

# Aggregated Data of JAPAN Critical Limb Ischemia Database (JCLIMB) Annual Reports from 2013 to 2016

The Japanese Society for Vascular Surgery JCLIMB Committee, NCD JCLIMB Analytical Team

Since 2013, the Japanese Society for Vascular Surgery started the project of nationwide registration and tracking database for patients with critical limb ischemia (CLI) treated by vascular surgeons. The purpose of this project is to clarify the current status of the medical practice for the patients with CLI to contribute to the improvement of the quality of medical care. This database, called JAPAN Critical Limb Ischemia Database (JCLIMB), is created on the National Clinical Database (NCD) and collects the data of patients' background, therapeutic measures, early results, and long-term prognosis as long as five years after the initial treatment. The limbs managed conservatively are also registered in JCLIMB, together with those treated by surgery and/or endovascular treatment. The basic and early prognostic data of CLI, registered during the four years from 2013 to 2016, have been reported as annual reports. In this paper, for the purpose of clarifying the picture of clinical practice of CLI in Japan, we have compiled these data over the past four years. (This is a translation of *Jpn J Vasc Surg* 2019; 28: 219-247.)


**Keywords:** arterial occlusive disease, leg ischemia, peripheral arterial disease (PAD), CLI, aggregated data of annual report

## 1. Introduction

Recently, an increasing number of patients with critical limb ischemia (CLI) have been undergoing medical care

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Corresponding author: Shinsuke Mii, MD, PhD. Japanese Society for Vascular Surgery, Odakyu Daiichi-Seimei Building 4F, 2-7-1 Nishi Shinjuku, Shinjuku-ku, Tokyo 163-0704, Japan  
Tel: +81-3-5989-0991, Fax: +81-3-5324-0822  
E-mail: shinsuke.mii-nakao@jcom.home.ne.jp  
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at clinical practice sites. Improving the outcome of treatment for these patients is an important and urgent issue. Since 2013, the Japanese Society for Vascular Surgery (JSVS) initiated a nationwide CLI registration and tracking database project to obtain CLI epidemiological data that can be shared among medical staff. The background of CLI limbs, contents of treatment, early outcome, and long-term outcome until five years after surgery, including non-surgical limbs, are registered in this database. The database was named JAPAN Critical Limb Ischemia Database (JCLIMB) and established on the National Clinical Database (NCD). The JCLIMB project's primary objective is to clarify the current status of CLI treatment performed by vascular surgeons in Japan and inform physicians at practice sites, thus improving the quality of medical care. The initial registration data and their tracking data one month after registration in 2013-2016, have already been published.<sup>1-8)</sup> In this paper, for the purpose of clarifying the picture of clinical practice of CLI in Japan, we have compiled these data over the past four years. In addition, a part of data is represented by means of graphs to enhance convenience for readers. Graphs were made using overall data.

## 2. JCLIMB

Registration details, including the definition of CLI, have already been described in the 2013 annual report. CLI to be registered was defined according to TASC II<sup>9)</sup>: chronic ischemic rest pain, ulcers, or gangrene attributable to objectively-proven arterial occlusive disease. CLI diagnosis should be confirmed by ankle pressure (AP) below 50 mmHg or toe pressure (TP) below 30 mmHg in limbs with rest pain, and done by AP below 70 mmHg or TP below 50 mmHg in limbs with ulcer or gangrene.

The same limb can be registered in JCLIMB only once within a five-year tracking period. When the registered limb is treated at different times or different institutions, such data should be added only to the tracking items of each limb in JCLIMB, avoiding registration overlap. However, details of the procedure are registered each time in

NCD apart from the registration in JCLIMB. On the other hand, the patient with bilateral CLI can be registered twice for each limb. Based on NCD regulations, fixing JCLIMB data is done as follows:

- Initial registration data: Early April in the following year,
- Tracking data early after treatment (one month)/six months after treatment: End of December in the following year
- Tracking data one year after treatment: End of December after two years
- Tracking data two years after treatment: End of December after three years
- Tracking data three years after treatment: End of December after four years
- Tracking data four years after treatment: End of December after five years
- Tracking data five years after treatment: End of December after six years

As a general rule, the timing of tracking data registration is accepted within a  $\pm 2$ -month range until 12 months after treatment, and within a  $\pm 3$ -month range thereafter. Although the day for tracking data fixing is specified, it is made flexible because, in some limbs, follow-up data might be revealed later.

It is very difficult to require facilities participating in NCD to register CLI data since a great number of registration items in JCLIMB would put too much burden on them. Thus, facilities wishing to participate were recruited. Facilities which registered CLI limbs in each year were listed in the appendix in each annual report.

The audit of data registered in JCLIMB and the audit of data regarding vascular surgery registered in NCD was started in 2018. Committee members visit the selected institutes to collate the registered data to the data of clinical chart.

Since JCLIMB is positioned as a registry study on NCD, patient consent to participate in the study, and the ethical review of the study at the time of participation in NCD were adopted.

### 3. Comments on the Aggregated Data in 2013–2016

This paper shows the aggregated data which have already been reported in annual reports from 2013 to 2016. The date fixing the data was described in each annual report. For 4 years, 4,784 limbs, those of 3,361 males (70%) and 1,423 females (30%), were registered. All data and extracted data on arteriosclerosis obliterans (ASO) were collected according to the registered items. Since ASO accounted for 98% of all limbs, the overall and ASO data showed similar tendencies. In the comments, ASO data

were presented in parentheses. In addition, because the Society for Vascular Surgery (SVS)'s WIfI classification was reported in 2014,<sup>10)</sup> JCLIMB made several changes and additions to the registered items and the aggregated data on WIfI classification were compiled from the data of 2015 and 2016 annual reports. The site of wound (either gangrene or ulcer) was registered in the item of "Sites of ulcer/gangrene" until 2014, while the ulcer and gangrene have been registered separately since 2015. Accordingly, the numerical values in "Main sites of ulcer/gangrene to be treated" in 2015 and 2016 were used for the 4-years' aggregated data of "Sites of ulcer/gangrene." For the aggregated data of "Vein usage and vein quality," the data in 2015 and 2016 were used. The total figure was not always consistent, mostly due to missing values. The comments to these problems were different depending on each annual report, which should be referred.

#### (1) Pretreatment patients' background

Pretreatment patients' background is shown in Tables 1-1 to 1-6. Good blood pressure control was defined as below 140/90 mmHg, without diabetes and renal failure, or below 130/80 mmHg with these diseases. Diabetes control was considered good when hemoglobin A1c was below 7.0% (national glycohemoglobin standardization program value). Dyslipidemia control was considered good when low-density lipoprotein was below 100 and 80 mg/dL in the absence and presence of other arteriosclerotic diseases, respectively. The presence of heart failure was judged clinically. The patient was regarded as having heart failure based on a past history of admission due to heart failure, clinical symptoms of heart failure, a diagnosis of heart failure was confirmed by echocardiography, or reduced cardiac function on echocardiography even with no clinical heart failure symptoms. Renal dysfunction was graded following the new chronic kidney disease severity classification of the "Clinical Practice Guidebook for Diagnosis and Treatment of Chronic Kidney Disease 2012"<sup>11)</sup>: Renal dysfunction was absent when the estimated glomerular filtration rate (eGFR) (mL/min/1.73 m<sup>2</sup>) was 60 or higher, and graded as G3a, G3b, G4, and G5 when eGFR was 45–59, 30–44, 15–29, and below 15, respectively. eGFR below 15 in hemodialysis patients was graded as G5D.

The causes of the arterial occlusion of the limb were ASO in 4,683 (98%) limbs, thromboangitis obliterans (TAO) in 37, vasculitis (Takayasu's arteritis, collagen disease, Behçet's disease, and fibromuscular dysplasia excluding TAO) in 43, and others in 21. Patients comorbidities consisted of diabetes in 66% (67%) of the limbs, hypertension in 75% (76%), dyslipidemia in 39% (39%), ischemic heart disease in 43% (43%), heart failure 14% (14%), cerebrovascular disease in 23% (24%), dialysis

for renal failure in 44% (45%), past medical history of malignant neoplasm or that being treated in 8% (9%), arterial occlusive lesions in the contralateral limb in 77% (77%), and CLI in the contralateral limb (Rutherford 4–6) in 22% (22%).

## (2) Conditions of limb ischemia

Limb ischemia pretreatment conditions are shown in Tables 2-1 to 2-6. Regarding the walking function (Taylor's classification),<sup>12)</sup> patients who could walk outdoors or indoors independently, including with a cane, were regarded as "ambulatory," and those unable to walk but able to stand on their own legs during transfer from the bed to a wheelchair were designated as "ambulatory/homebound."

Regarding the state of local tissue defect (University Texas classification),<sup>13)</sup> the most severe lesion, the main treatment target, was evaluated. Skin perfusion pressure (SPP) was measured on the foot (base of the toe, dorsum of the foot, or sole) and a lower value was adopted. To perform Wifi classification, the sites of ulcer and gangrene were registered separately. Although SPP is widely used as an objective index for evaluating ischemia in Japan, ischemic grading criteria using SPP is not shown in Wifi classification, wherein TP is given top priority. Therefore, in JCLIMB, the SPP value was converted to TP using the conversion equation  $SPP = 0.6853 TP + 14.48$  from the correlation data of SPP and TP reported in Japan,<sup>14)</sup> and applied for Wifi ischemic grading.

The lesion was considered infected when it showed two or more of the following findings: local swelling or induration, erythema  $>0.5$  cm around the ulcer, local tenderness or pain, local warmth, and purulent discharge (thick, opaque to white, or sanguineous secretion). In addition, local infections involving only the skin and the subcutaneous tissue, and those involving structures deeper than the skin and subcutaneous tissues, were registered separately. Local infections involving only the skin and the subcutaneous tissue were differentiated based on the size of the erythema around the ulcer,  $\leq 2$  or  $>2$  cm.

Systemic inflammatory response syndrome, indicating systemic infection, was manifested by two or more of the following signs: temperature  $>38^{\circ}\text{C}$  or  $<36^{\circ}\text{C}$ , heart rate  $>90$  beats/min, respiratory rate  $>20$  breaths/min or  $\text{PaCO}_2 <32$  mmHg, white blood cell count  $>12,000$  or  $<4,000$  cu/mm or 10% immature (band) forms. The arteries in the ankle joint region were classified as foot arteries.

On Taylor's classification, 56% (56%) of the patients were ambulatory, 23% (23%) were ambulatory/homebound, and 21% (21%) were non-ambulatory. On the Rutherford classification (R),<sup>15)</sup> limbs with categories R4, R5, and R6 accounted for 23% (23%), 62% (62%), and 15% (15%) of the limbs, respectively. The occlusive lesion

was located in the aortoiliac artery in 23% (23%) of the limbs, in the femoropopliteal artery in 61% (62%) of the limbs, and in the crural or foot artery in 61% (61%) of the limbs.

We were able to apply the Wifi classification with sufficient data to 1,724 limbs (1,689 limbs). On the Wifi classification, limbs with the stages 1, 2, 3, and 4 accounted for 11% (11%), 20% (19%), 27% (27%), and 43% (43%) of the limbs, respectively.

## (3) Treatment

Tables 3-1 to 3-6 show the CLI treatment data. Revascularizations of the affected limbs were performed in 95% (95%) of the registered limbs, and primary major amputations were performed in 1.9% (2.0%) of the registered limbs. Among the surgical reconstruction procedures, distal bypass, a bypass to the crural or foot artery, accounted for 46% (45%). Endovascular treatment (EVT) applied to the crural or foot artery accounted for 38% (37%) of the total EVT.

## (4) Outcomes early (one month) after treatment

Tables 4-1 to 4-8 show the outcomes early (one month) after treatment. Follow-up data one month after treatment were obtained in 3,188 limbs (67%), including 3,115 limbs (67%) with ASO, which included 105 limbs (102 limbs) without arterial reconstruction. Data were collected according to the severity of the local limb conditions (Rutherford classification) and treatment measures (EVT alone or surgical reconstruction with/without EVT). The mortality was 3.2% (3.2%) in the whole series, and 3.0% (3.1%) and 3.3% (3.3%) treated by EVT alone and by surgical reconstruction with/without EVT, respectively. The most common cause of death was cardiac disease, accounting for 31% (31%) of all deaths. Postoperative complications were cardiac disease in 2.9% (2.9%), cerebrovascular disease in 1.4% (1.4%), pneumonia in 1.9% (1.9%), and wound complication in 5.3% (5.0%). Complications at the puncture site were noted in 0.4% (0.4%) of the limbs treated by EVT.

Stenosis, occlusion, infection, or other trouble occurred after revascularization by EVT in 10.7% (10.4%) and by surgical reconstruction in 7.6% (7.3%). Secondary major amputation rate was 4.7% (4.6%). When ambulatory function at discharge was compared to that before surgery, the rate of patients with ambulatory changed from 56% (56%) to 53% (52%), ambulatory/homebound from 23% (23%) to 22% (22%), and non-ambulatory from 21% (21%) to 25% (25%).

## 4. Conclusions

Vascular surgeons' contribution in participating facilities

registered a sufficient amount of detailed data during busy clinical practice, which has clarified the current status of CLI treatment in Japan from 2013 to 2016. The JCLIMB Committee is planning to continue publishing an annual report and try to clarify the real clinical status of CLI treatment in Japan. Additionally, clinical studies using these data began in 2018. Facilities can participate in JCLIMB at any time and can get detail information about clinical research by contacting the JSVS secretariat for details.

## 5. JCLIMB Committee, NCD JCLIMB Analytical Team

### (1) JCLIMB Committee

Shinsuke Mii (Chairman), Kunihiro Shigematsu (Vice Chairman), Nobuyoshi Azuma, Atsuhisa Ishida, Yuichi Izumi, Yoshinori Inoue, Hisashi Uchida, Masamitsu Endo, Takao Ohki, Sosei Kuma, Koji Kurosawa, Akio Kodama, Hiroyoshi Komai, Kimihiro Komori, Takashi Shibuya, Shunya Shindo, Ikuo Sugimoto, Juno Deguchi, Naomichi Nishikimi, Katsuyuki Hoshina, Hideaki Maeda, Hirofumi Midorikawa, Tetsuro Miyata, Terutoshi Yamaoka, Hiroya Yamashita, and Yasuhiro Yunoki

### (2) NCD JCLIMB Analytical Team

Arata Takahashi and Hiroaki Miyata

## Disclosure Statement

The authors have no conflict of interest.

## Additional Remarks

This report was authorized by the institutional review board of Saiseikai Yahata General Hospital (Authorization No. 132).

## Additional Note

Figures are available as supplementary information at the online article pages on J-STAGE and PMC.

The original Annual Report was published in Japanese Journal of Vascular Surgery Vol. 28 (2019) No. 3; however, errors in numerical data and a table were detected after the publication. The erratum was published in the Vol. 28 (2019) No. 4 of the same journal. This translation reflects those corrections.

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**Table 1** Patients' background  
**Table 1-1** Patients' background 1

a. Total

n	Sex		Laterality		BMI (Median)	Pathogenesis				Age at registration				Total
	Male	Female	Right	Left		ASO	TAO	Vasculitis	Others	ASO	TAO	Vasculitis	Others	
										Mean (±SD)	Mean (±SD)	Mean (±SD)	Mean (±SD)	
Rutherford 4	1,079	742	337	549	530	21.08	1,054	6	2	7	73.4 (9.7)	51.0 (21.6)	57.0 (17.0)	55.1 (8.1)
Rutherford 5	2,982	2,098	884	1,513	1,469	21.05	2,907	28	36	11	73.3 (10.1)	52.4 (16.0)	68.3 (11.9)	75.2 (9.4)
Rutherford 6	723	521	202	350	373	21.14	712	3	5	3	71.0 (10.4)	54.3 (4.5)	70.8 (4.9)	60.0 (6.2)
Total	4,784	3,361	1,423	2,412	2,372	21.08	4,683	37	43	21	73.0 (10.1)	52.4 (16.1)	68.1 (11.6)	66.3 (12.7)

b. ASO

n	Sex		Laterality		BMI (Median)	Age at registration	
	Male	Female	Right	Left		Mean (±SD)	
Rutherford 4	1,064	732	332	541	523	21.08	73.4 (9.7)
Rutherford 5	2,907	2,056	851	1,478	1,429	21.08	73.3 (10.1)
Rutherford 6	712	514	198	346	366	21.17	71.0 (10.4)
Total	4,683	3,302	1,381	2,365	2,318	21.09	73.0 (10.1)

Vasculitis: Takayasu's arteritis, collagen disease, Behcet disease, FMD etc., excluding TAO

Others: others (including debranch bypasses for TEVAR or EVAR)

ASO: arteriosclerosis obliterans, TAO: thromboangiitis obliterans, FMD: fibromuscular dysplasia, BMI: body mass index, TEVAR: thoracic endovascular aortic aneurysm repair, EVAR: endovascular aortic/aneurysm repair

**Table 1-2** Patients' background 2

a. Total

	Diabetes		Diabetes therapy			Hypertension			Dyslipidemia			Smoking			
	(-)	(+) Management		Diet therapy	Medication	Insulin therapy	(-)	(+) Management		(-)	(+) Management		(-)	Ex-smoker	Current smoker
		Good	Poor					Good	Poor		Good	Poor			
		Rutherford 4	522					450	107		88	306			
Rutherford 5	950	1,590	442	271	928	833	705	1,921	356	1,833	984	165	1,228	1,289	465
Rutherford 6	172	399	152	84	202	265	221	415	87	448	229	46	295	325	103
Total	1,644	2,439	701	443	1,436	1,261	1,200	3,034	550	2,937	1,555	292	1,946	2,047	791

b. ASO

	Diabetes		Diabetes therapy			Hypertension			Dyslipidemia			Smoking			
	(-)	(+) Management		Diet therapy	Medication	Insulin therapy	(-)	(+) Management		(-)	(+) Management		(-)	Ex-smoker	Current smoker
		Good	Poor					Good	Poor		Good	Poor			
		Rutherford 4	511					446	107		87	305			
Rutherford 5	884	1,584	439	271	922	830	664	1,891	352	1,779	966	162	1,199	1,255	453
Rutherford 6	163	398	151	84	201	264	213	412	87	440	226	46	291	321	100
Total	1,558	2,428	697	442	1,428	1,255	1,141	2,996	546	2,864	1,530	289	1,910	2,002	771

Blood pressure management good: diabetes or renal failure (-) <140/90 mmHg, (+) <130/80 mmHg. Diabetes management good: HbA1c<7.0%(NGSP).

Dyslipidemia management good: other sclerotic lesions (-) LDL <100 mg/DL, (+) LDL <80 mg/DL.

HbA1c: hemoglobin A1c, LDL: low-density lipoprotein, NGSP: national glycohemoglobin standardization program

**Table 1-3** Patients' background 3

a. Total

	Ischemic heart disease				Heart failure		Cerebrovascular disease		Renal dysfunction															
	(-)	(+) <table border="1"> <tr> <th>Medical treatment</th> <th>PCI</th> <th>CABG</th> </tr> </table>			Medical treatment	PCI	CABG	(-)	(+) <table border="1"> <tr> <th></th> </tr> </table>		(-)	(+) <table border="1"> <tr> <th></th> </tr> </table>		(-)	(+) <table border="1"> <tr> <th>G3a</th> <th>G3b</th> <th>G4</th> <th>G5</th> <th>G5D</th> </tr> </table>					G3a	G3b	G4	G5	G5D
		Medical treatment	PCI	CABG																				
G3a	G3b	G4	G5	G5D																				
Rutherford 4	703	134	142	100	975	104	874	205	498	115	86	43	7	330										
Rutherford 5	1,671	383	553	375	2,519	463	2,238	744	909	250	224	126	29	1,444										
Rutherford 6	364	127	135	97	604	119	560	163	236	63	42	31	10	341										
<b>Total</b>	<b>2,738</b>	<b>644</b>	<b>830</b>	<b>572</b>	<b>4,098</b>	<b>686</b>	<b>3,672</b>	<b>1,112</b>	<b>1,643</b>	<b>428</b>	<b>352</b>	<b>200</b>	<b>46</b>	<b>2,115</b>										

b. ASO

	Ischemic heart disease				Heart failure		Cerebrovascular disease		Renal dysfunction															
	(-)	(+) <table border="1"> <tr> <th>Medical treatment</th> <th>PCI</th> <th>CABG</th> </tr> </table>			Medical treatment	PCI	CABG	(-)	(+) <table border="1"> <tr> <th></th> </tr> </table>		(-)	(+) <table border="1"> <tr> <th></th> </tr> </table>		(-)	(+) <table border="1"> <tr> <th>G3a</th> <th>G3b</th> <th>G4</th> <th>G5</th> <th>G5D</th> </tr> </table>					G3a	G3b	G4	G5	G5D
		Medical treatment	PCI	CABG																				
G3a	G3b	G4	G5	G5D																				
Rutherford 4	688	134	142	100	960	104	860	204	486	114	86	43	7	328										
Rutherford 5	1,611	373	550	373	2,451	456	2,168	739	845	246	221	123	29	1,443										
Rutherford 6	356	126	133	97	593	119	549	163	227	63	42	31	10	339										
<b>Total</b>	<b>2,655</b>	<b>633</b>	<b>825</b>	<b>570</b>	<b>4,004</b>	<b>679</b>	<b>3,577</b>	<b>1,106</b>	<b>1,558</b>	<b>423</b>	<b>349</b>	<b>197</b>	<b>46</b>	<b>2,110</b>										

PCI: percutaneous coronary intervention, CABG: coronary arterial bypass grafting  
 Heart failure (+): history of admission due to heart failure, clinical symptoms due to heart failure confirmed by ultrasound examination, apparently decreased cardiac function by ultrasound examination without clinical symptoms.  
 Renal dysfunction: (-) (60 ≤), G3a (45–59), G3b (30–44), G4 (15–29), G5 (<15), G5D (<15 with hemodialysis). New CKD risk stratification by eGFR (mL/min/1.73 m<sup>2</sup>) in "Clinical Practice Guidebook for Diagnosis and Treatment of Chronic Kidney Disease 2012"  
 eGFR: estimated glomerular filtration rate, CKD: chronic kidney disease

**Table 1-4** Patients' background 4

a. Total

	Malignant neoplasm				Sites of malignant neoplasm													
	(-)	(+) <table border="1"> <tr> <th>History of cancer</th> <th>Under treatment*</th> <th>Unknown</th> </tr> </table>			History of cancer	Under treatment*	Unknown	Head and neck	Esophagus	Lung	Stomach	Hepatobiliary pancreas	Colon	Breast	Uterus	Ovarian	Prostate	Others
		History of cancer	Under treatment*	Unknown														
Rutherford 4	962	82	33	2	5	2	20	19	14	30	4	7	1	6	27			
Rutherford 5	2,727	180	67	8	10	7	35	49	15	65	13	7	0	13	51			
Rutherford 6	676	34	10	3	2	2	10	7	1	11	2	5	0	3	9			
<b>Total</b>	<b>4,365</b>	<b>296</b>	<b>110</b>	<b>13</b>	<b>17</b>	<b>11</b>	<b>65</b>	<b>75</b>	<b>30</b>	<b>106</b>	<b>19</b>	<b>19</b>	<b>1</b>	<b>22</b>	<b>87</b>			

b. ASO

	Malignant neoplasm				Sites of malignant neoplasm													
	(-)	(+) <table border="1"> <tr> <th>History of cancer</th> <th>Under treatment*</th> <th>Unknown</th> </tr> </table>			History of cancer	Under treatment*	Unknown	Head and neck	Esophagus	Lung	Stomach	Hepatobiliary pancreas	Colon	Breast	Uterus	Ovarian	Prostate	Others
		History of cancer	Under treatment*	Unknown														
Rutherford 4	951	80	31	2	4	2	20	19	14	30	4	5	1	6	26			
Rutherford 5	2,653	179	67	8	10	7	35	49	15	64	13	7	0	13	51			
Rutherford 6	666	34	9	3	2	2	10	7	1	11	2	4	0	3	9			
<b>Total</b>	<b>4,270</b>	<b>293</b>	<b>107</b>	<b>13</b>	<b>16</b>	<b>11</b>	<b>65</b>	<b>75</b>	<b>30</b>	<b>105</b>	<b>19</b>	<b>17</b>	<b>1</b>	<b>22</b>	<b>86</b>			

\*Including palliative therapy or recurrence

**Table 1-5** Patients' background 5

a. Total

	Contralateral limb occlusive lesions													Vascular lesions excluding occlusion					
	(+)													(-)					
	(-)	Asymptomatic	Intermittent claudication	CLI			Post-treatment	ABI		TBI		SPP		TAA	AAA (including IAA)	Peripheral artery aneurysm	Carotid stenosis	Others	
				R4	R5	R6		n	Median	n	Median	n	Median						
Rutherford 4	304	241	177	168	35	1	153	781	0.8	78	0.45	302	39	970	1	44	7	35	22
Rutherford 5	654	797	238	90	578	30	595	2,069	0.77	261	0.42	1,274	35	2,626	20	79	15	169	73
Rutherford 6	152	196	51	15	52	81	176	371	0.76	24	0.36	258	35.5	657	2	12	3	35	14
Total	1,110	1,234	466	273	665	112	924	3,221	0.78	363	0.43	1,834	35	4,253	23	135	25	239	109

b. ASO

	Contralateral limb occlusive lesions													Vascular lesions excluding occlusion					
	(+)													(-)					
	(-)	Asymptomatic	Intermittent claudication	CLI			Post-treatment	ABI		TBI		SPP		TAA	AAA (including IAA)	Peripheral artery aneurysm	Carotid stenosis	Others	
				R4	R5	R6		n	Median	n	Median	n	Median						
Rutherford 4	297	238	176	164	35	1	153	771	0.8	77	0.45	300	39	957	1	43	7	35	21
Rutherford 5	629	789	233	90	554	29	583	2,017	0.76	251	0.41	1,249	35	2,566	19	77	10	168	67
Rutherford 6	149	195	51	14	51	79	173	367	0.76	24	0.36	256	35.5	647	2	12	3	34	14
Total	1,075	1,222	460	268	640	109	909	3,155	0.77	352	0.42	1,805	35	4,170	22	132	20	237	102

ABI: ankle brachial (pressure) index, TBI: toe brachial (pressure) index, SPP: skin perfusion pressure, CLI: critical limb ischemia, TAA: thoracic aortic aneurysm, AAA: abdominal aortic aneurysm, IAA: iliac artery aneurysm

**Table 1-6** Patients' background 6

a. Total (=ASO)

	Fatty acid							
	Arachidonic acid (AA)		Eicosapentaenoic acid (EPA)		Docosahexaenoic acid (DHA)		EPA/AA	
	n	Median	n	Median	n	Median	n	Median
Rutherford 4	31	156	31	62.6	31	113.7	31	0.35
Rutherford 5	69	153.6	69	50.2	69	111.2	69	0.34
Rutherford 6	18	129.2	18	50.1	18	100.6	18	0.31
Total	118	153.8	118	51.6	118	107.2	118	0.33

b. ASO

	Fatty acid							
	Arachidonic acid (AA)		Eicosapentaenoic acid (EPA)		Docosahexaenoic acid (DHA)		EPA/AA	
	n	Median	n	Median	n	Median	n	Median
Rutherford 4	31	156	31	62.6	31	113.7	31	0.35
Rutherford 5	69	153.6	69	50.2	69	111.2	69	0.34
Rutherford 6	17	125	17	54.5	17	104.3	17	0.33
Total	117	153.6	117	51.6	117	107.2	117	0.34

**Table 2** Pretreatment condition  
**Table 2-1** Pretreatment condition 1

a. Total		Tissue loss (University of Texas classification: grade)				Tissue loss* (University of Texas classification: stage)		Sites of ulcer/gangrene#			
Ambulatory function (Taylor's classification)		I	II	III	C	D	Foot: distal metatarsal	Foot: proximal metatarsal	Heel	Ankle	Lower leg
Ambulatory	Nonambulatory/ homebound										
Rutherford 4	168										
Rutherford 5	708	1,798	568	616	2,104	882	392	53	163	30	43
Rutherford 6	216	126	174	423	237	487	190	151	139	29	62
Total	1,092	1,924	742	1,039	2,341	1,369	582	204	302	59	105
b. ASO		Tissue loss (University of Texas classification: grade)				Tissue loss* (University of Texas classification: stage)		Sites of ulcer/gangrene#			
Ambulatory function (Taylor's classification)		I	II	III	C	D	Foot: distal metatarsal	Foot: proximal metatarsal	Heel	Ankle	Lower leg
Ambulatory	Nonambulatory/ homebound										
Rutherford 4	166										
Rutherford 5	697	1,747	551	609	2,051	859	373	52	161	30	42
Rutherford 6	211	125	170	417	233	480	186	150	136	29	62
Total	1,074	1,872	721	1,026	2,284	1,339	559	202	297	59	104

University of Texas classification: grade (I: superficial, not involving tendon, capsule, or bone, II: penetrating to tendon/capsule, III: penetrating to bone or joint)

University of Texas classification: stage (C: ischemia without infection, D: ischemia with infection)

\*Data in "infection" in **Table 3-2** were used in 2015 and 2016.

#Data in "main sites of ulcer/gangrene to be treated" were used in 2015 and 2016.



**Table 2-2** Pretreatment condition 2

		Blood test										Hemodynamics					
		WBC		CRP		Alb		Cr		ABI		TBI		SPP			
Temperature $\geq 38^\circ$		n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median
a. Total	(-)	1,056	6,600	976	0.42	964	3.7	1,030	1.09	586	0.54	43	0.36	385	20		
	(+)	2,855	7,100	2,814	1.03	2,755	3.4	2,922	2.39	1,914	0.6	159	0.31	1,801	22		
		618	8,800	692	4.51	672	3	704	2.18	337	0.61	12	0.18	348	21		
		4,529	7,150	4,482	1.1	4,391	3.4	4,656	1.6	2,837	0.59	214	0.31	2,534	21		
b. ASO																	
Temperature $> 38^\circ$		WBC		CRP		Alb		Cr		ABI		TBI		SPP			
		n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median		
	(-)	1,042	6,600	962	0.42	952	3.65	1,016	1.1	579	0.54	43	0.36	382	20		
	(+)	2,784	7,100	2,745	1.05	2,686	3.4	2,849	2.75	1,864	0.6	152	0.3	1,760	22		
		608	8,800	682	4.58	662	2.95	694	2.3	332	0.61	12	0.18	343	21		
		4,434	7,130	4,389	1.1	4,300	3.4	4,559	1.7	2,775	0.59	207	0.3	2,485	21		

WBC: white blood cell, CRP: C reactive protein, Alb: albumin, Cr: creatinine, ABI: ankle brachial (pressure) index, TBI: toe brachial (pressure) index, SPP: skin perfusion pressure

**Table 2-3** Pretreatment condition 3

		Diagnostic imaging				Sites of occlusion			TASC II classification aortoiliac				TASC II classification femoropopliteal					
		IADSA	CTA	Others	Aortoiliac	Femoropop	Lower leg/foot	A	B	C	D	No lesion	A	B	C	D	No lesion	
a. Total																		
Rutherford 4		663	609	94	363	715	446	62	57	41	162	10	65	117	132	481	52	
Rutherford 5		2,186	1,360	102	574	1,807	1,973	191	109	61	186	13	331	387	366	1,201	426	
Rutherford 6		551	279	36	146	404	507	39	38	12	43	4	54	61	75	328	110	
Total		3,400	2,248	232	1,083	2,926	2,926	292	204	114	391	27	450	565	573	2,010	588	
b. ASO																		
		Diagnostic imaging				Sites of occlusion			TASC II classification aortoiliac				TASC II classification femoropopliteal					
		IADSA	CTA	Others	Aortoiliac	Femoropop	Lower leg/foot	A	B	C	D	No lesion	A	B	C	D	No lesion	
Rutherford 4		655	600	94	358	708	437	61	56	39	161	10	65	116	132	472	52	
Rutherford 5		2,124	1,331	100	569	1,781	1,912	191	108	61	182	13	328	385	358	1,170	400	
Rutherford 6		542	274	36	144	399	500	39	38	12	42	3	54	61	74	324	108	
Total		3,321	2,205	230	1,071	2,888	2,849	291	202	112	385	26	447	562	564	1,966	560	

IADSA: intra-arterial digital subtraction angiography, CTA: computed tomography angiography

**Table 2-4** Pretreatment condition 4

		Bollinger score														
		Common femoral		Deep femoral		Superficial femoral: proximal		Superficial femoral: distal		Popliteal: proximal		Popliteal: distal		Tibioperoneal trunk		
	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median
<b>a. Total</b>																
Rutherford 4	657	2.0	654	2.0	648	6.0	647	6.0	645	3.0	644	3.0	630	3.0	630	3.0
Rutherford 5	2,088	1.0	2,085	1.0	2,090	4.0	2,086	4.0	2,093	3.0	2,096	2.0	2,059	3.0	2,059	3.0
Rutherford 6	476	1.0	473	1.0	479	3.0	475	4.0	476	3.0	477	2.0	476	2.0	476	3.0
Total	3,221	1.0	3,212	1.0	3,217	4.0	3,208	5.0	3,214	3.0	3,217	2.0	3,165	2.0	3,165	3.0
<b>b. ASO</b>																
		Bollinger score														
		Common femoral		Deep femoral		Superficial femoral: proximal		Superficial femoral: distal		Popliteal: proximal		Popliteal: distal		Tibioperoneal trunk		
	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median
Rutherford 4	650	2.0	647	2.0	641	6.0	640	6.0	638	3.0	637	3.0	623	3.0	623	3.0
Rutherford 5	2,047	1.0	2,040	1.0	2,045	4.0	2,040	4.0	2,047	3.0	2,049	2.0	2,013	3.0	2,013	3.0
Rutherford 6	472	1.0	469	1.0	475	3.0	471	4.0	472	3.0	473	2.0	472	2.0	472	3.0
Total	3,169	1.0	3,156	1.0	3,161	4.0	3,151	5.0	3,157	3.0	3,159	2.0	3,108	2.0	3,108	3.0

**Table 2-5** Pretreatment condition 5

a. Total																				
Bollinger score																				
Posterior tibial: proximal			Posterior tibial: distal			Anterior tibial: proximal			Anterior tibial: distal			Peroneal: proximal			Peroneal: distal			Foot		
n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	
Rutherford 4	624	6.0	614	6.0	621	7.0	602	13.0	620	5.0	601	5.0	601	5.0	512	4.0				
Rutherford 5	2,039	13.0	2,003	13.0	2,037	13.0	2,006	13.0	2,032	6.0	2,000	6.0	2,000	6.0	1,735	13.0				
Rutherford 6	473	13.0	466	13.0	474	13.0	464	13.0	475	6.0	467	6.0	467	6.0	426	13.0				
Total	3,136	13.0	3,083	13.0	3,132	13.0	3,072	13.0	3,127	6.0	3,068	6.0	3,068	6.0	2,663	6.0				
b. ASO																				
Bollinger score																				
Posterior tibial: proximal			Posterior tibial: distal			Anterior tibial: proximal			Anterior tibial: distal			Peroneal: proximal			Peroneal: distal			Foot		
n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	n	Median	
Rutherford 4	617	6.0	608	6.0	614	6.0	595	13.0	613	5.0	595	5.0	595	5.0	507	4.0				
Rutherford 5	1,991	13.0	1,955	13.0	1,989	13.0	1,958	13.0	1,984	6.0	1,953	6.0	1,953	6.0	1,694	12.0				
Rutherford 6	469	13.0	462	13.0	470	13.0	460	13.0	471	6.0	463	6.0	463	6.0	412	13.0				
Total	3,077	13.0	3,025	13.0	3,073	13.0	3,013	13.0	3,068	6.0	3,011	6.0	3,011	6.0	2,613	6.0				

**Table 2-6** SVS Wfl classification\*

a. Total

	Wound				Ischemia				Foot infection				Stage			
	0	1	2	3	0	1	2	3	0	1	2	3	1	2	3	4
Rutherford 4	476	0	0	0	35	55	55	177	435	20	18	3	86	218	16	2
Rutherford 5	0	542	680	210	124	151	150	751	943	312	147	30	92	117	420	547
Rutherford 6	0	21	77	224	23	27	18	158	103	60	131	28	5	4	30	187
Total	476	563	757	434	182	233	223	1,086	1,481	392	296	61	183	339	466	736

b. ASO

	Wound				Ischemia				Foot infection				Stage			
	0	1	2	3	0	1	2	3	0	1	2	3	1	2	3	4
Rutherford 4	469	0	0	0	35	55	53	173	429	19	18	3	86	213	15	2
Rutherford 5	0	530	661	207	116	150	147	738	921	306	145	26	88	112	416	535
Rutherford 6	0	21	75	221	23	27	17	155	102	60	127	28	5	4	30	183
Total	469	551	736	428	174	232	217	1,066	1,452	385	290	57	179	329	461	720

\*Data registered only in 2015 and 2016

**Table 3** Treatment

**Table 3-1** Treatment 1

a. Total

	Treatment					Angiogenic therapy				Reoperation			
	Pharmacological therapy	Angiogenic therapy	Arterial reconstruction	Major amputation	Lumber sympathectomy	Bone marrow	Peripheral blood	Others	Unknown	(-)	(+)		
											1X	2X	3X $\leq$
Rutherford 4	307	5	1,011	9	0	0	1	1	16	788	169	53	53
Rutherford 5	821	12	2,868	32	0	0	1	3	42	2,161	476	138	165
Rutherford 6	173	2	671	52	2	0	0	0	11	513	111	35	53
Total	1,301	19	4,550	93	2	0	2	4	69	3,462	756	226	271

b. ASO

	Treatment					Angiogenic therapy				Reoperation			
	Pharmacological therapy	Angiogenic therapy	Arterial reconstruction	Major amputation	Lumber sympathectomy	Bone marrow	Peripheral blood	Others	Unknown	(-)	(+)		
											1X	2X	3X $\leq$
Rutherford 4	305	5	997	9	0	0	1	1	16	775	169	53	51
Rutherford 5	799	12	2,796	32	0	0	1	3	42	2,107	465	135	158
Rutherford 6	171	2	662	52	2	0	0	0	11	507	108	35	51
Total	1,275	19	4,455	93	2	0	2	4	69	3,389	742	223	260

**Table 3-2 Treatment 2**

		Bypass										TEA				
		Aorta-aorta	Aorta (with suprarenal clamp)	Aorta-femoral	Femoral-proximal popliteal	Femoral-distal popliteal	Femoral-crural/foot	Popliteal-crural/foot	Anatomical others	Axillary-femoral	Femoral-femoral	Extra-anatomical others	Aorta/iliac	Femoral/popliteal	Others	EVT
a. Total																
Rutherford 4	4	0	2	30	151	64	133	67	13	31	67	14	7	94	18	489
Rutherford 5	0	0	2	42	246	161	384	486	22	48	63	11	12	210	25	1,529
Rutherford 6	0	0	0	6	57	40	106	111	4	13	17	6	2	35	7	330
Total	4	0	4	78	454	265	623	664	39	92	147	31	21	339	50	2,348
b. ASO																
		Aorta-aorta	Aorta (with suprarenal clamp)	Aorta-femoral	Femoral-proximal popliteal	Femoral-distal popliteal	Femoral-crural/foot	Popliteal-crural/foot	Anatomical others	Axillary-femoral	Femoral-femoral	Extra-anatomical others	Aorta/iliac	Femoral/popliteal	Others	EVT
TEA: thromboendarterectomy, EVT: endovascular treatment/therapy																
Rutherford 4	4	0	2	30	151	63	129	64	12	31	65	13	6	94	17	487
Rutherford 5	0	0	2	42	243	157	373	462	19	47	62	11	12	208	24	1,501
Rutherford 6	0	0	0	6	55	40	104	108	4	12	17	5	2	35	7	328
Total	4	0	4	78	449	260	606	634	35	90	145	29	20	337	48	2,316

**Table 3-3 Treatment 3**

		EVT										Vein usage*						Vein quality*													
		Aorta/iliac		Fomoral/ popliteal		Tibioperoneal/ foot		Others		Polyester		ePTFE		Vein		Others		(-)		In-situ		Non-reversed		Reversed		Spliced		Good		Poor	
a. Total		634	1,080	1,080	1,090	89	194	531	1,669	31	167	149	252	303	63	651	96														
b. ASO																															
		EVT										Vein usage*						Vein quality*													
		Aorta/iliac		Fomoral/ popliteal		Tibioperoneal/ foot		Others		Polyester		ePTFE		Vein		Others		(-)		In-situ		Non-reversed		Reversed		Spliced		Good		Poor	
Rutherford 4	179	226	152	25	65	191	301	25	43	29	53	51	14	123	16																
Rutherford 5	374	709	769	44	106	282	1,102	4	86	102	149	210	43	426	70																
Rutherford 6	81	145	169	20	23	58	266	2	38	18	50	42	6	102	10																
Total	633	1,076	1,064	87	191	523	1,620	31	164	146	241	290	62	627	94																

ePTFE: expanded polytetrafluoroethylene

\*Data registered only in 2015 and 2016

**Table 3-4 Treatment 4**

		Distal bypass																		
		Proximal anastomosis							Distal anastomosis: sites of crural artery							Distal anastomosis: sites of foot artery				
		External iliac	Common femoral	Deep femoral	Superficial femoral	Proximal popliteal	Distal popliteal	Crural	Others	Crural	Foot	Tibioperoneal trunk	Posterior tibial	Anterior tibial	Peroneal	Posterior tibial	Anterior tibial	Peroneal	Dorsalis pedis	Plantar
a. Total		1	73	10	47	26	34	5	4	129	71	12	76	22	20	24	7	2	33	6
Rutherford 4		7	202	27	163	111	305	34	19	324	544	17	173	99	36	143	54	4	288	76
Rutherford 5		2	50	4	42	35	70	14	1	89	128	7	40	33	11	36	18	2	60	13
Rutherford 6		10	325	41	252	172	409	53	24	542	743	36	289	154	67	203	79	8	361	95
Total																				
b. ASO																				
		Distal bypass																		
		Proximal anastomosis							Distal anastomosis: sites of crural artery							Distal anastomosis: sites of foot artery				
		External iliac	Common femoral	Deep femoral	Superficial femoral	Proximal popliteal	Distal popliteal	Crural	Others	Crural	Foot	Tibioperoneal trunk	Posterior tibial	Anterior tibial	Peroneal	Posterior tibial	Anterior tibial	Peroneal	Dorsalis pedis	Plantar
a. Total		1	69	10	47	25	32	5	4	124	69	12	73	20	20	22	7	2	33	6
Rutherford 4		6	199	26	154	107	289	33	19	310	523	17	171	94	29	140	53	3	263	65
Rutherford 5		2	49	4	41	34	68	14	1	86	126	7	39	31	11	36	18	2	59	12
Rutherford 6		9	317	40	242	166	389	52	24	520	718	36	283	145	60	198	78	7	355	83
Total																				



**Table 3-5** Treatment 5

a. Total

	Pharmacological therapy					
	Antiplatelet	ATA	Prostaglandin	Heparin	Statin	Others
Rutherford 4	501	56	44	34	69	31
Rutherford 5	1,413	175	181	115	162	56
Rutherford 6	290	30	43	27	28	15
Total	2,204	261	268	176	259	102

b. ASO

	Pharmacological therapy					
	Antiplatelet	ATA	Prostaglandin	Heparin	Statin	Others
Rutherford 4	499	56	44	34	69	31
Rutherford 5	1,376	168	172	108	158	51
Rutherford 6	287	30	42	26	28	15
Total	2,162	254	258	168	255	97

Antiplatelet: aspirin, cilostazol, beraprost, sarpogrelate, ticlopidine, clopidogrel, ethyl icosapentate

ATA: antithrombotic agent

**Table 3-6** Treatment 6

a. Total

	Femoral-proximal popliteal bypass	Femoral-distal popliteal bypass	Femoral-crural/foot bypass	Popliteal-crural/foot bypass
Polyester	56	13	9	9
ePTFE	251	58	30	39
Vein	160	210	588	623
Artery	5	1	18	26
Others	14	0	2	1
(-)	5	4	5	6
Total	491	286	652	704

b. ASO

	Femoral-proximal popliteal bypass	Femoral-distal popliteal bypass	Femoral-crural/foot bypass	Popliteal-crural/foot bypass
Polyester	55	13	9	9
ePTFE	251	57	29	39
Vein	156	206	573	597
Artery	5	1	16	22
Others	14	0	2	1
(-)	5	1	5	6
Total	486	281	614	674

ePTFE: expanded polytetrafluoroethylene

**Table 4** One month after the treatment (data collection at July 2015) therapeutic measures: EVT (only EVT without surgical reconstruction), surgical reconstruction (surgical reconstruction with or without EVT)

**Table 4-1** Life prognosis/causes of death

a. Total

	Life prognosis				Causes of death												
	Alive	Dead	Unknown	Cardiac disease	Cerebrovascular disease			Malignant neoplasm/			Infection			Ischemic enteritis	Gastrointestinal bleeding	Others	Unknown
					Hemorrhage	Infarction	Unknown	Aortic aneurysm/	dissection	Diseased limb	Dissection	Others					
Local condition	637	20	6	3	0	0	1	0	2	0	1	1	1	0	0	8	3
	1,976	64	23	21	0	3	0	4	0	0	9	2	5	0	0	13	7
	440	17	5	7	1	0	0	0	0	0	1	4	1	0	0	1	2
Therapeutic measures	102	3	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
	1,343	43	24	16	0	1	0	5	0	8	0	0	2	0	0	8	3
	1,608	55	10	14	0	3	0	1	0	2	7	5	5	0	0	14	9
Total	3,053	101	34	31	1	4	0	6	0	11	7	7	7	0	0	22	12

b. ASO

	Life prognosis				Causes of death												
	Alive	Dead	Unknown	Cardiac disease	Cerebrovascular disease			Malignant neoplasm/			Infection			Ischemic enteritis	Gastrointestinal bleeding	Others	Unknown
					Hemorrhage	Infarction	Unknown	Aortic aneurysm/	dissection	Diseased limb	Dissection	Others					
Local condition	627	19	6	3	0	0	1	0	1	0	1	1	1	0	0	8	3
	1,921	64	23	21	0	3	0	4	0	9	2	5	5	0	0	13	7
	434	17	5	7	1	0	0	0	0	1	4	1	1	0	0	1	2
Therapeutic measures	99	3	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0
	1,322	43	23	16	0	1	0	5	0	8	0	0	2	0	0	8	3
	1,561	54	10	14	0	3	0	0	0	2	7	5	5	0	0	14	9
Total	2,982	100	33	31	1	4	0	5	0	11	7	7	7	0	0	22	12

**Table 4-2** Perioperative complications 1

	a. Total											
	Cardiac disease			Cerebrovascular disease			Pneumonia		Wound complication		Peripheral embolism	
	(-)	Angina	Serious arrhythmia	Myocardial infarction	(-)	TIA	Functional loss (-)	Functional loss (+)	(-)	(+)	(-)	(+)
Local condition	595	12	4	7	616	0	2	606	12	23	614	3
	1,910	29	7	15	1,923	6	17	1,931	30	120	1,940	13
	427	5	3	7	440	0	2	426	16	18	438	1
Therapeutic measures	12	1	0	1	14	0	0	14	0	0	14	0
	1,336	30	4	12	1,364	3	8	1,367	15	21	1,369	6
	1,584	15	10	16	1,601	3	7	1,582	43	140	1,609	11
Total	2,932	46	14	29	2,979	6	15	2,963	58	161	2,992	17
b. ASO												
	b. ASO											
	Cardiac disease			Cerebrovascular disease			Pneumonia		Wound complication		Peripheral embolism	
	(-)	Angina	Serious arrhythmia	Myocardial infarction	(-)	TIA	Functional loss (-)	Functional loss (+)	(-)	(+)	(-)	(+)
Local condition	584	12	4	7	605	0	2	595	12	20	603	3
	1,859	28	7	15	1,871	6	17	1,879	30	113	1,889	12
	421	5	3	7	434	0	2	421	15	16	433	1
Therapeutic measures	12	1	0	1	14	0	0	14	0	0	14	0
	1,316	29	4	12	1,343	3	8	1,346	15	20	1,348	6
	1,536	15	10	16	1,553	3	7	1,535	42	129	1,563	10
Total	2,864	45	14	29	2,910	6	15	2,895	57	149	2,925	16

TIA: transient ischemic attack

**Table 4-3** Perioperative complications 2

	a. Total												
	Hemorrhage			Sites of bleeding			Outcome of bleeding			Complication due to contrast medium		Complication at puncture site	
	(-)	(+)	Unknown	Brain	GI tract	Others	Cured	Uncured	Dead	(-)	(+)	(-)	(+)
Local condition	608	10	0	0	3	14	9	0	1	617	1	315	5
	1,926	33	2	0	8	17	28	3	2	1,953	8	1,089	12
	436	6	0	0	3	5	3	3	0	440	2	221	1
Therapeutic measures	14	0	0	0	0	0	0	0	0	14	0	32	1
	1,368	14	0	0	4	10	11	2	0	1,376	6	1,371	17
	1,588	35	2	0	10	26	29	4	3	1,620	5	222	0
Total	2,970	49	2	0	14	36	40	6	3	3,010	11	1,625	18
b. ASO													
	b. ASO												
	Hemorrhage			Sites of bleeding			Outcome of bleeding			Complication due to contrast medium		Complication at puncture site	
	(-)	(+)	Unknown	Brain	GI tract	Others	Cured	Uncured	Dead	(-)	(+)	(-)	(+)
Local condition	597	10	0	0	3	14	9	0	1	606	1	314	5
	1,874	33	2	0	8	17	28	3	2	1,901	8	1,069	12
	430	6	0	0	3	5	3	3	0	434	2	220	1
Therapeutic measures	14	0	0	0	0	0	0	0	0	14	0	32	1
	1,347	14	0	0	4	10	11	2	0	1,355	6	1,350	17
	1,540	35	2	0	10	26	29	4	3	1,572	5	221	0
Total	2,901	49	2	0	14	36	40	6	3	2,941	11	1,603	18
GI: gastrointestinal													

**Table 4-4** Hemodynamics

a. Total

		Immediate after the treatment						One month after the treatment					
		ABI		Ankle pressure		SPP		ABI		Ankle pressure		SPP	
		n	Median	n	Median	n	Median	n	Median	n	Median	n	Median
Local condition	Rutherford 4	376	0.89	347	114	158	33.5	292	0.9	267	115	63	39
	Rutherford 5	937	0.86	871	114	779	39	663	0.88	592	120	359	42
	Rutherford 6	145	0.91	134	124	130	36	106	1	99	128	68	45.5
Therapeutic measures	Non-reconstruction	46	0.79	34	103.5	31	32	35	0.83	27	110	18	30
	EVT	674	0.85	633	112	522	35	476	0.87	436	116	299	42
	Surgical reconstruction	738	0.89	685	118	514	40	550	0.93	494	122	180	43
Total		1,458	0.87	1,352	115	1,067	37	1,061	0.9	958	120	490	42

b. ASO

		Immediate after the treatment						One month after the treatment					
		ABI		Ankle pressure		SPP		ABI		Ankle pressure		SPP	
		n	Median	n	Median	n	Median	n	Median	n	Median	n	Median
Local condition	Rutherford 4	368	0.89	341	114	156	33	286	0.9	262	115.5	63	39
	Rutherford 5	913	0.85	848	114	758	39	653	0.88	584	120	353	43
	Rutherford 6	143	0.91	132	124.5	127	36	105	0.99	98	128	67	45
Therapeutic measures	Non-reconstruction	45	0.77	33	101	30	29.5	34	0.87	27	110	17	32
	EVT	668	0.85	628	112	521	35	472	0.87	433	116	298	42.5
	Surgical reconstruction	711	0.89	660	118	490	40	538	0.93	483	123	174	43.5
Total		1,424	0.87	1,321	115	1,041	38	1,044	0.9	944	120	483	43

ABI: ankle brachial (pressure) index, SPP: skin perfusion pressure

**Table 4-5** One month after the treatment

	a. Total											b. ASO																										
	Bypass graft/EVT condition				Clinical symptoms of the limb				Ischemic wound			Ambulatory function at discharge (Taylor's classification)				Bypass graft/EVT condition				Clinical symptoms of the limb				Ischemic wound			Ambulatory function at discharge (Taylor's classification)											
	Good	Stenosis	Occlusion	Deterioration	Anastomosis disruption (aneurysm)	Infection	Others	Improved	No change	Deteriorated	Cured	Improved	Deteriorated	Uncured	Improved	Deteriorated	Unknown	Ambulatory	Ambulatory/homebound	Nonambulatory	Good	Stenosis	Occlusion	Deterioration	Anastomosis disruption (aneurysm)	Infection	Others	Improved	No change	Deteriorated	Cured	Improved	Deteriorated	Unknown	Ambulatory	Ambulatory/homebound	Nonambulatory	
Local condition	560	12	23	0	0	4	2	563	51	18	416	142	38	27	461	108	88				1,747	37	90	0	5	14	19	1,612	234	94	426	1,210	278	26	1,086	459	499	
	360	15	29	0	1	2	12	321	53	28	47	277	73	4	126	137	195				Rutherford 4	0	0	0	0	0	0	0	49	11	4	20	31	8	4	62	16	24
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				Therapeutic measures	1,201	41	67	0	0	8	28	1,027	217	77	338	736	219	28	639	334	419
	1,466	23	75	0	6	12	5	1,420	110	59	531	862	162	25	972	354	339				Surgical reconstruction	2,667	64	142	0	6	20	33	2,496	338	140	889	1,629	389	57	1,673	704	782
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				Total	2,667	64	142	0	6	20	33	2,496	338	140	889	1,629	389	57	1,673	704	782
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				b. ASO	551	12	23	0	3	2	553	51	18	408	140	38	27	451	107	88	
Local Condition	1,705	37	81	0	5	14	18	1,573	229	86	417	1,181	265	25	1,045	449	495				Rutherford 4	0	0	0	0	0	0	46	11	6	20	29	8	3	60	16	27	
	357	14	27	0	1	2	12	318	50	28	46	272	73	4	124	134	194				Therapeutic Measures	1,186	40	63	0	8	27	1,019	212	69	336	727	210	28	624	330	414	
	1,427	23	68	0	6	11	5	1,379	107	57	515	837	158	25	936	344	336				Surgical reconstruction	2,613	63	131	0	6	19	32	2,444	330	132	871	1,593	376	56	1,620	690	777
	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				Total	2,613	63	131	0	6	19	32	2,444	330	132	871	1,593	376	56	1,620	690	777

**Table 4-6** Revision one month after the treatment

		Revision for those excluding good bypass graft/EVT condition				Minor reintervention (revision for stenosis)				Major reintervention (revision for occlusion)				Major amputation					
		(+)	(-)	Others	(-)	Patch plasty	EVT	Others	(-)	Thrombectomy (+patch plasty)	Thrombolysis	EVT	Re-bypass	Jump bypass	Interposition	Others	(-)	Due to preoperative wound	Due to new wound
a. Total																			
Local condition	Rutherford 4	27	19	593	2	10	3	582	10	0	2	10	4	0	0	0	623	9	3
	Rutherford 5	97	75	1,848	2	60	9	1,818	18	0	10	35	18	2	18	1,889	72	6	6
	Rutherford 6	41	22	395	0	16	2	375	9	0	2	15	2	0	10	373	49	2	2
Therapeutic measures	Non-reconstruction	0	0	11	0	1	1	12	0	0	0	1	0	0	0	0	81	6	0
	EVT	85	67	1,273	1	58	3	1,245	8	0	8	40	13	2	19	1,263	73	2	2
	Surgical reconstruction	80	49	1,552	3	27	10	1,518	29	0	6	19	11	0	9	1,541	51	9	9
Total		165	116	2,836	4	86	14	2,775	37	0	14	60	24	2	28	2,885	130	11	11
b. ASO																			
		Revision for those excluding good bypass graft/EVT condition				Minor reintervention (revision for stenosis)				Major reintervention (revision for occlusion)				Major amputation					
		(+)	(-)	Others	(-)	Patch plasty	EVT	Others	(-)	Thrombectomy (+patch plasty)	Thrombolysis	EVT	Re-bypass	Jump bypass	Interposition	Others	(-)	Due to preoperative wound	Due to new wound
Local condition	Rutherford 4	26	19	583	2	10	3	573	9	0	2	10	4	0	0	0	614	9	2
	Rutherford 5	91	71	1,796	2	59	9	1,772	17	0	10	32	18	2	15	1,837	70	5	5
	Rutherford 6	38	22	391	0	15	1	371	8	0	2	15	2	0	9	367	49	2	2
Therapeutic measures	Non-reconstruction	0	0	10	0	1	0	11	0	0	0	1	0	0	0	0	78	6	0
	EVT	80	66	1,253	1	57	3	1,229	8	0	8	38	13	2	16	1,243	72	2	2
	Surgical reconstruction	75	46	1,507	3	26	10	1,476	26	0	6	18	11	0	8	1,497	50	7	7
Total		155	112	2,770	4	84	13	2,716	34	0	14	57	24	2	24	2,818	128	9	9

**Table 4-7** Contralateral limb one month after the treatment

		Contralateral limb occlusive lesions						Treatment for contralateral limb										
		(-)		(+) (R4 R5 R6)		Post-treatment		(-)		(+) (R4 R5 R6)		Post-treatment						
		Asymptomatic	Intermittent claudication	CLI	R4	R5	R6	Unnecessary pharmacological therapy	Angiogenic therapy	EVT	Surgical bypass	Minor amputation	Major amputation	Lumber sympathectomy	Necessary but no treatment	Others		
a. Total																		
Local condition		234	192	56	29	9	2	135	41	284	3	73	63	4	9	0	5	1
Rutherford 4		569	668	127	44	162	14	460	191	867	6	206	204	33	90	0	33	11
Rutherford 5		127	156	14	10	31	12	107	58	192	0	53	33	8	23	0	6	4
Rutherford 6																		
Therapeutic measures		49	26	5	4	2	2	18	3	39	0	11	7	1	2	0	2	0
Non-reconstruction		399	415	81	40	103	17	333	124	601	7	215	68	17	75	0	21	8
EVT		482	575	111	39	97	9	351	163	703	2	106	225	27	45	0	21	8
Surgical reconstruction																		
Total		930	1,016	197	83	202	28	702	290	1,343	9	332	300	45	122	0	44	16
b. ASO																		
		Contralateral limb occlusive lesions						Treatment for contralateral limb										
		(-)		(+) (R4 R5 R6)		Post-treatment		(-)		(+) (R4 R5 R6)		Post-treatment						
		Asymptomatic	Intermittent claudication	CLI	R4	R5	R6	Unnecessary pharmacological therapy	Angiogenic therapy	EVT	Surgical bypass	Minor amputation	Major amputation	Lumber sympathectomy	Necessary but no treatment	Others		
Local condition		227	192	55	27	9	2	134	41	280	3	73	63	4	9	0	5	0
Rutherford 4		544	654	127	43	157	14	450	186	850	6	205	201	31	86	0	33	11
Rutherford 5		124	155	14	10	31	12	105	56	192	0	52	33	8	23	0	6	4
Rutherford 6																		
Therapeutic measures		46	26	5	4	2	2	15	2	39	0	11	7	1	2	0	2	0
Non-reconstruction		387	412	81	40	101	17	331	123	596	7	214	68	17	73	0	21	8
EVT		462	563	110	36	94	9	343	158	687	2	105	222	25	43	0	21	7
Surgical reconstruction																		
Total		895	1,001	196	80	197	28	689	283	1,322	9	330	297	43	118	0	44	15

CLI: critical limb ischemia



**Table 4-8** Malignant neoplasm one month after the treatment

		Newly diagnosed malignant neoplasm		Sites of newly diagnosed malignant neoplasm											
		(-)	(+)	Unknown	Head and neck	Esophagus	Lung	Stomach	Hepatobiliary pancreas	Colon	Breast	Uterus	Ovarian	Prostate	Others
a. Total															
Local condition	Rutherford 4	646	3	8	0	0	1	0	0	0	0	0	0	0	2
	Rutherford 5	2,013	9	23	2	1	3	1	0	1	1	0	0	0	1
	Rutherford 6	454	1	3	0	0	0	1	0	0	0	0	0	0	0
Therapeutic measures	Non-reconstruction	101	0	5	0	0	0	0	0	0	0	0	0	0	0
	EVT	1,369	7	14	1	0	0	2	0	1	1	0	0	0	2
	Surgical reconstruction	1,643	6	15	1	1	4	0	0	0	0	0	0	0	1
Total	3,113	13	34	2	1	4	2	2	0	1	1	0	0	0	3
b. ASO															
		Newly diagnosed malignant neoplasm		Sites of newly diagnosed malignant neoplasm											
		(-)	(+)	Unknown	Head and neck	Esophagus	Lung	Stomach	Hepatobiliary pancreas	Colon	Breast	Uterus	Ovarian	Prostate	Others
Local condition	Rutherford 4	635	3	8	0	0	1	0	0	0	0	0	0	0	2
	Rutherford 5	1,959	9	22	2	1	3	1	0	1	1	0	0	0	1
	Rutherford 6	448	1	3	0	0	0	1	0	0	0	0	0	0	0
Therapeutic measures	Non-reconstruction	98	0	5	0	0	1	0	0	0	0	0	0	0	0
	EVT	1,348	7	14	1	0	0	2	0	1	1	0	0	0	3
	Surgical reconstruction	1,596	6	14	1	1	3	0	0	0	0	0	0	0	0
Total	3,042	13	33	2	1	4	2	2	0	1	1	0	0	0	3