Limb Ischemia 2018

Hiroyoshi Yokoi, MD.

Michiaki Higashitani , MD.

Fukuoka Sanno Hospital,

Fukuoka, Japan

COI Disclosure

Speaker name :

Hiroyoshi Yokoi, MD

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
- I do not have any potential conflict of interest

Acute Limb Ischemia

- 85% Thrombotic, 15% Embolic
- 20% Mortality
- 40% Limb loss
- Complete occlusion can lead to irreversible tissue damage with in 6 hours

A Need for Speed



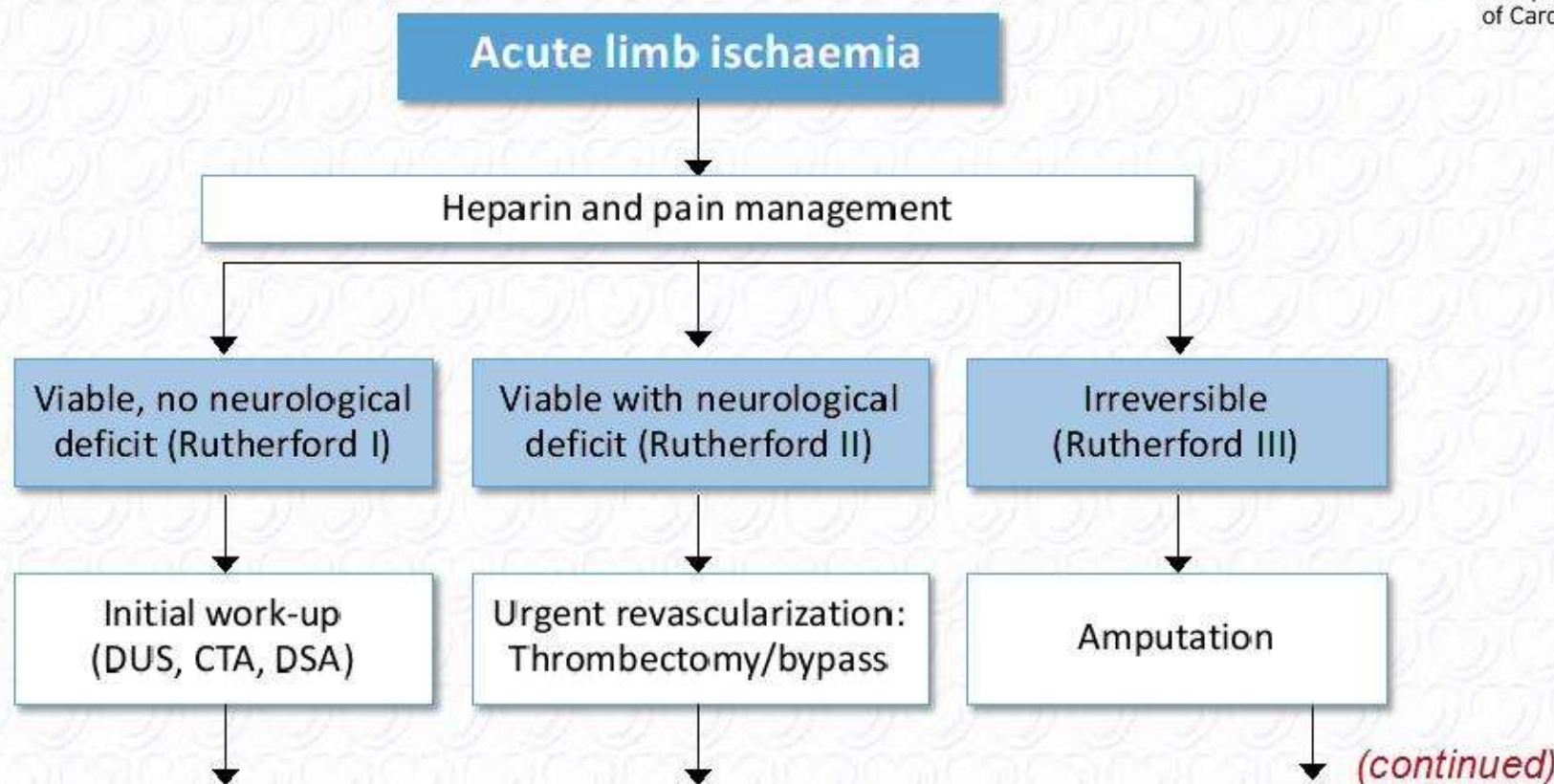
Management of patients presenting with acute limb ischaemia

Recommendations	Class	Level
In the case of neurological deficit, urgent revascularization is indicated.	I	C
In the absence of neurological deficit, revascularization is indicated within hours after initial imaging in a case to case decision.	I	C
Heparin and analgesics are indicated as soon as possible.	I	C

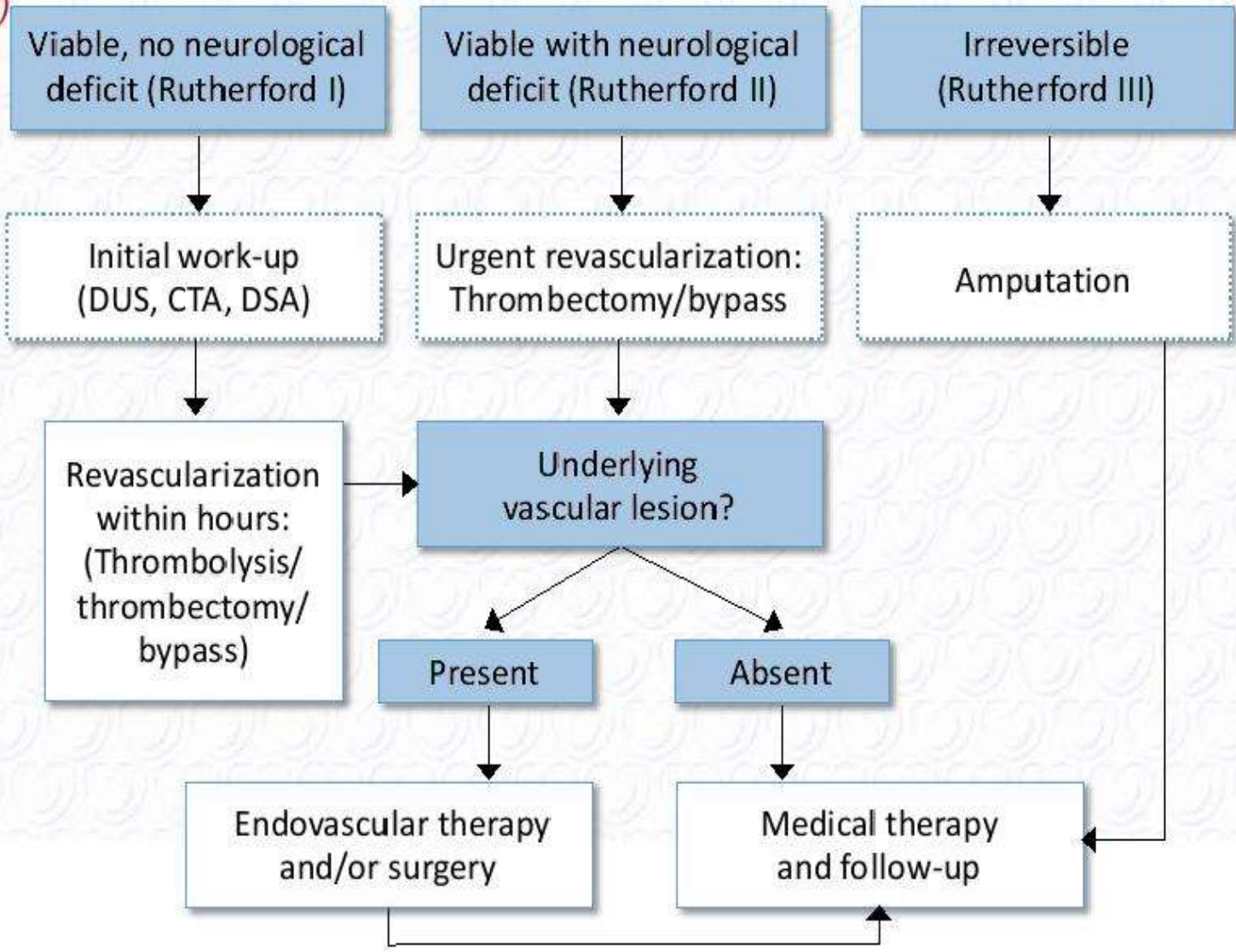
Clinical categories of acute limb ischaemia

Grade	Category	Sensory loss	Motor deficit	Prognosis
I	Viable	None	None	No immediate threat
IIa	Marginally threatened	None or minimal (toes)	None	Salvageable if promptly treated
IIb	Immediately threatened	More than toes	Mild/moderate	Salvageable if promptly revascularized
III	Irreversible	Profound, anaesthetic	Profound, Paralysis (rigor)	Major tissue loss, permanent nerve damage inevitable

Management of acute limb ischaemia



(continued)



Results of Treatment with Initial Thrombolytic Therapy or Primary Operation for ALI: Multicenter Randomized Trials

Trial	Patients	Time Period	Thrombolytic Therapy		Primary Operation	
			Amputation	Death	Amputation	Death
Rochester ^[10]	114	12 months	18%	16%	18%	42%
STILE ^[2]	393	6 months	12%	6.5%	11%	8.5%
TOPAS-II ^[11]	544	12 months	15%	20%	13.1%	17%

Complications Lysis vs Surgery

- Stroke at 30 days was greater with Lysis
1.3% vs 0% Surgery
- Major hemorrhage: Lysis 8.8% vs Surgery 3.3%
- Embolization: Lysis 12% vs Surgery 0%
- Survival equivalent, no difference in limb salvage or death

Modalities for Acute Limb Ischemia

- Open surgical interventions
- Percutaneous aspiration thrombectomy (PAT)
- Pharmacologic catheter-directed thrombolysis (CDT)
- Percutaneous mechanical thrombectomy (PMT)

Purpose

- Acute Limb ischemia(ALI) is traditionally attribute to embolic and thrombotic occlusion of both native arteries and bypass grafts.
- It has also been associated with femoral access-site complications, Intra-aortic balloon pump(IABP) and vascular closure device use at the time of catheterization.
- The purpose of the present study was to evaluate the predominant etiologies, primary treatment approaches, and clinical outcomes of patients with ALI in our interventional cardiology practice in Japan.

Study Design

- Prospective multicenter Cohort registry
- Entry Period : Nov. 2011 ~ Nov. 2013
- Follow up Period : 1year
- Consecutive Acute Limb Ischemia all patients with revascularization (EVT, Surgical, Hybrid)



Toho University Ohashi Medical Center
 Sakakibara Heart Institute
 St. Luke's International Hospital
 Tokyo Rosai Hospital



Tokyo Women's University hospital
 The Cardiovascular Institute
 Kasukabe Chuo General Hospital
 Tokyo Rosai Hospital
 Itabashi Chuo Medical Center
 Ota Memorial Hospital



【EDO registry Institute】



Cause of ALI (N=70)

Etiology Variables	N(%)	Etiologies in Detail	N(%)
Embolus	25(35.7)	AF	19(28.1)
		Aortic plaque	2(2.9)
		Cardiac thrombus	2(2.9)
		EVAR thrombus	1(1.4)
		TVAR thrombus	1(1.4)
Thrombosis	45(64.3)	In situ thrombosis	22(31.4)
		Graft Failure	9(12.6)
		Stent Failure	6(8.6)
		Popliteal aneurysm	3(4.3)
		Iatrogenic	3(4.3)
		Aortic dissecion	1(1.4)
		Trauma	1(1.4)



Patients Characteristics(N=70)

Age, mean \pm SD (years)	74.0 \pm 11.0
Male gender, n(%)	51 (72.9)
Hypertension	51 (72.9)
Dyslipidemia	31 (44.3)
Diabetes mellitus	22 (31.4)
Current Smoker	20 (28.6)
Regular hemodialysis	7 (10.0)
Coronary artery disease	17 (24.3)
Cerebrovascular disease	9 (12.9)
PAD revascularization history	28 (40.0)
Heart Failure	8 (11.4)
Acute Limb Ischemia history	3 (4.3)

Admission Status (N=70)

Low-flow status, n(%)	3 (4.3)
SBP mean \pm SD (mmHg)	145.0 \pm 30.0
DBP mean \pm SD (mmHg)	78.8 \pm 19.2
HR mean \pm SD (beats/min.)	82.9 \pm 19.2
Atrial fibrillation, n(%)	29 (41.4)
Malignancy, n(%)	3 (4.3)

Low-flow status: congestive heart failure, Shock, severe dehydration

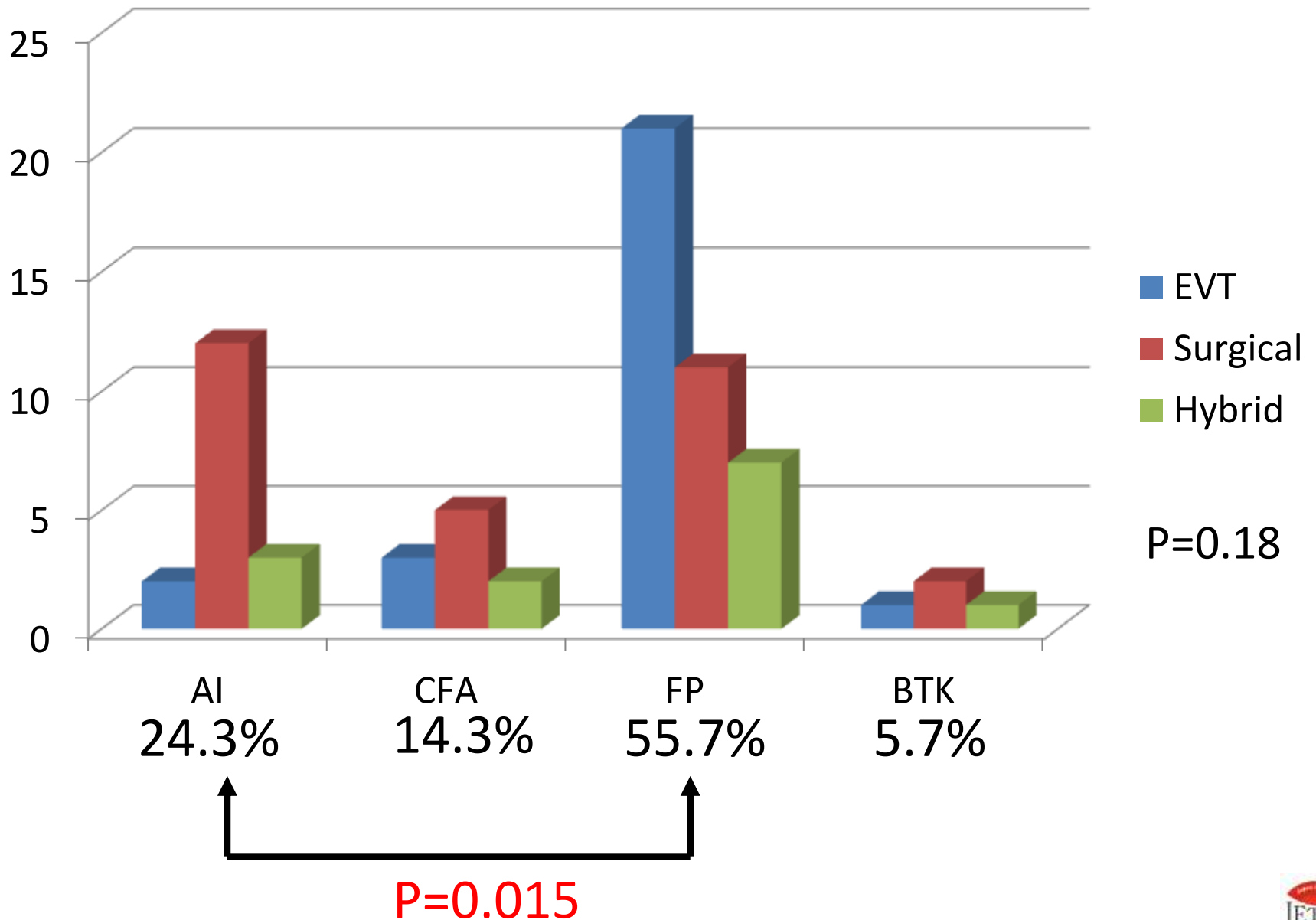
Clinical Categories of Limb Ischemia

Class I , n(%)	13 (18.6)
Class II a, n(%)	36 (51.4)
Class II b, n(%)	21 (30.0) \Rightarrow 3/21 Pt. resulted in class III
Class III , n(%)	0 (0)

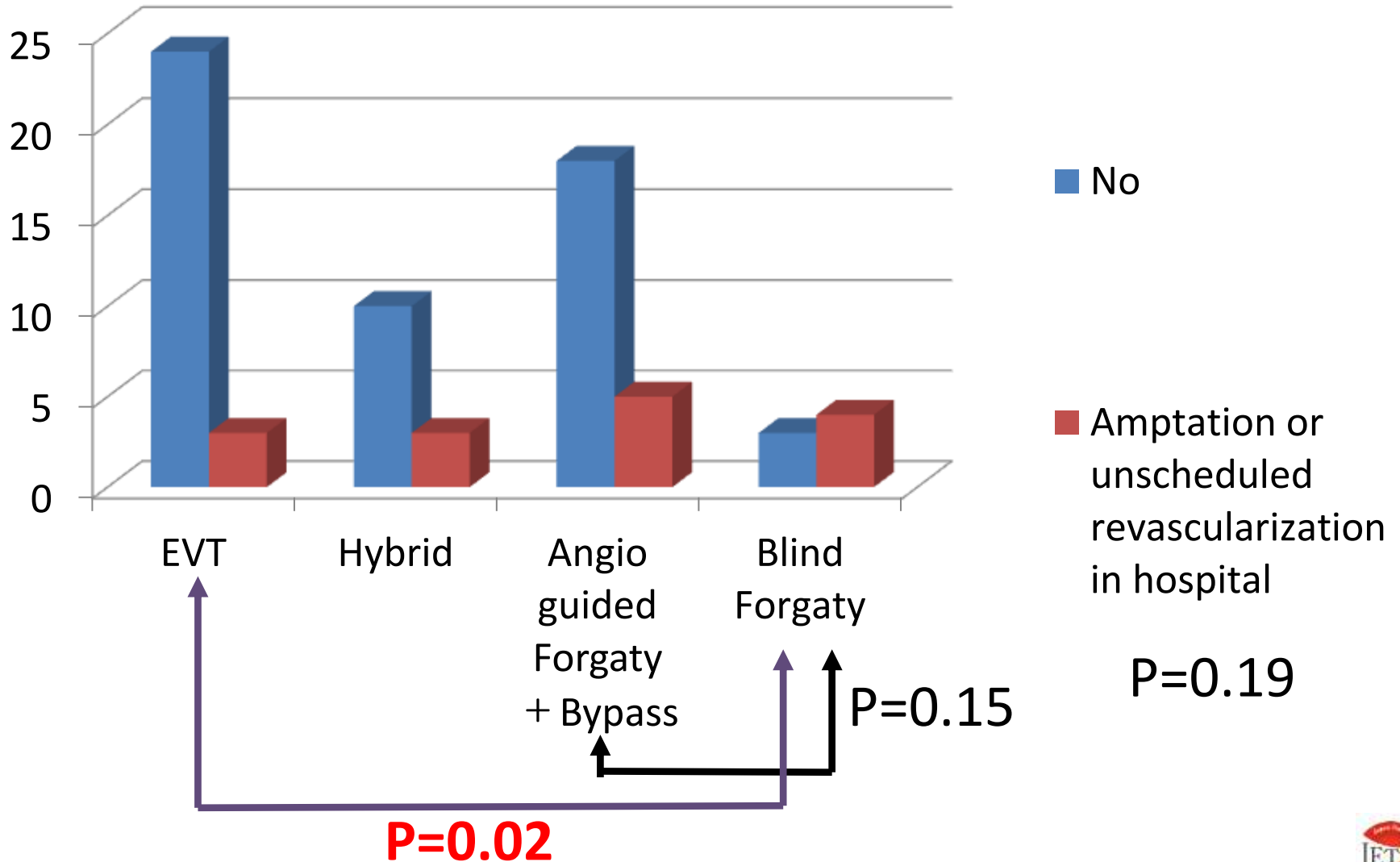
Onset to Intervention time

Mean hours [min, max]	60 ± 73 [2, 336]
~6hours, n(%)	18 (25.7)
6-24hours, n(%)	17 (24.3)
1-3days, n(%)	15 (21.4)
>3days, n(%)	20 (28.6)

Primary Revascularization Procedure



Major Adverse Limb Events



EVT only and Hybrid EVT in details

		EVT only (N=27)	Hybrid EVT (N=13)	P value
Ajunctive CDT		1 (3.7)	1 (7.7)	0.82
Aspiration		22 (81.5)	7 (58.3)	0.15
	Numbers of aspiration devices	1 (50%,N=11) 2 (50%,N=11)	1 (67%,N=5) 2 (33%,N=2)	
Balloon		22 (81.5)	12 (92.3)	0.64
Stent		12 (44.4)	2 (15.4)	0.09
Distal Protection		10 (37.0)	1 (7.7)	0.07
IVUS		9 (33.3)	3 (23.1)	0.72



***Medication at discharge
(N=61, 9 Pts.death in hospital)***

Variables	N (%)
Aspirin	40 (65.6)
Thienopyridine	17 (27.9)
Cilostazol	13 (21.3)
Warfarin	37 (60.7)
Direct oral anticoagrant	4 (6.6)
Statin	24 (39.3)
Antihypertensive drug	37 (60.7)

Clinical Events at Follow-up

	All cause death	Major Amputation	MACE	MALE	Bleeding
1month	9 (12.9)	4 (5.7)	10 (14.3)	19 (27.1)	2 (2.9)
6months	18 (25.7)	4 (5.7)	18 (25.7)	29 (41.4)	4 (5.7)
12months	20 (28.6)	4 (5.7)	21 (30.0)	37 (52.9)	4 (5.7)

MALE : all cause death, Major amputation, Revascularization+ALI event
 Bleeding : severe bleeding

Univariate Logistic Proportional Hazards Models

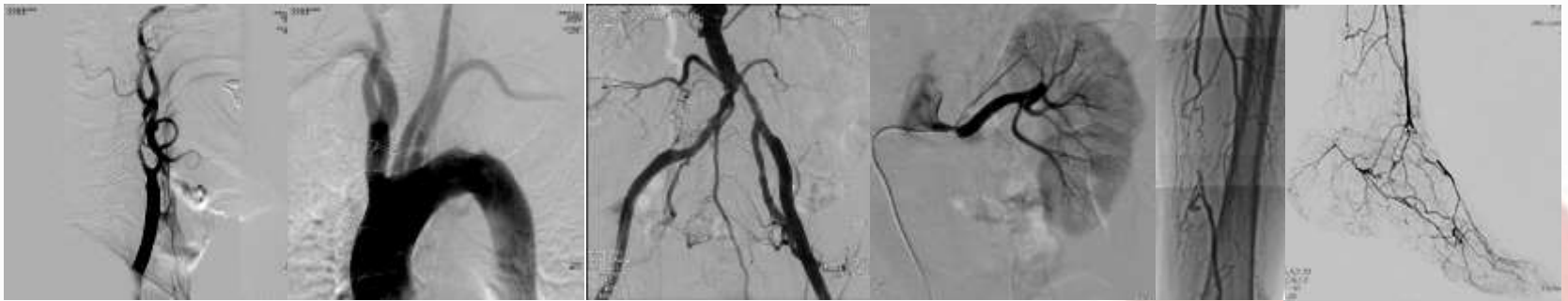
	All cause death at 1 year		
	OR	95%CI	P value
Age \geq 70	11.6	1.41-94.2	0.021
BMI<18	3.83	0.77-19.0	0.10
DM	2.33	0.79-6.89	0.13

Univariate Logistic Proportional Hazards Models

	MALE at 1 year		
	OR	95%CI	P value
Age \geq 70	2.07	0.72-5.96	0.18
DM	2.53	0.88-7.32	0.086
Hemodialysis	6.19	0.70-54.46	0.10
PAD revascularization	2.82	1.03-7.66	0.043

Conclusions

- From the EDO registry of ALI treatment by an interventional cardiology practice with an aggressive endovascular strategy, treatment was associated with a high rate of acute therapeutic success and durable outcomes at one year.
- The initial judgement of limb Ischemia category between class II b and class III was very difficult.
- Blind Fogarty procedure should be avoided in treatment for ALI patients.
- We needs more effective aspiration devices in Japan.



Thank you for your attention

JET2018
Osaka, Japan
February 23(Fri)-25(Sun) 2018
10th Anniversary JET 2018

