Multidisciplinary Approach in Peripheral Intervention

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Contents

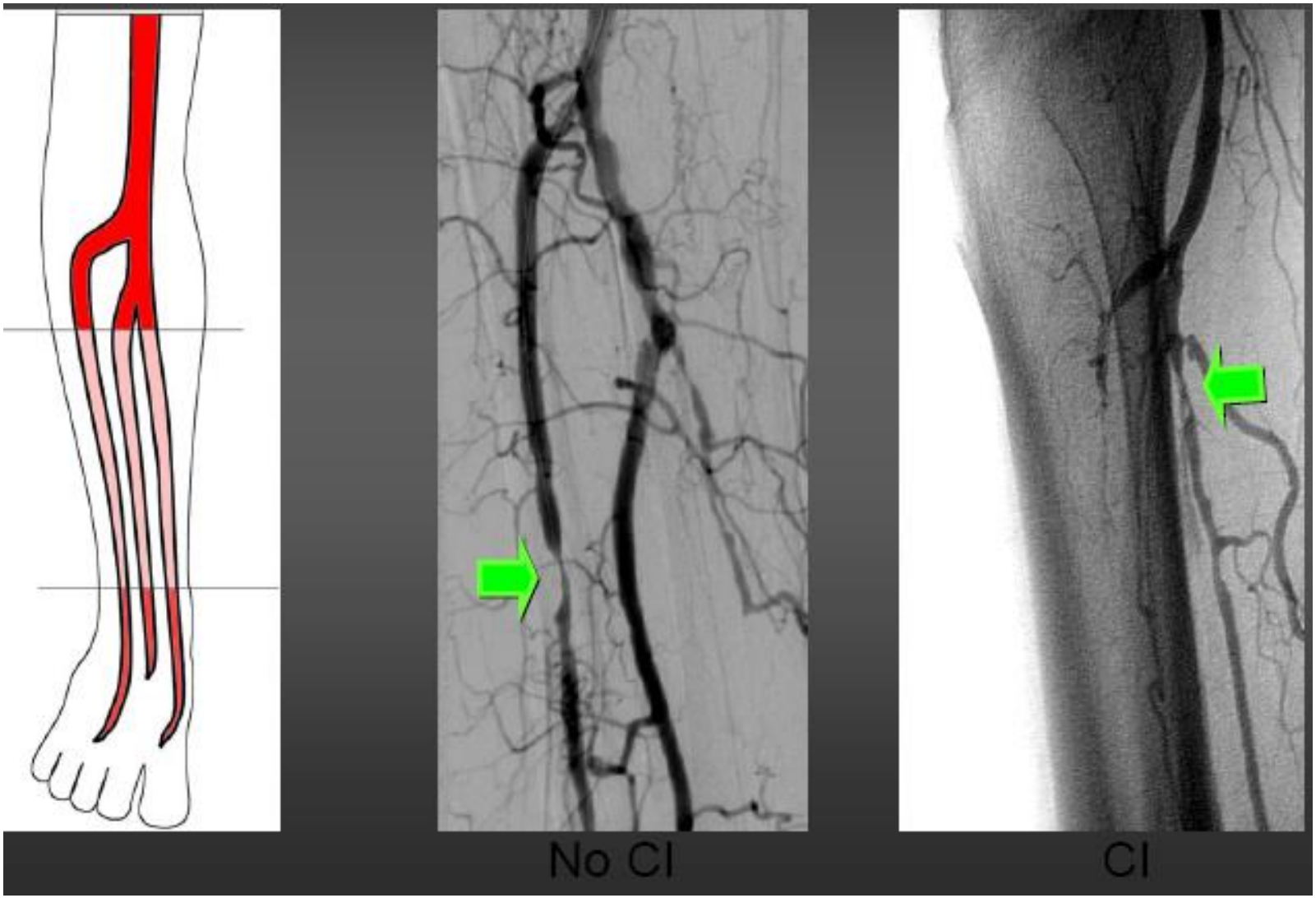
1. Introduction
2. Importance of multidisciplinary approach in PAD management; KUGH Style

   ; Focused on the Wound Center/Peripheral Intervention Clinic
3. Summary & Conclusion

CLI & Infrapopliteal Obstructions

1. Severe Sxs
   ; often critical ischemia
2. DM; up to 80%
3. Older Patients
4. Significantly more concomitant diseases
   (Cardiac, Cerebrovascular, Renal, Pulmonary)

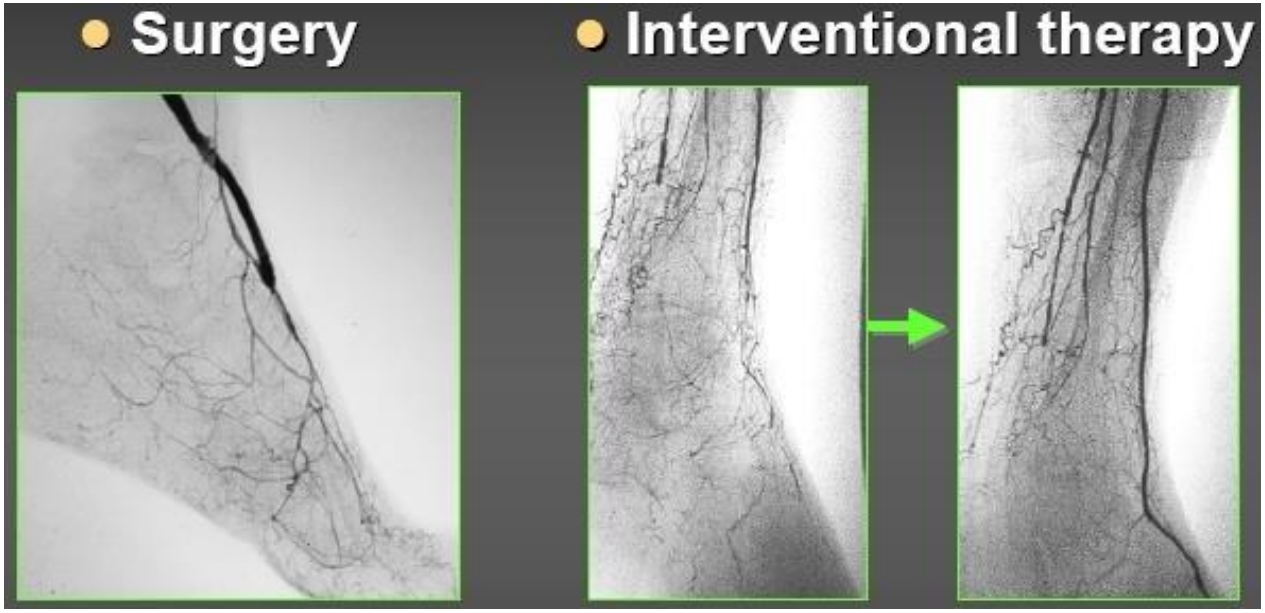
Infrapopliteal Lesions in Critical Limb Ischemia (CLI)



DM and PAD and/or CRI

- Lethal combination; ‘Silent Killer’
- Higher potential risk for amputation
- Higher prevalence of CAD, silent myocardial ischemia/infarction, multivessel and diffuse disease
- Higher risk of morbidity and mortality
- Marked reduction in life expectancy
- Marked increase in health care costs

Surgery vs. Intervention



** Decision depends of Patient's and Physician's Factors

1. Co-morbidity
2. Availability of veins
3. Morphology of the obstruction
4. Cooperative pt and pt's family
5. Truly symptomatic lesion

고려대학교구로병원
KOREA UNIVERSITY GURO HOSPITAL

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a Johnson & Johnson company

CCI Program

Complex Cardiovascular Intervention Program

Cardiovascular Center,
Korea Univ. Guro Hospital,
Seoul, Korea

March~, 2011

Seung-Woon, Rha MD.PhD

COURSE DIRECTOR

Seung-Woon Rha, MD., PhD.
FACC, FAHA, FSCAI, FESC, FAPSIC.

Associate Professor, Dept. of Internal Medicine, Medical College, Korea University
Director, Cardiovascular Intervention and Research,
Director, Cardiac Catheterization Laboratory,
Cardiovascular Center,
Korea University Guro Hospital, Seoul, Korea

- CTO Summit, Course Director
- TCT AP (Angioplasty Summit) and Encore Seoul, Scientific Committee & Faculty
- KSC, KSIC, CCT, CVIT, TOPIC, CTO club meeting, Faculty
- Proctor and Faculty in Korean CTO club, TRI club and VIS (Vascular Intervention Seminar)

When	Every Tuesday & Thursday for / Mar.11, 2011 ~
Where	Korea University Guro Hospital, Seoul, Korea
Advisory Instructo	Dong-Joo Oh MD.PhD, FACC
Course Instructor	Seung-Woon Rha MD.PhD, FACC
Invited Mentors	1. Chael-Ung Choi (Korea Univ. Guro Hospital) 2. Sang-Ho Park (Soonchunhyang Univ. Hospital Cheonan) 3. Yun-Hyeong Cho (Kwandong Univ. College Of Medicine Myongji Hospital) 4. Amro Elnager (Benha Univ. Egypt)

COURSE OVERVIEW

1. Technical improvement in Complex Coronary & Peripheral Intervention
2. Clinical Research in Cardiovascular Field

LEARNING OBJECTIVES

1. Complex coronary & Endovascular Intervention
   - A. Complex coronary intervention : LM, CTO, Bifurcation, Diffuse long Muti-vessel disease, Small vessel disease, FFR, Coronary Anormaly
   - B. Complex Endovascular : Carotid, Subclavian, Renal, Iliofemoral, BTK, Mesentry, Vein Intervention, Aortic Aneurysm
2. Hands-on experience as an operator with mentors
3. Free discussion with experts
4. Clinical research program and paperwork
5. Visiting professors' activities : Lectures, Interesting case discussion
6. Challenging new devices and experiencing cutting edge technology
7. Improving English Proficiency

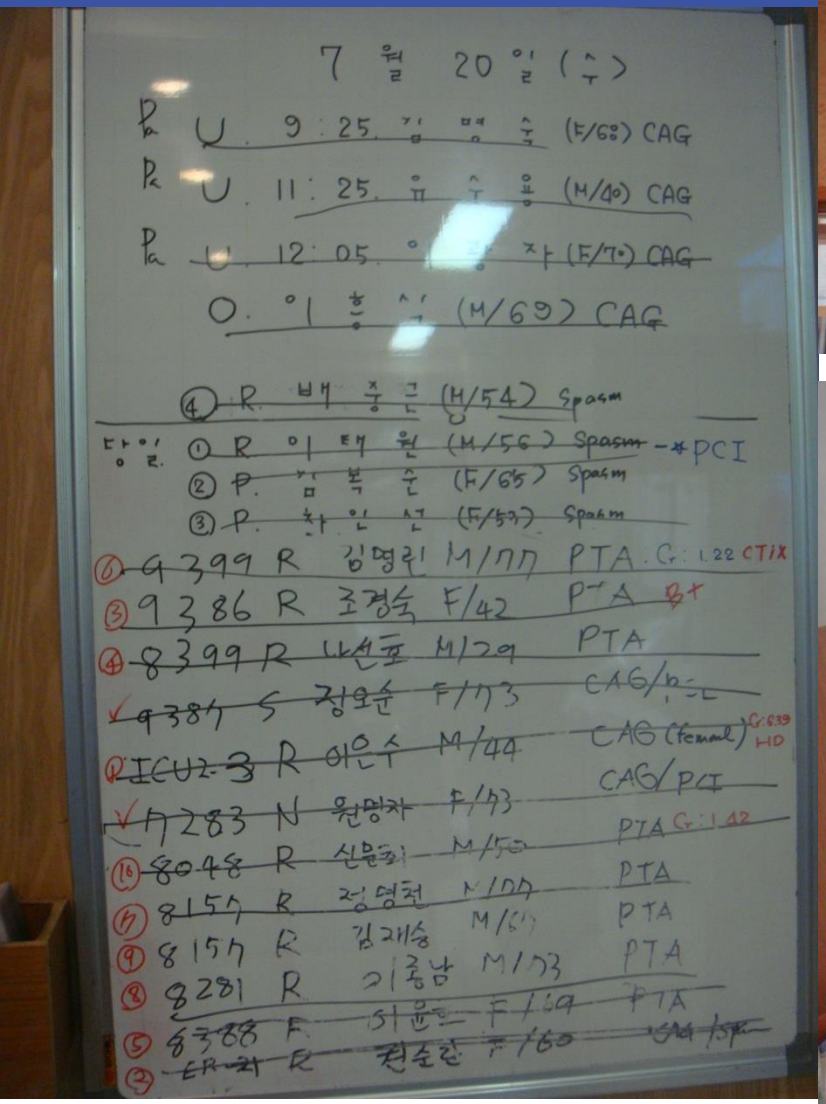
AGENDA

08:30 - 08:45	Opening Remarks & Introduction
08:45 - 12:30	TRA & TRI Session
12:30 - 13:30	Lunch
13:30 - 14:00	Round Table Meeting Topic review and Clinical Research Discussion
14:00 - 18:00	Complex Coronary & Peripheral Joint Live I
18:00 - 18:30	Dinner
18:30 - 19:00	Discussion for case of the day Meet the experts
19:00 -	Complex Coronary & Peripheral Joint Live II : Until Tired

CANDIDATE SELECTION CRITERIA

1. Current active academic position as a faculty in cardiovascular intervention field (Interventional Cardiology, Vascular Surgeon and Interventional Radiology)
2. Weekly for at least 6 – 12 months will be preferred
   1) 6-12 month : Chance of real practice
   2) <6 months : Mainly assisting job and Hand-on Experiance
   3) Single Visit : Observation

Never give up & Until tired or expire…


7 월 20 일 (수)
Pa U. 9:25 김 명 수 (F/68) CAG
Pa U. 11:25 ㅠ ㅜ ㅛ (M/40) CAG
Pa U. 12:05 ㅇ ㅈ (F/70) CAG
O. 이 ㅎ ㅅ (M/69) CAG
④ R. 배 ㅈ ㄱ (M/54) Spasm
다이 ① R 이 태 원 (M/56) Spasm → PCI
② P. 김 복 순 (F/65) Spasm
③ P. 차 인 선 (F/53) Spasm
⑥ 9399 R 김명린 M/77 PTA. G: 1.22 CTiX
③ 9386 R 조경숙 F/42 PTA
④ 8399 R 나선포 M/29 PTA
9384 S 장옥순 F/73 CAG/PCI
ICU-3 R 이은수 M/44 CAG (femal) G:639 HD
N 283 N 원명자 F/73 CAG/PCI
⑯ 8048 R 신문희 M/50 PTA G: 1.42
⑰ 8154 R 정명천 M/64 PTA
⑨ 8154 R 김재승 M/61 PTA
⑧ 8281 R 이중남 M/73 PTA
⑤ 8388 R 이윤노 F/69 PTA
② ER-차 R 권순란 F/60 CAG/PCI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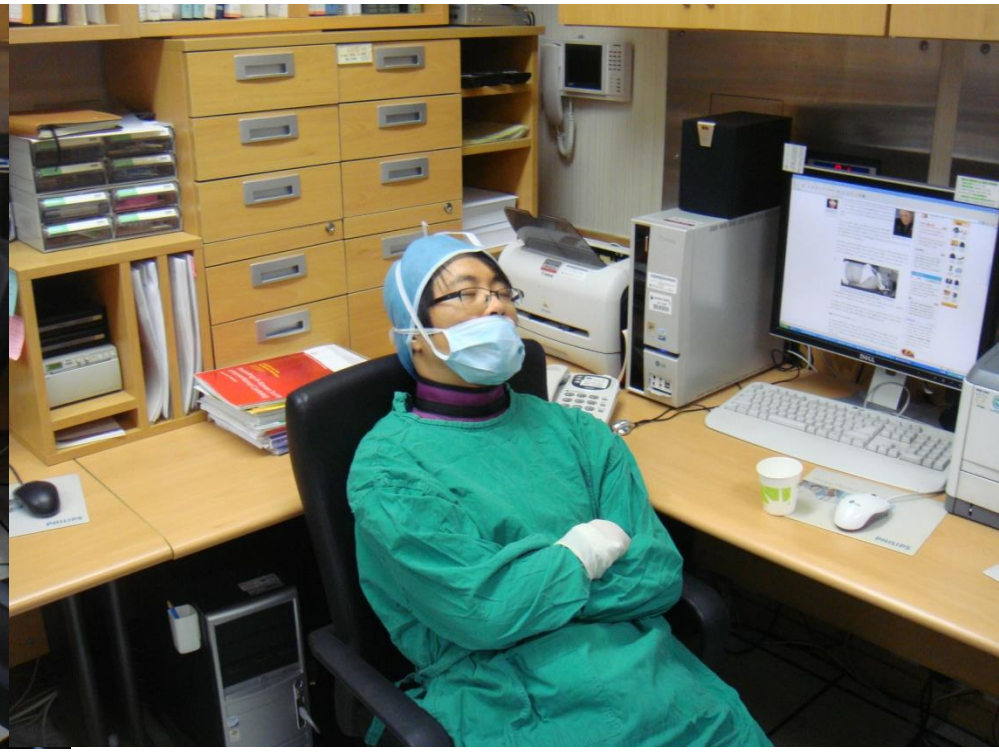
12000 ms
4:13:52 AM
7/21/2011
17.6 Days
4.1 GB


Baton Scientific

Pending Expire….

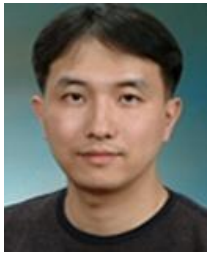













Wound and Diabetic Foot Center

Korea University Guro Hospital

www.woundcenter.co.kr

Multi-department Cowork in KUGH 2011

No	Department	Main Contribution Fields
1	Cardiology	1. Evaluation of PAD (ABI, CTA and so on) 2. EVT for vascular compromised limbs 3. Concomitant screen and management of cardiovascular disease
2	Plastic Surgery	1. Non-invasive work up for CLI ($TcPO_2$ measure, Doppler) 2. Non-surgical wound management (Cell therapy, wound dressing, hyperbaric oxygen therapy) 3. Surgical wound management (debridement, minor amputation)
3	Vascular Surgery /Chest Surgery	1. Cowork for EVT 2. Surgical bypass and surgical back up support
4	Radiology	1. Image analysis 2. Cowork for EVT
5	Endocrinology	Evaluation and management of DM
6	Nephrology	Evaluation and management of CRI, Renal replacement therapy (HD or PD)
7	Infection	1. Evaluation of microbiology in infected wound 2. Guide antibiotics manage and controlling infection
8	Anesthesia/Pain Clinic	1. Work up with pre/post PTA thermography 2. Pain control
9	Clinical laboratory/ Clinical pathology	1. Microorganism; culture and sensitivity test 2. Variety of laboratory examination
10	Orthopedic surgery	Major amputation

Peripheral Vascular Disease Clinic
-Wound and Diabetic Foot Clinic-

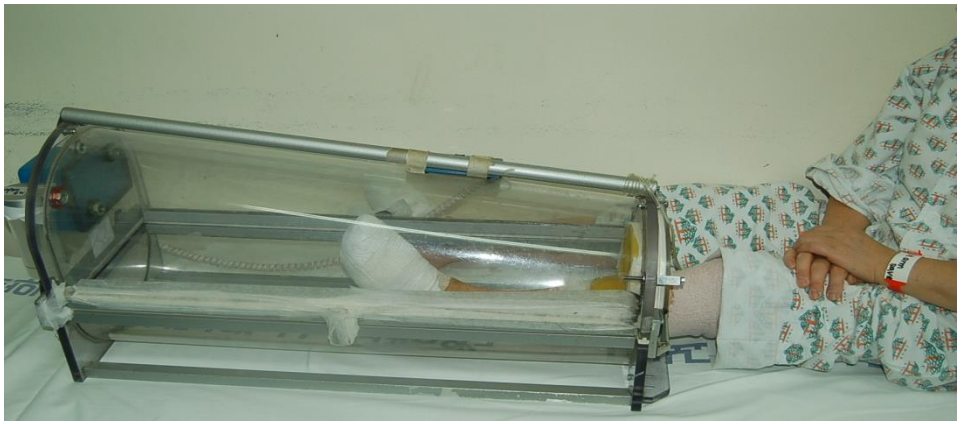
1. Plastic Surgery; 한승규
2. Interventional Cardiology; 나승운, 최철웅
3. Infection; 송준영
4. Endocrinology; 류혜진
5. Anesthesiology/Pain Clinic; 최상식
6. Nephrology; 박상원
7. Radiology
8. Clinical Laboratory/ Pathology; 김장수
9. PS Cell Therapy Lab (세포실험실); 이현우, 정애리
10. Orthopedic surgery

Weekly Case Conference & Research Meeting

Every Tuesday 7;00 am to 8;00 am, PS conference room

Wound Clinic Equipments

1. Transcutaneous Oximeter
2. Laser Doppler Perfusion Monitor
3. Ultrasound Doppler System
4. Hyperbaric Oxygen
5. Lasers for wound management
6. Thermography
7. Cell therapy unit



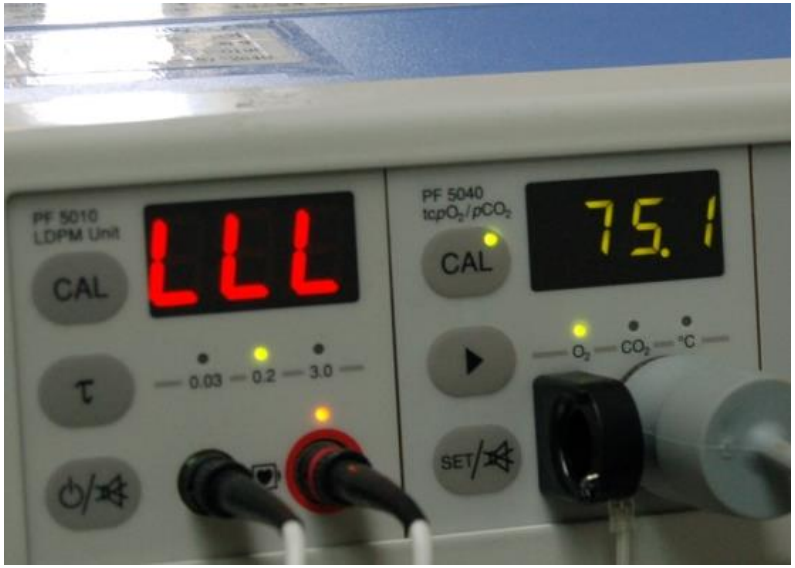
Hyperbaric Oxygen

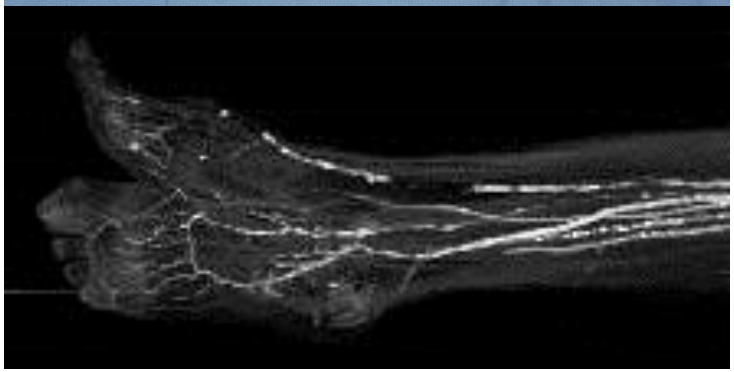
Laser Doppler Perfusion Monitor

Ultrasound Doppler System

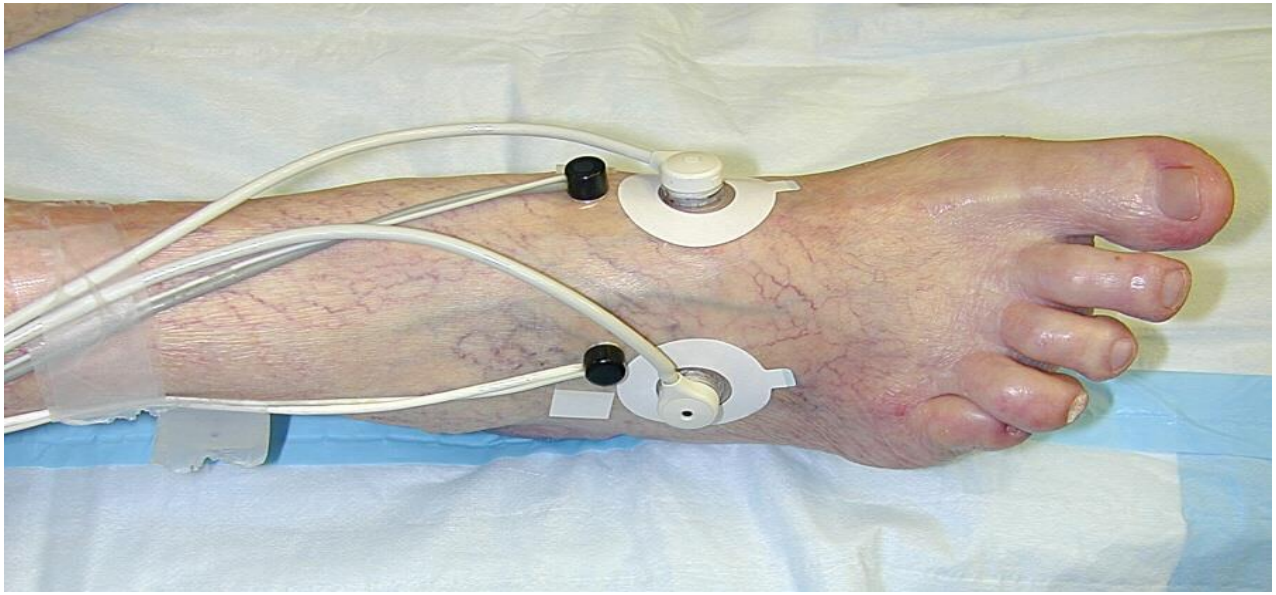
Laser; Coherent CO_2, Paragon CO_2,
Nd;Yag, Er;Yag, V-beam Laser등

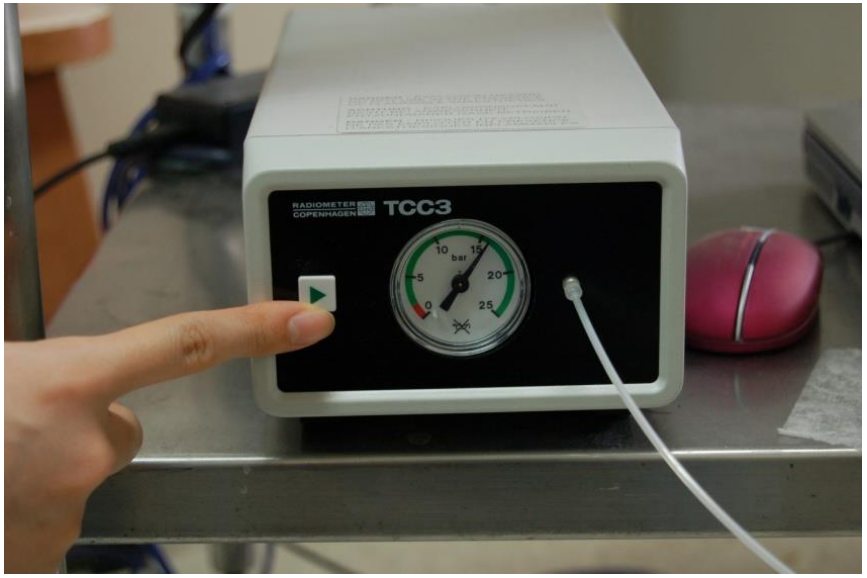
Transcutaneous Oxygen Pressure ($TcPO_2$)

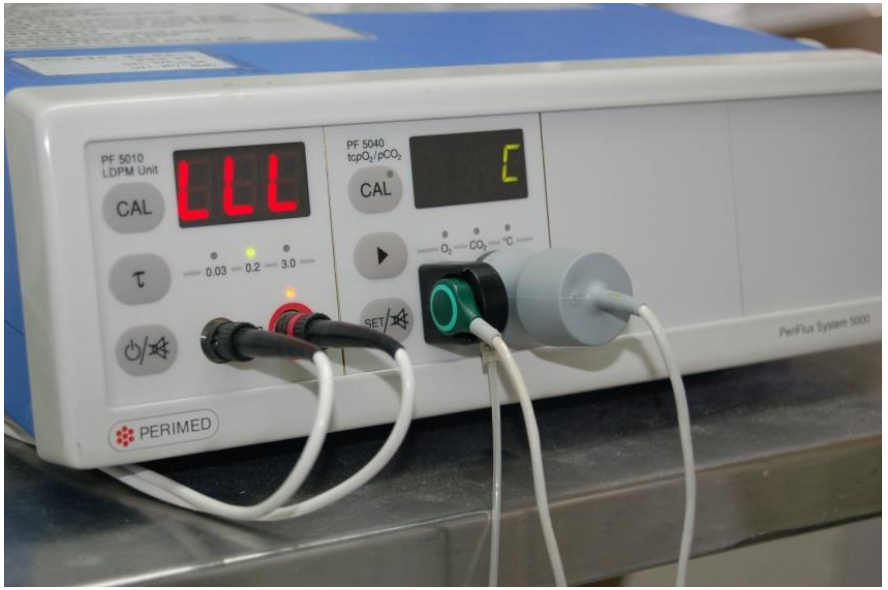




Preparation for Assessment







Preparation for Assessment

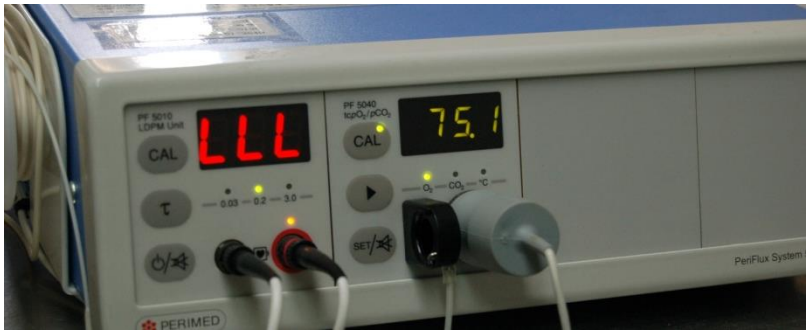


- Shaving
- Cleaning with alcohol
- Stripped with adhesive tape to remove skin cells
- Dry skin
- Near wound
- Not on bony prominences, vessels, pulse sites
- Flat or slightly convex areas : Most reliable

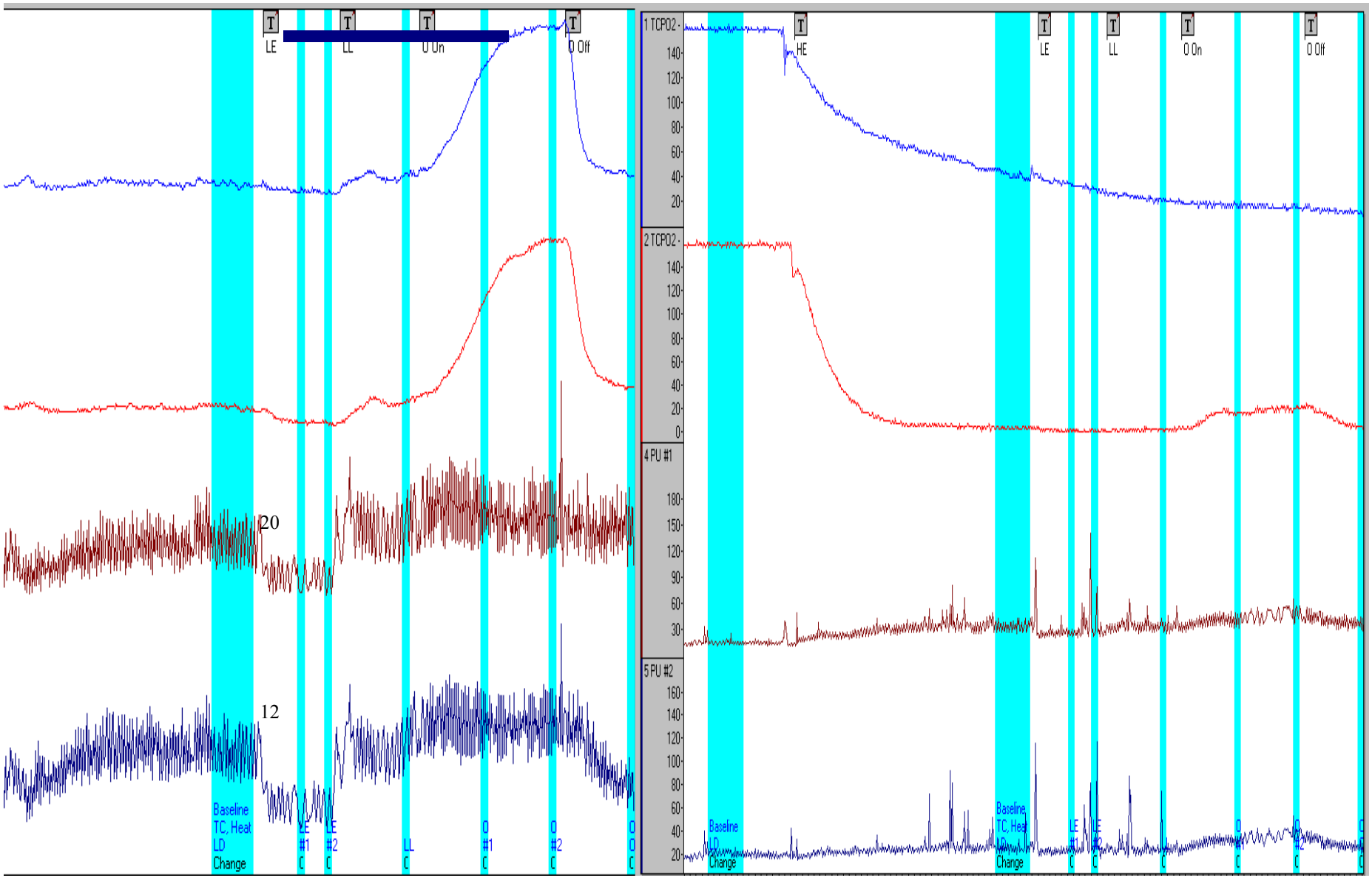
Preparation for Assessment

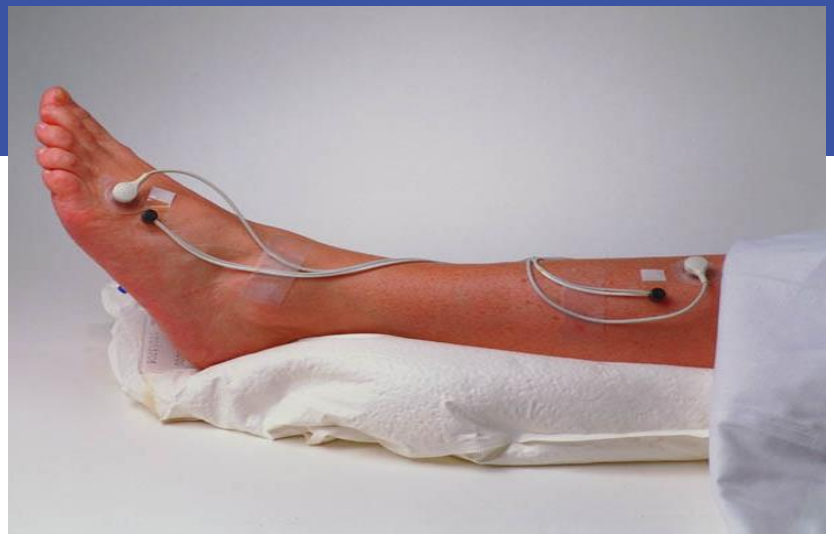


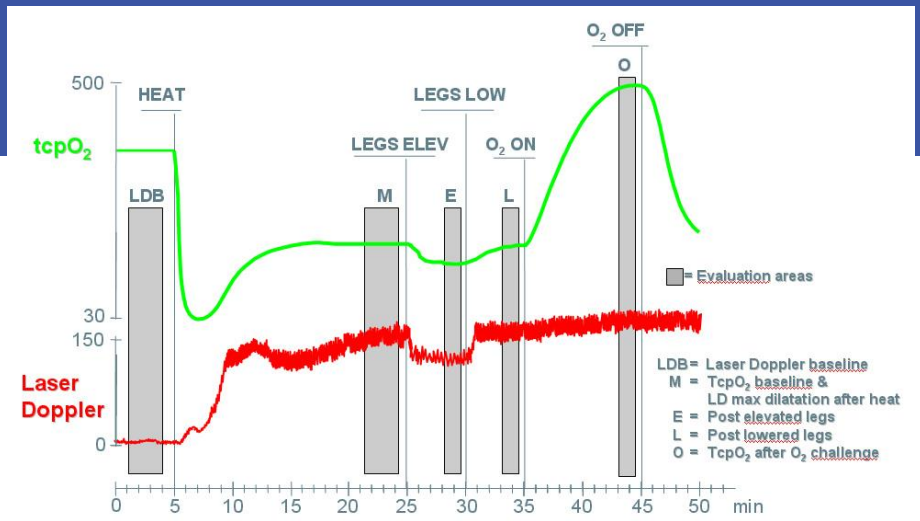
- Electrode wires : Same direction
- Heating : No more than 1 hour
- Avoid air leakage from fixation device

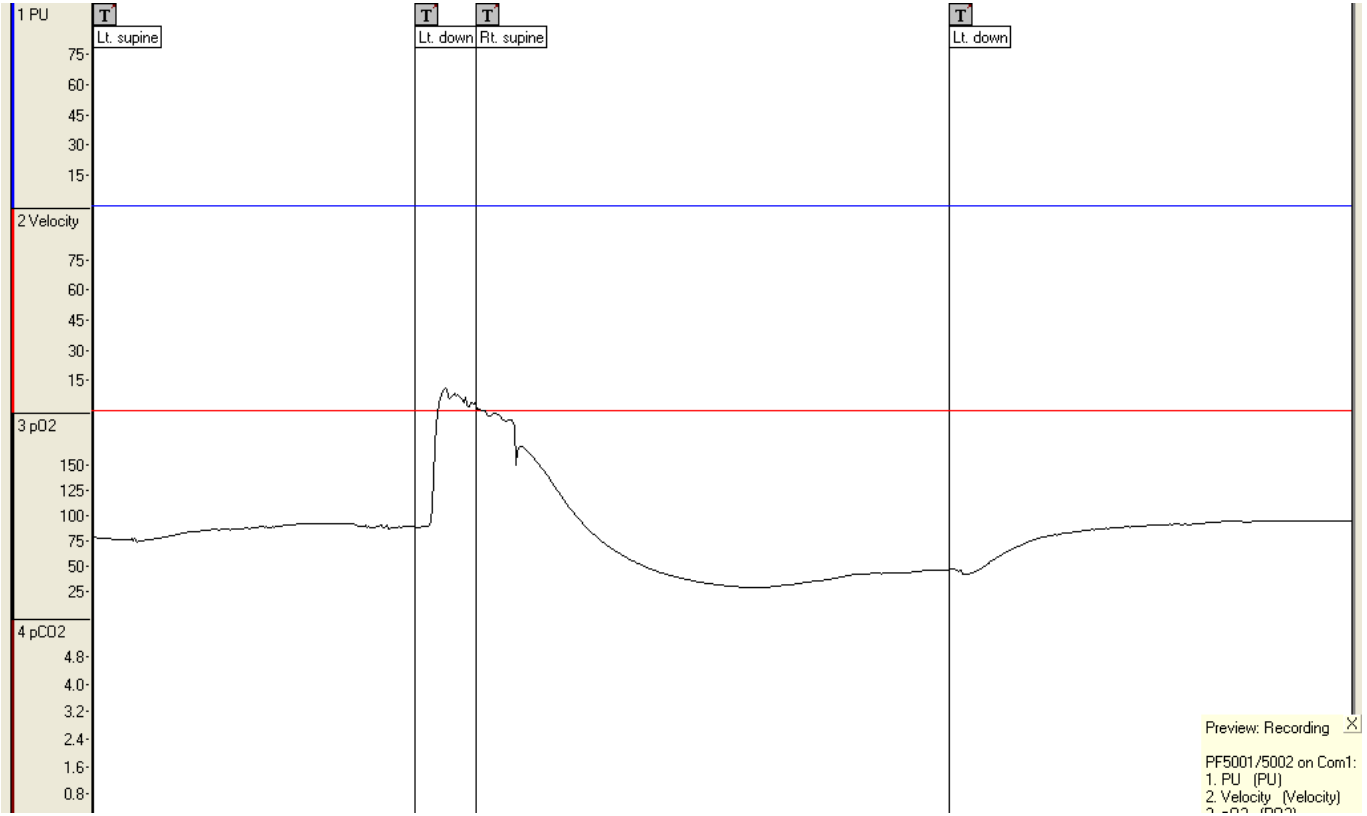


Predictive test for Position & HBO2

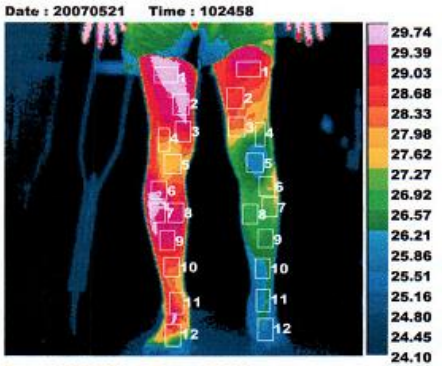


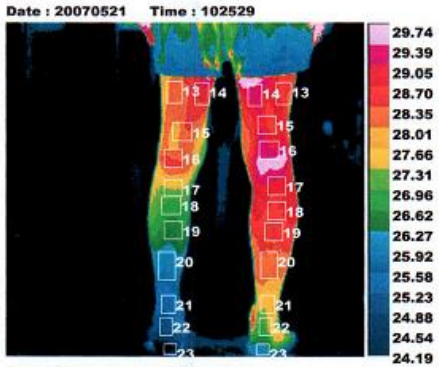


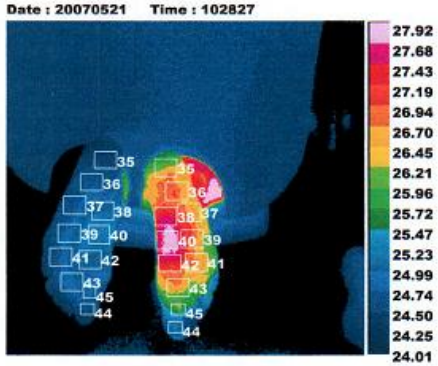

O_2 OFF
O
500
HEAT
LEGS LOW
tcpO_2
LEGS ELEV
O_2 ON
LDB
M
E
L
= Evaluation areas
30
150
Laser Doppler
0
LDB= Laser Doppler baseline
M = TcpO_2 baseline &
LD max dilatation after heat
E = Post elevated legs
L = Post lowered legs
O = TcpO_2 after O_2 challenge
0 5 10 15 20 25 30 35 40 45 50 min

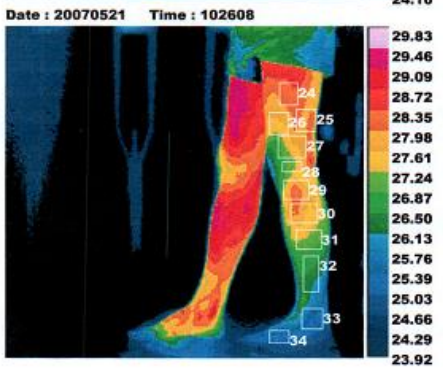

1 PU
Lt. supine
Lt. down
Rt. supine
Lt. down
75
60
45
30
15
2 Velocity
75
60
45
30
15
3 pO2
150
125
100
75
50
25
4 pCO2
4.8
4.0
3.2
2.4
1.6
0.8
Preview: Recording
PF5001/5002 on Com1:
1. PU (PU)
2. Velocity (Velocity)

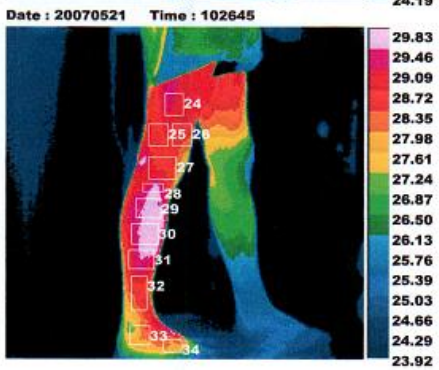
Thermography-Pre











Region of Interests

No	Rt	Lt	Difference
1	29.52	28.99	0.53
2	29.48	28.52	0.96
3	28.91	27.94	0.97
4	28.10	26.80	1.30
5	27.59	26.06	1.53
6	29.13	27.01	2.12
7	29.41	26.99	2.42
8	29.10	26.72	2.38
9	29.09	26.57	2.52

No	Rt	Lt	Difference
10	28.35	26.14	2.21
11	28.49	26.06	2.43
12	27.55	25.66	1.89
13	28.06	28.52	-0.46
14	28.75	29.15	-0.40
15	28.09	28.79	-0.70
16	28.27	29.14	-0.87
17	27.34	28.91	-1.57
18	26.87	28.65	-1.78

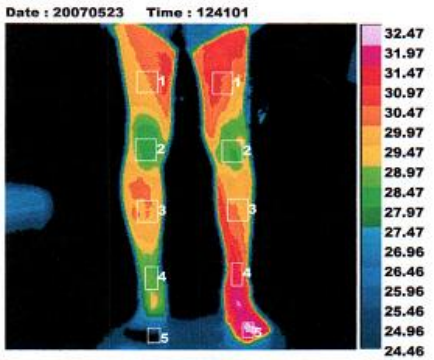
Region of Interests

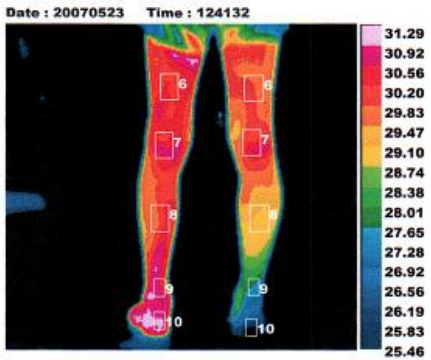
No	Rt	Lt	Difference
35	24.47	26.22	-1.75
36	24.69	26.73	-2.04
37	24.74	26.69	-1.95
38	25.07	27.30	-2.23
39	24.88	26.84	-1.96
40	25.21	27.62	-2.41
41	24.78	26.61	-1.83
42	25.03	27.26	-2.23
43	24.91	26.42	-1.51

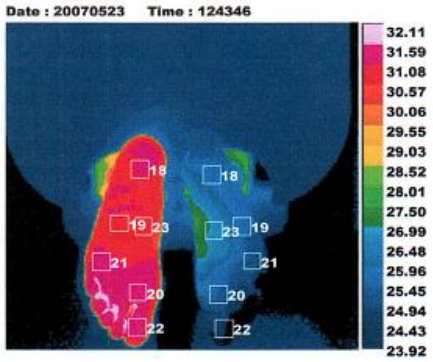
No	Rt	Lt	Difference
44	24.59	25.10	-0.51
45	24.86	25.77	-0.91

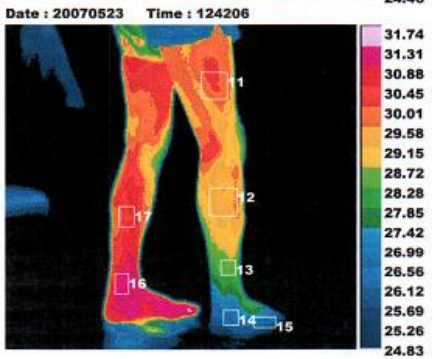
CRPS (Complex regional pain syndrome)

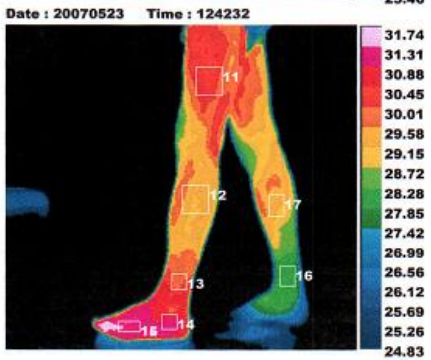
Thermography-Post











Region of Interests

No	Rt	Lt	Difference
1	29.93	30.35	-0.42
2	28.35	28.58	-0.23
3	29.90	29.92	-0.02
4	28.59	31.21	-2.62
5	24.96	31.97	-7.01
6	30.15	29.80	0.35
7	30.39	30.21	0.18
8	29.97	29.01	0.96
9	30.58	27.56	3.02

No	Rt	Lt	Difference
10	30.85	25.85	5.00
11	29.85	30.14	-0.29
12	29.39	29.30	0.09
13	28.45	29.87	-1.42
14	26.59	30.98	-4.39
15	26.26	31.23	-4.97
16	31.02	28.00	3.02
17	30.31	29.27	1.04

Region of Interests

No	Rt	Lt	Difference
18	31.12	25.73	5.39
19	30.86	25.65	5.21
20	31.27	25.36	5.91
21	31.25	25.12	6.13
22	31.28	24.40	6.88
23	30.74	26.79	3.95

No	Rt	Lt	Difference

Post-lumbar Sympathetic Block→Increased Perfusion due to Vasodilation

Treatment of Vasculopathy in Diabetic Foot by Percutaneous Transluminal Angioplasty

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Seung Woon Rha, M.D., Hyon Surk Kim, M.D.,
Woo Kyung Kim, M.D.

Department of Plastic Surgery and Diabetic Wound Center, Korea University College of Medicine, Seoul, Korea

Purpose: In treating diabetic foot ulcers, satisfactory vascularity is an essential prerequisite. To improve vascularity, a bypass graft has long been carried out. Recently, however, percutaneous transluminal angioplasty (PTA) has also been tried since the PTA is less invasive than the bypass graft. However, publication demonstrating the improvement of vascularity after the PTA are lacking. Therefore, this study was designed to show usefulness of the PTA in treating vasculopathy of diabetic foot.

Materials: and Methods This study included 30 feet of 24 ischemic diabetic foot patients. Inclusion criteria were diabetes (duration > 5 years) and a significant lower extremity ischemia, as determined by a transcutaneous oxygen pressure ($TcpO_2$) < 30 mmHg. The PTA was carried out in 61 arteries. PTA procedure was considered successful, when residual stenosis was less than 30%. The procedure was considered failed when residual stenosis was more than 50%. Residual stenosis between 30% and 50% was considered acceptable. For evaluation of PTA effect, foot $TcpO_2$ and infrared thermography were measured before and 7th day after PTA.

Results: Immediately after PTA performed in 61 arteries, 58 and 3 arteries were evaluated as being successful and acceptable, respectively. Before PTA, average foot $TcpO_2$ was 12.6 ± 8.8 mmHg and its value was increased to 44.2 ± 23.9 on 7th day after PTA ($p < 0.01$). Average skin temperature was $31.8 \pm 1.2^{\circ}C$ before PTA and it was increased to $33.5 \pm 1.1^{\circ}C$ on 7th day after PTA ($p<0.01$).

Conclusion: PTA procedure increases tissue oxygenation of ischemic diabetic feet which do not have wound healing potential due to low tissue oxygenation, to the level of possible wound healing. In addition, PTA increases skin temperature of ischemic diabetic feet which can imply an improvement of peripheral circulation.

Key Words: Percutaneous transluminal angioplasty, Diabetic foot

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Changes in TcPO2 and Skin Temperature following PTA

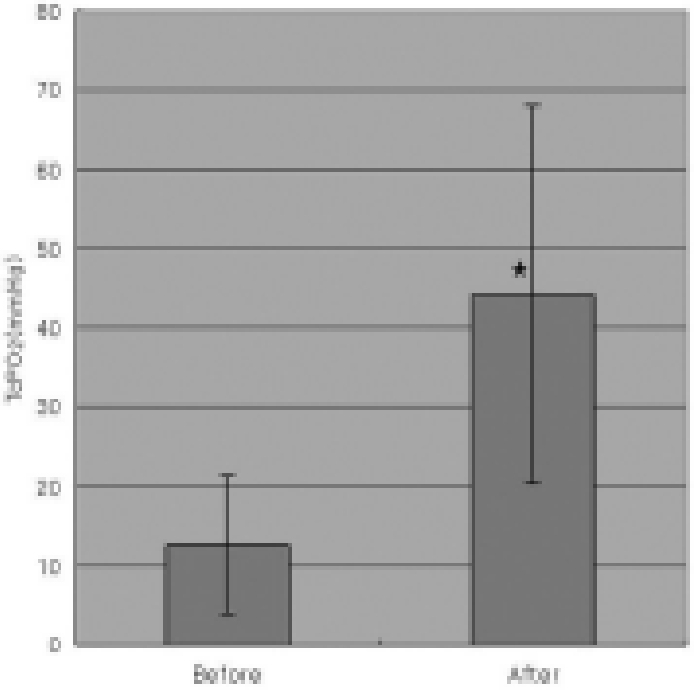

Fig. 2. Measured $TcpO_2$ before and 7th day after PTA (*: Significant different, $p < 0.01$).

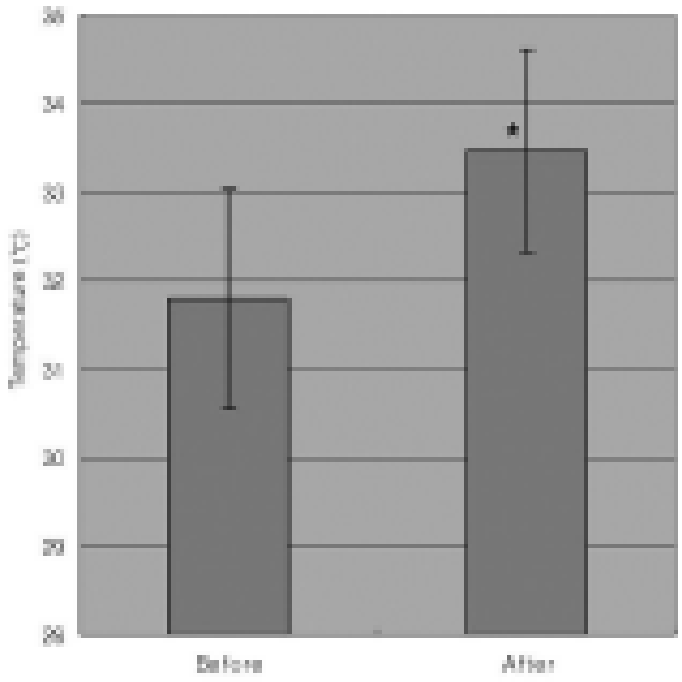

Fig. 3. Measured skin temperature before and 7th day after PTA (*: Significant different, $p < 0.01$).

Kim HR, Han KR, Rha SW et al. K Korean Soc Plast Reconstr Surg 2010;37:148-152

Changes in Thermography following PTA

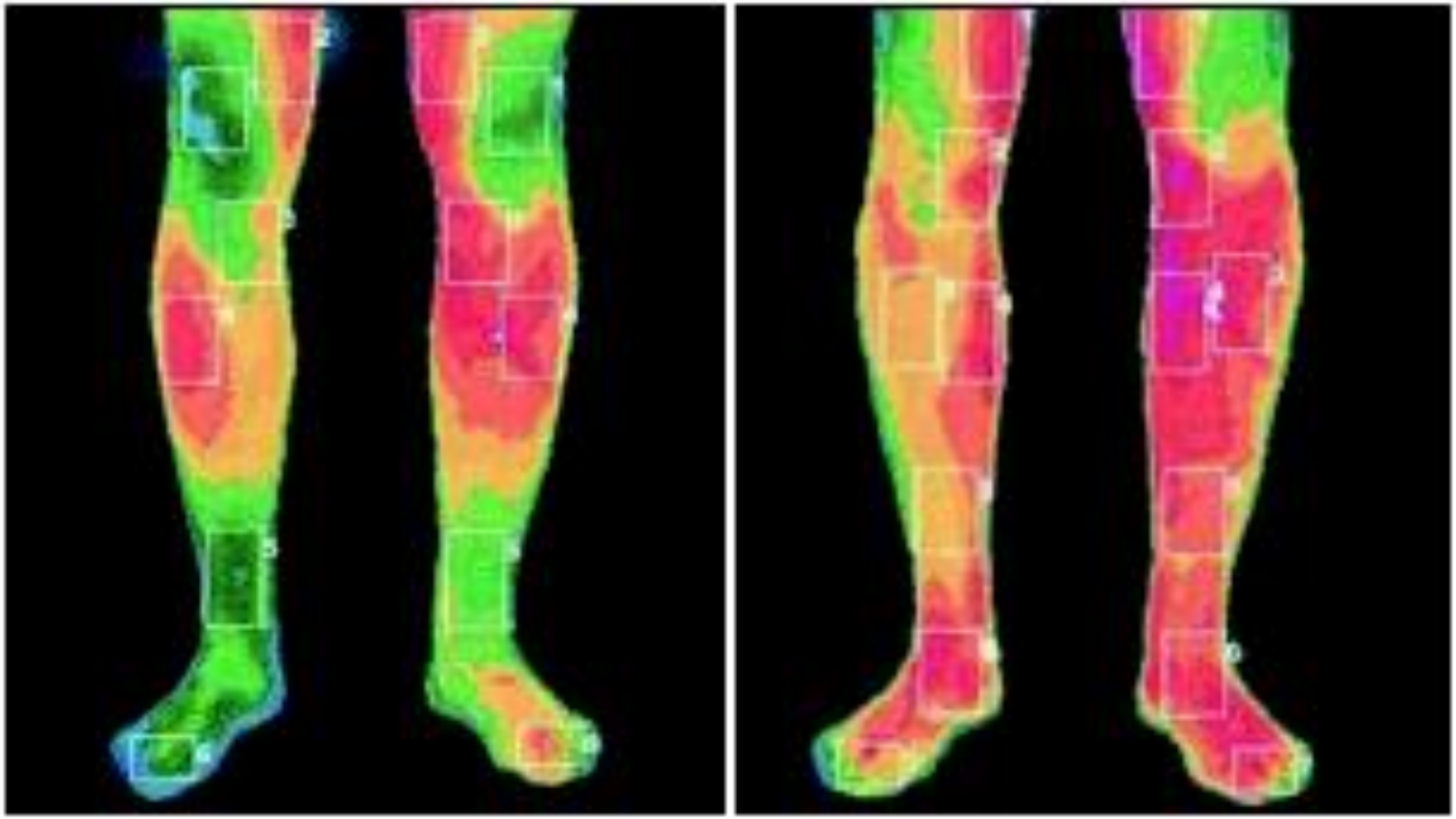

Fig. 4. Thermography by infrared imaging. (Left) Before PTA. (Right) After PTA.

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Effect of percutaneous transluminal angioplasty on tissue oxygenation in ischemic diabetic feet

Hong-Ryul Kim, MD; Seung-Kyu Han, MD, PhD; Seung-Woon Rha, MD, PhD; Hyun-Surk Kim, MD; Woo-Kyung Kim, MD, PhD

Department of Plastic Surgery, Diabetic Wound Center, Korea University Guro Hospital, Seoul, South Korea

ABSTRACT

Percutaneous transluminal angioplasty (PTA) has been performed as an alternative to bypass surgery for improving tissue oxygenation in ischemic diabetic feet because the former is less invasive than the latter. The purpose of this study was to evaluate the effect of PTA on tissue oxygenation in ischemic diabetic feet. This study included 29 ischemic diabetic feet, as determined by a transcutaneous oxygen pressure ($TcPO_2$) < 30 mmHg. The PTA was carried out in 29 limbs. The PTA procedure was considered successful, acceptable, and failed when residual stenosis was $< 30\%$, between 30 and 50%, and $> 50\%$, respectively. For evaluation of tissue oxygenation, the foot $TcPO_2$ was measured before PTA and weekly for 6 weeks after PTA. Immediately after PTA, 26 feet were evaluated as being successful and the remaining three as acceptable. Before PTA, the average foot $TcPO_2$ was 12.7 ± 8.9 mmHg. The $TcPO_2$ values were increased to 43.6 ± 24.1, 51.0 ± 22.6, 58.3 ± 23.0, 61.3 ± 24.2, 59.0 ± 22.2, and 53.8 ± 21.0 mmHg 1, 2, 3, 4, 5, and 6 weeks after PTA, respectively ($p < 0.01$). The PTA procedure significantly increases tissue oxygenation in ischemic diabetic feet. The maximal level of tissue oxygenation was measured on the fourth week following PTA.

Kim HR, Han SK, Rha SW et al. Wound Rep Reg 2010

Baseline Characteristics

Table 1. Demographic and clinical characteristics of the study population (N=23)

Male : female	17 : 6
Age (years)	69.0 ± 6.9
Duration of diabetes (years)	19.5 ± 9.9
Hypertension	17 (73.9%)
Renal impairment	8 (34.8%)
Smoking history	10 (43.5%)
Coronary artery disease	7 (30.4%)

Table 2. Main arteries treated

	Number of limbs (N=29)
Iliac PTA	2
Deep femoral PTA	1
Superficial femoral PTA	11
Popliteal PTA	3
Infrapopliteal PTA	42

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Successful PTA cases

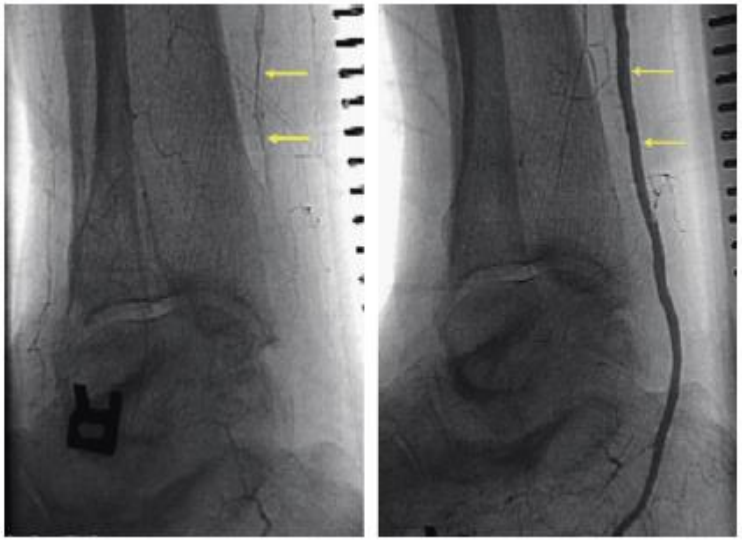

Figure 1. Angiographic findings of the ri posterior tibial artery (arrows) before a immediately after successful PTA.

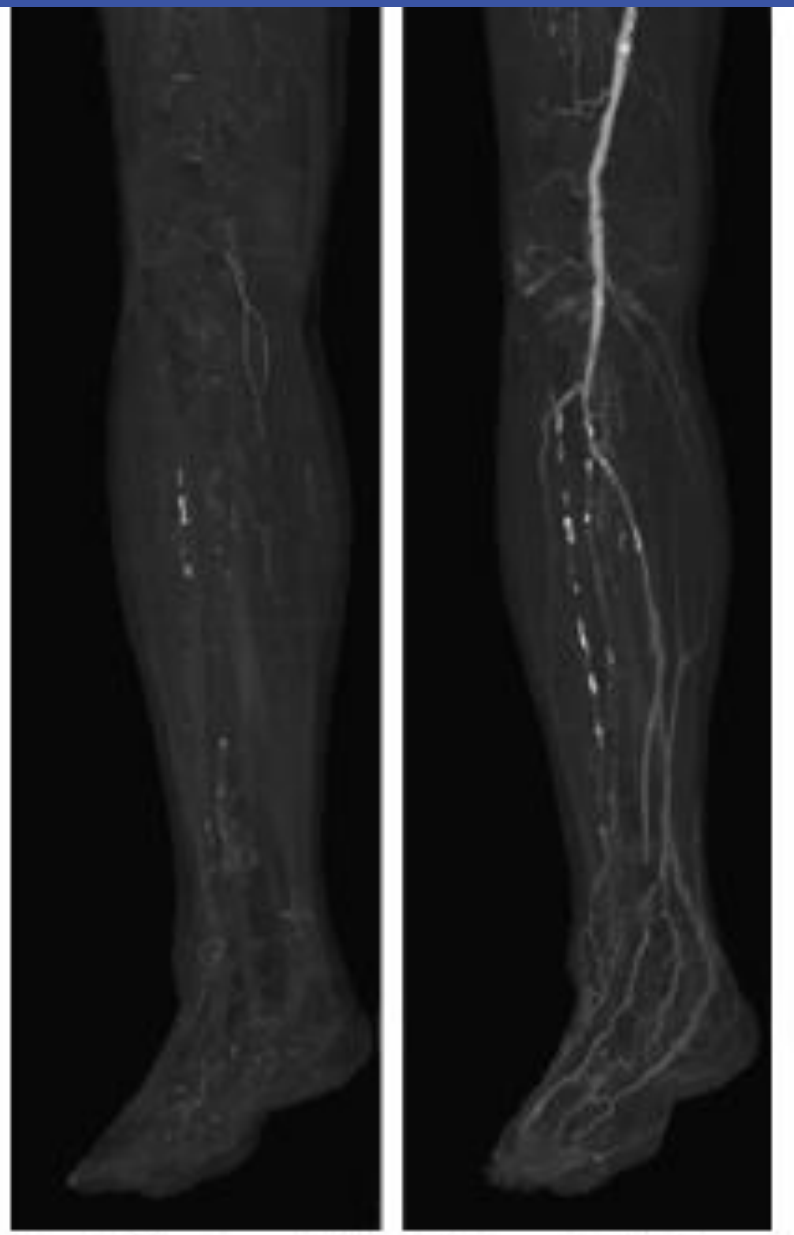

Figure 2. CT angiography findings that were taken before and after successful PTA. PTA was performed on the right femoral, peroneal, and posterior tibial arteries in this patient.

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Changes in TcPO2

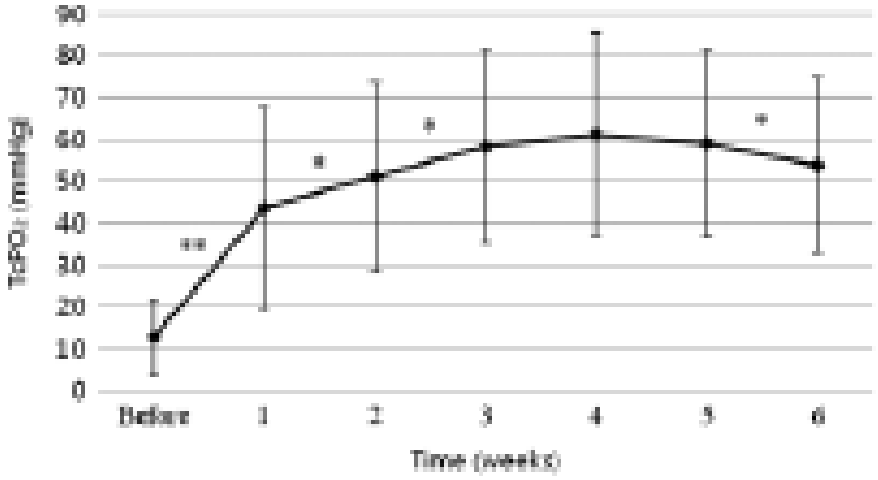

Figure3. Sequential values of $TcPO_2$. The statistical significance between each week was evaluated (*$p < 0.05$, **$p < 0.01$). All treated feet (29 feet) were assessed at each time point. The pins at each time point represent 1SD. Every $TcPO_2$ value measured after PTA represented a statistically significant improvement when compared with the baseline value.

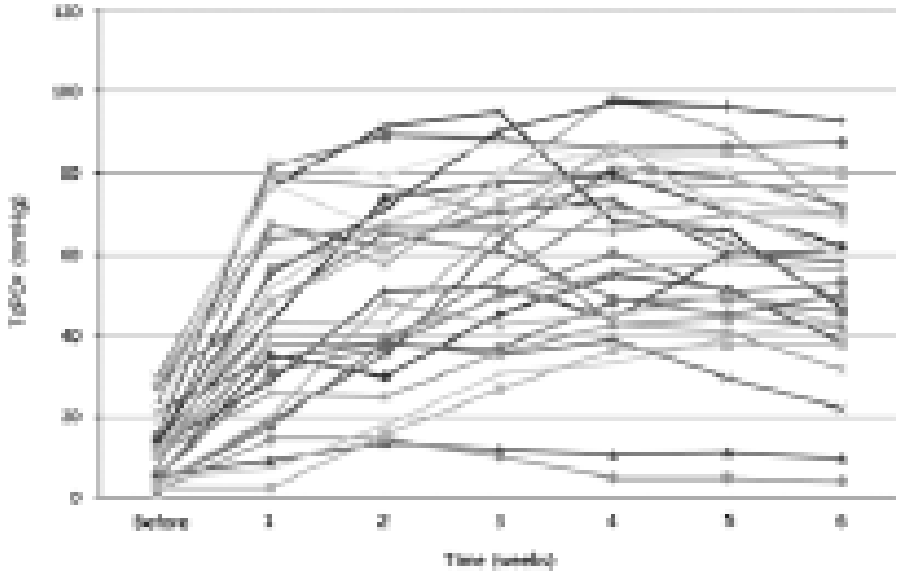

Figure4. A plot of individual data points connected within the individual subject over time. Although the two distinct outliers ($TcPO_2$ values of 9.7 and 4.0 mmHg at sixth week after PTA) showed "failed" in improving $TcPO_2$, the interventional cardiologist had classified them as "acceptable" range immediately after recanalization based on the degree of the residual stenosis. One limb that had a $TcPO_2$ value of 22.0 mmHg at the sixth week was evaluated as "successful" immediately after PTA.

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Changes in TcPO2

Table 3. *p*-Values between $TcPO_2$ data of different weeks before and 1, 2, 3, 4, 5, and 6 weeks after PTA

	Before	1 week	2 weeks	3 weeks	4 weeks	5 weeks	6 weeks
Before	—	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
1 week	< 0.01	—	0.04	< 0.01	< 0.01	0.01	0.01
2 weeks	< 0.01	0.04	—	0.03	0.03	*	*
3 weeks	< 0.01	< 0.01	0.03	—	*	*	*
4 weeks	< 0.01	< 0.01	0.03	*	—	*	0.01
5 weeks	< 0.01	0.01	*	*	*	—	0.02
6 weeks	< 0.01	0.01	*	*	0.01	0.02	—

*$p > 0.05$.

Table 4. The effect of PTA by using two cutoff points (20 and 40 mmHg)

$TcPO_2$ (mmHg)	Before PTA	After PTA					
		1 week	2 weeks	3 weeks	4 weeks	5 weeks	6 weeks
< 20	22	7	4	2	2	2	2
20–40	7	7	8	5	3	3	4
> 40	0	15	17	22	24	24	23
Total	29	29	29	29	29	29	29

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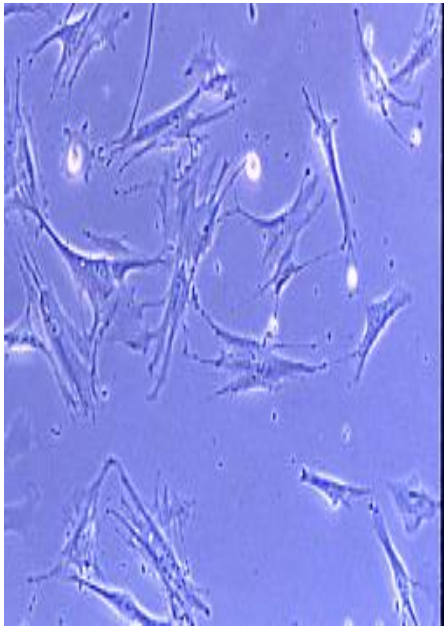
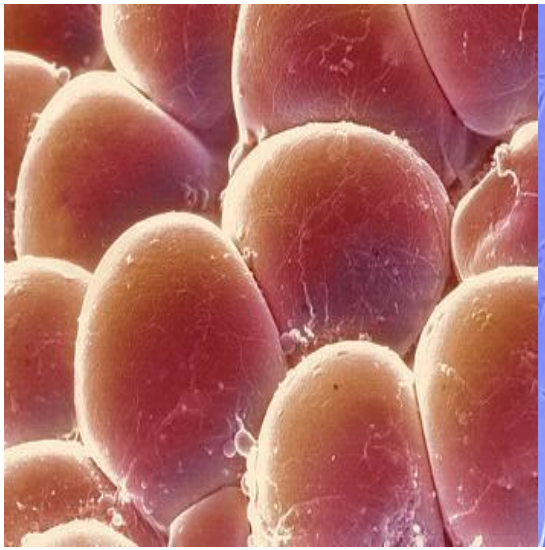
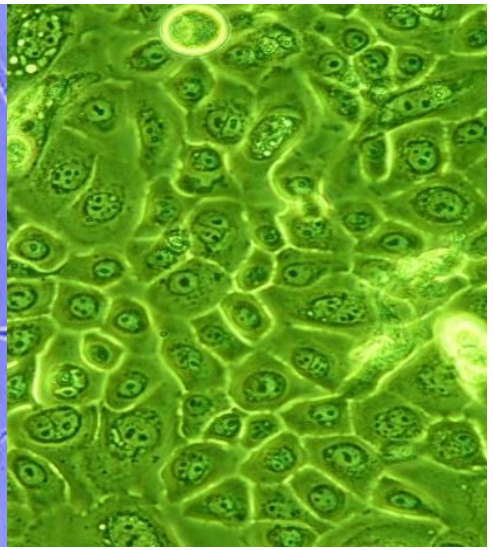
Cell Therapy Laboratory







KU MC

KOREA UNIVERSITY MEDICAL CENTER

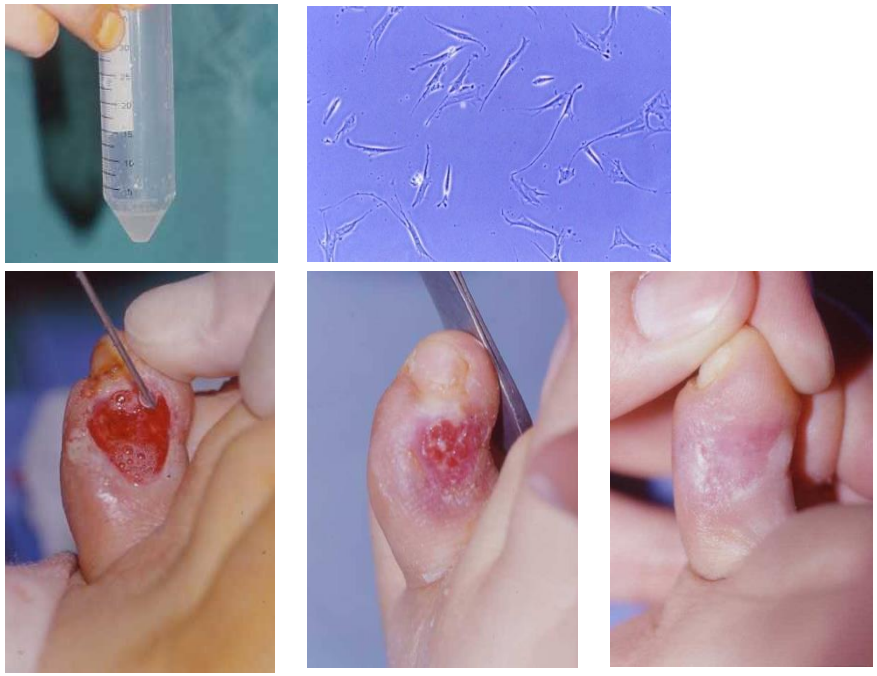
Clinical Application of Fresh Fibroblast Allografts for the Treatment of Diabetic Foot Ulcers: A Pilot Study

Seung-Kyu Han, M.D., Ph.D., Kyu-Jin Choi, M.D., and Woo-Kyung Kim, M.D., Ph.D.

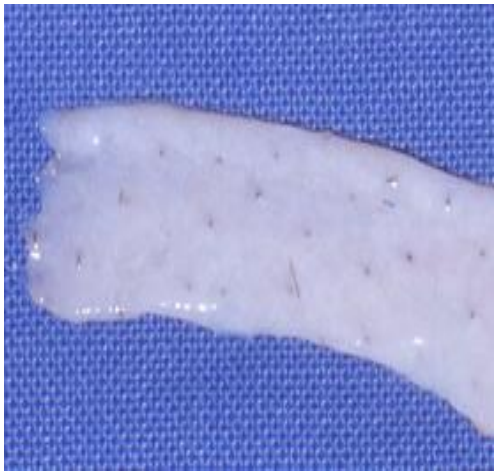
Seoul, Korea

Diabetic foot ulcers often pose a difficult problem for health care professionals because of the defects associated

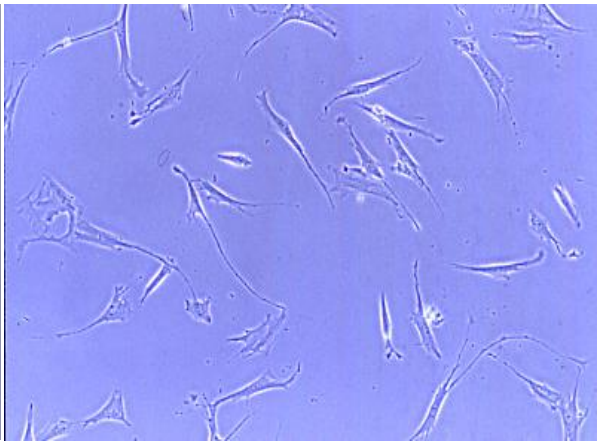
As the populations of industrialized countries age and become more sedentary, the prev-



Plastic and Reconstructive Surgery (2003)




CORNING



Pre-op

Allotransplantation

POD #9

POD #12

POD #15

POD #100

Allotransplantation

POD #10

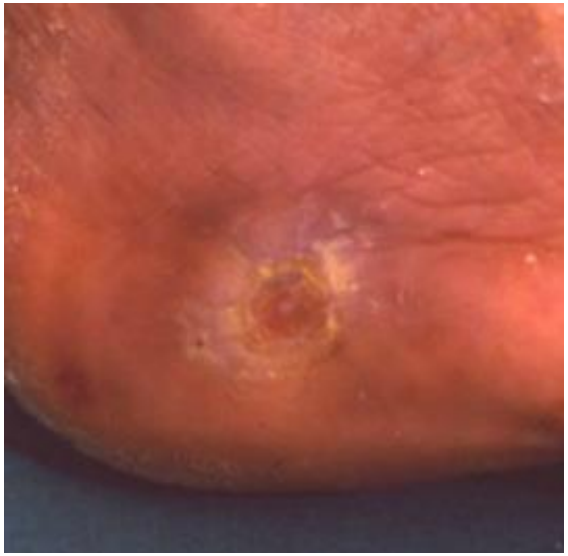
POD #17

POD #18Mo

Pre-op

POD #7

POD #14



POD # 21

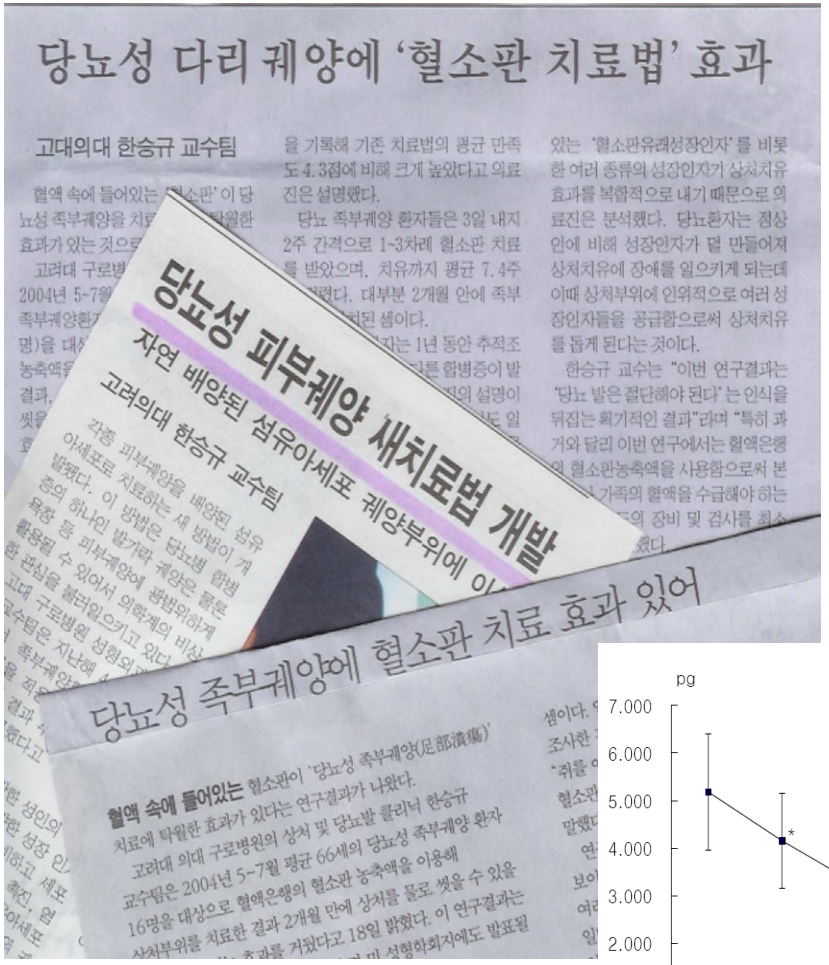
POD # 2Mo

Pre-op

POD #22

Treatment of Diabetic Foot Ulcers Using Blood Bank Platelet Concentrate

Annals of Plastic Surgery 2007


당뇨성 다리 궤양에 '혈소판 치료법' 효과

고대의대 한승규 교수팀

당뇨성 피부궤양 새치료법 개발

자연 배양된 섬유아세포 궤양부위에

고려의대 한승규 교수팀

당뇨성 족부궤양에 혈소판 치료 효과 있어

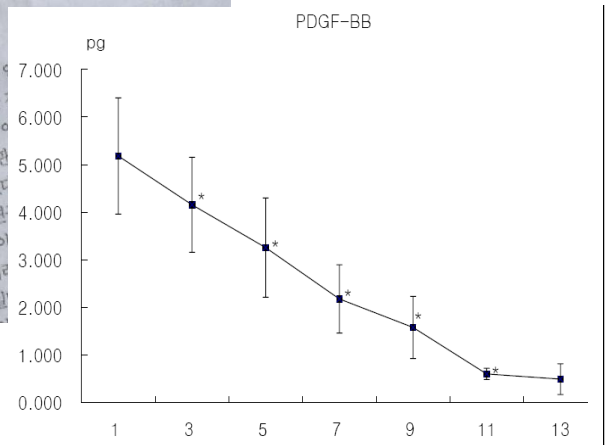
혈액 속에 들어있는 혈소판이 '당뇨성 족부궤양(足部潰瘍)'

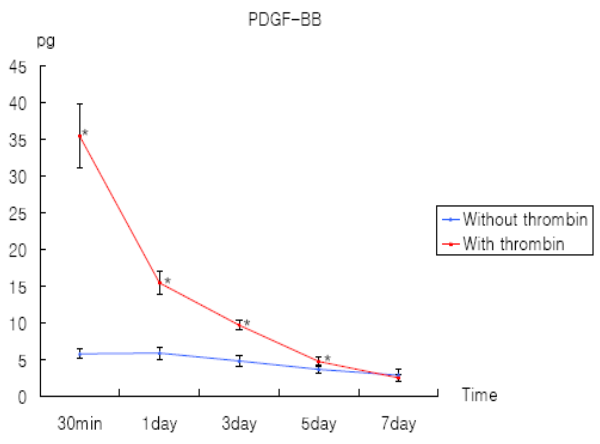
치료에 탁월한 효과가 있다는 연구결과가 나왔다.

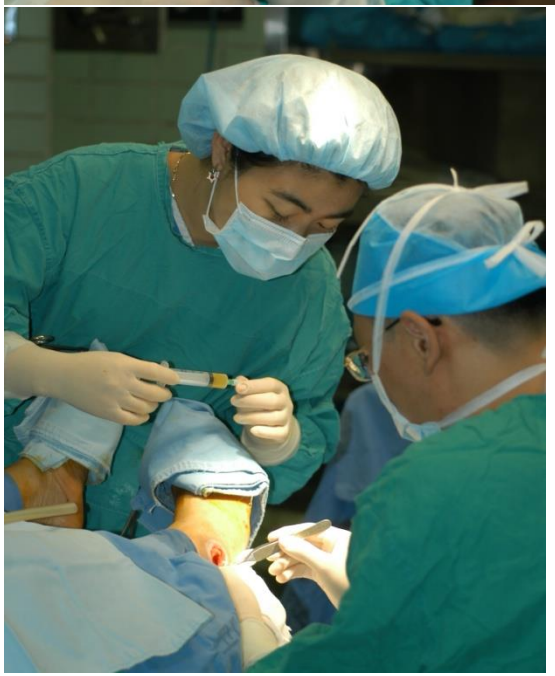
고려대 의대 구로병원의 상처 및 당뇨발 클리닉 한승규

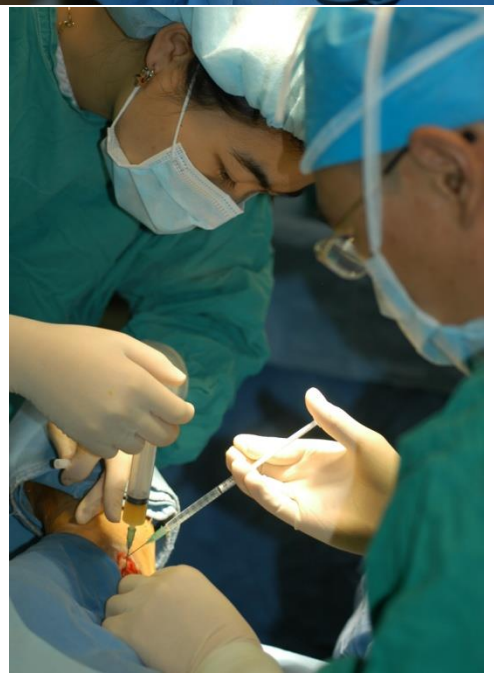
교수팀은 2004년 5~7월 평균 66세의 당뇨성 족부궤양 환자

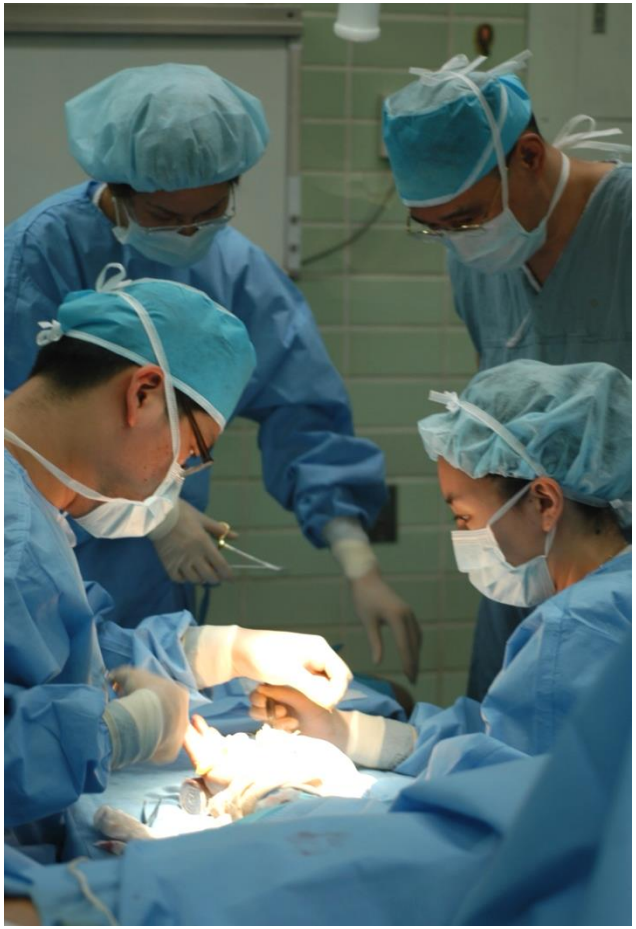
16명을 대상으로 혈액은행의 혈소판 농축액을 이용해



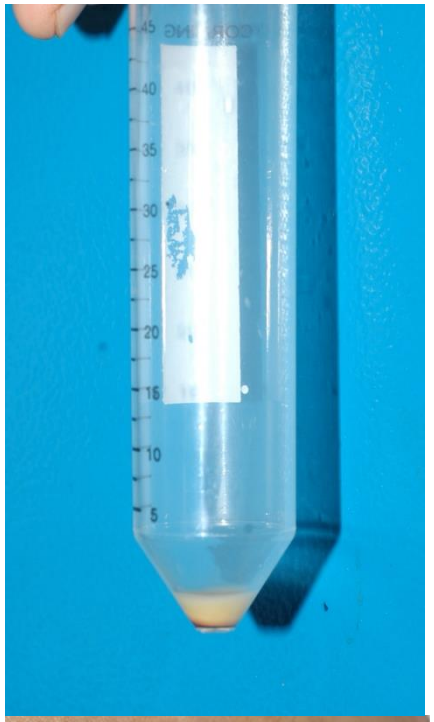








Preop



5 weeks

Preop

 # 8 weeks

Preop

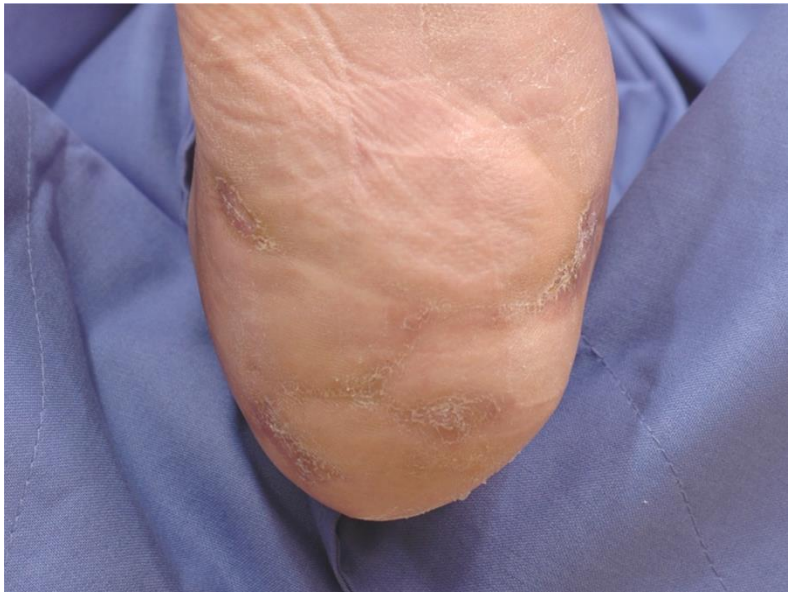
4 weeks

Preop

7 weeks

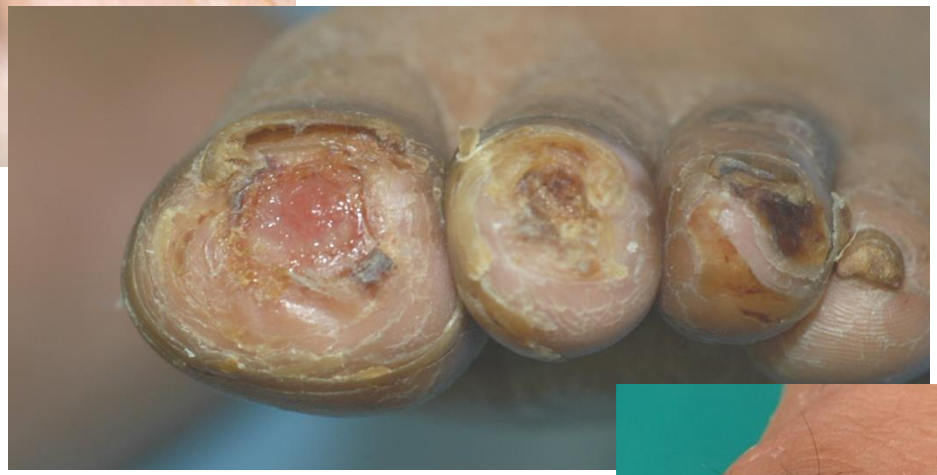
Preop

 # 8 weeks
(# 4 weeks after skin graft)



Preop

 # 6 weeks



Preop **# 2 weeks** **# 4 weeks**

PreOP

POD 3

POD 4wks

POD 6wks

POD#5mo

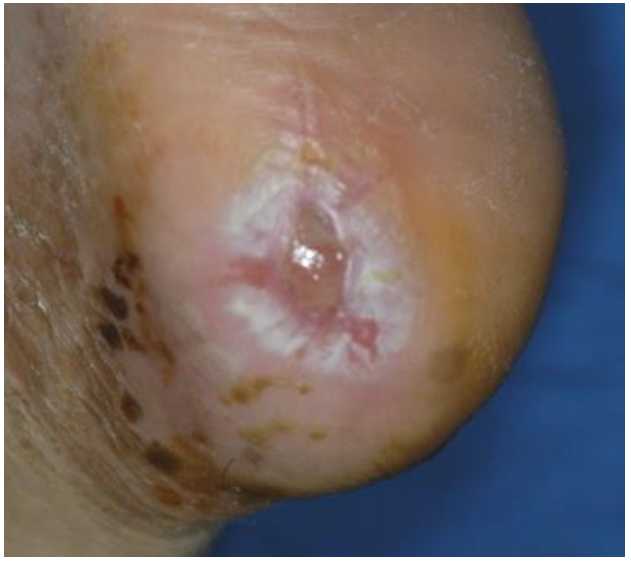
PRE

POD 4

POD 3 wks

POD 6wks

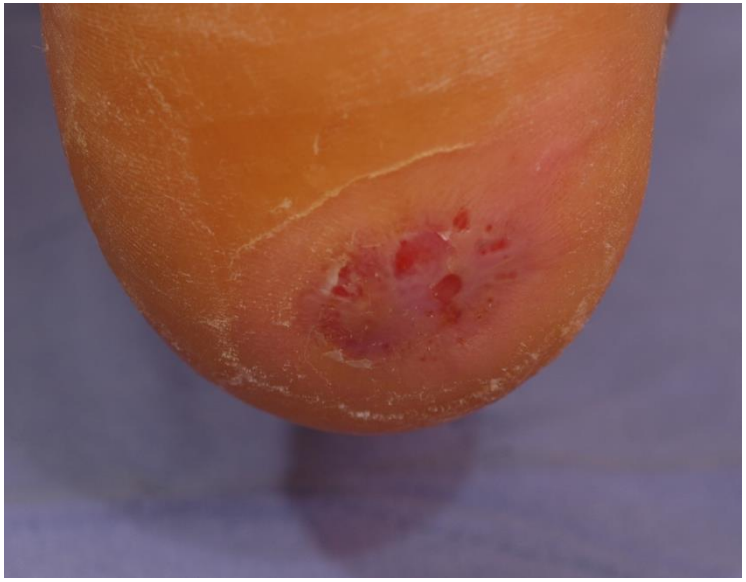




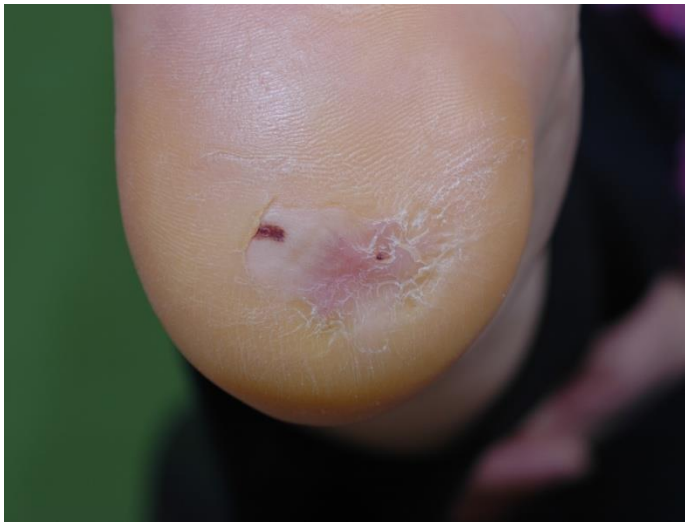
Preop

3 weeks

4 weeks



5 weeks



6 weeks

Preop

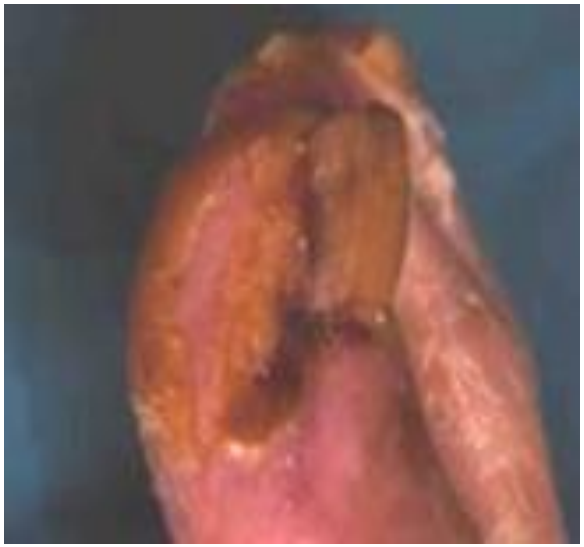
 # 2 weeks

 # 4 weeks

 # 6 weeks

Pre-op

Immediate post-op



POD #27

POD #30

#4 weeks

 # 5 weeks

 # 6 weeks

치료중

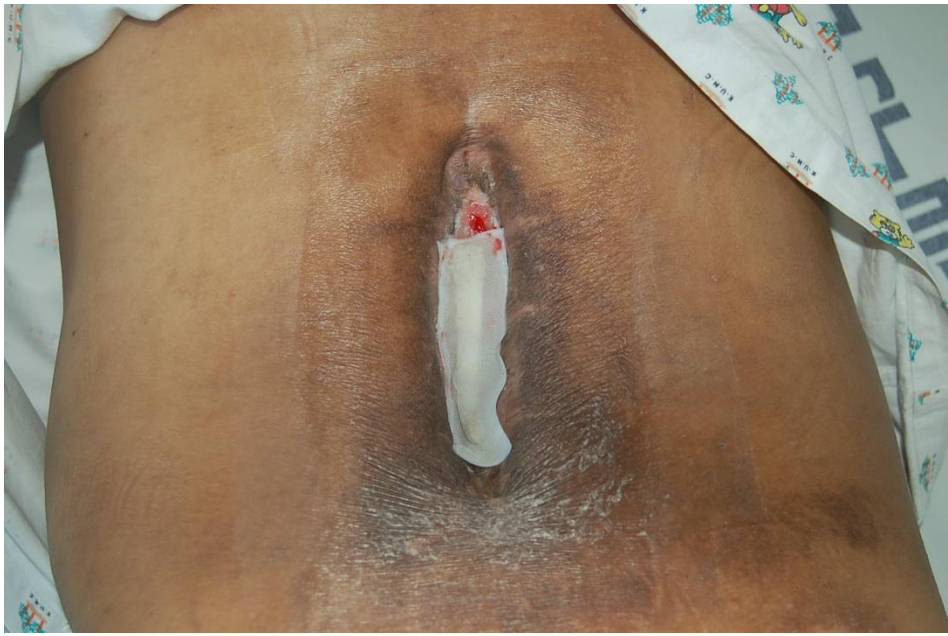
치료후

Pre-op

Allotransplantation

POD # 28

Maggot (Phaenicia Sericata)



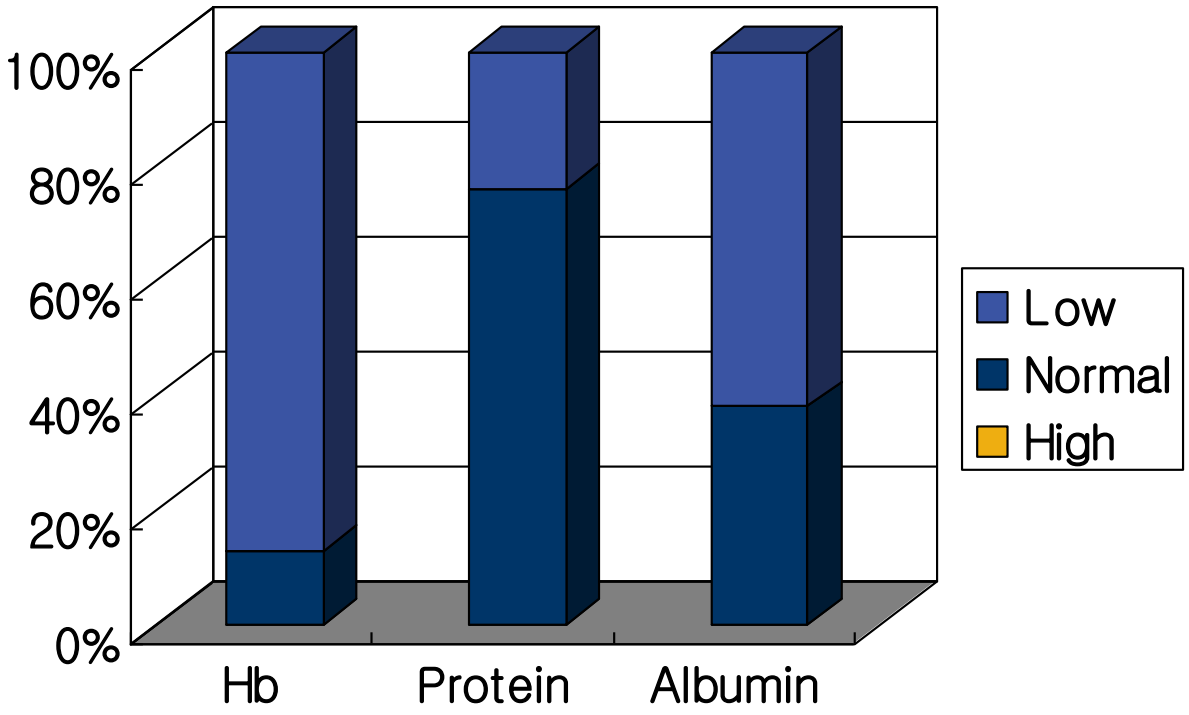
1. Debridement; Proteolytic enzyme secretion
2. Antibacterial substance secretion
3. Stimulating Fibroblast; Growth factor release

Maggot Therapy

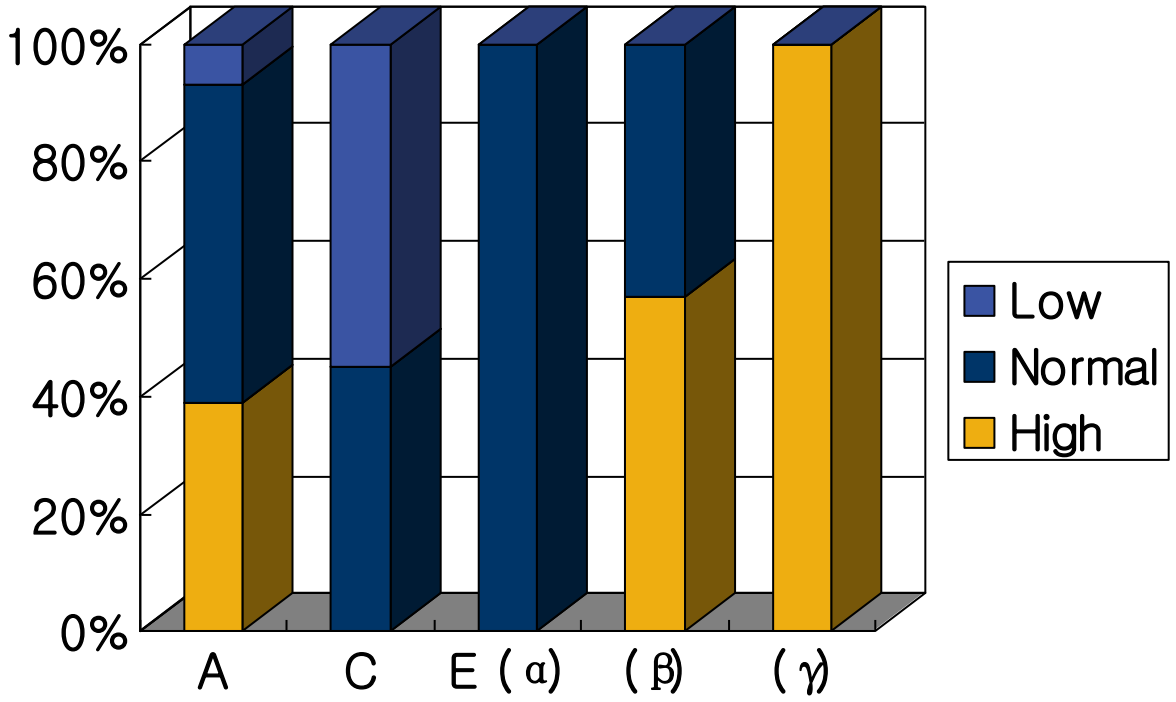
Wound Healing Factors

- Nutrients, Vitamins, Etc -

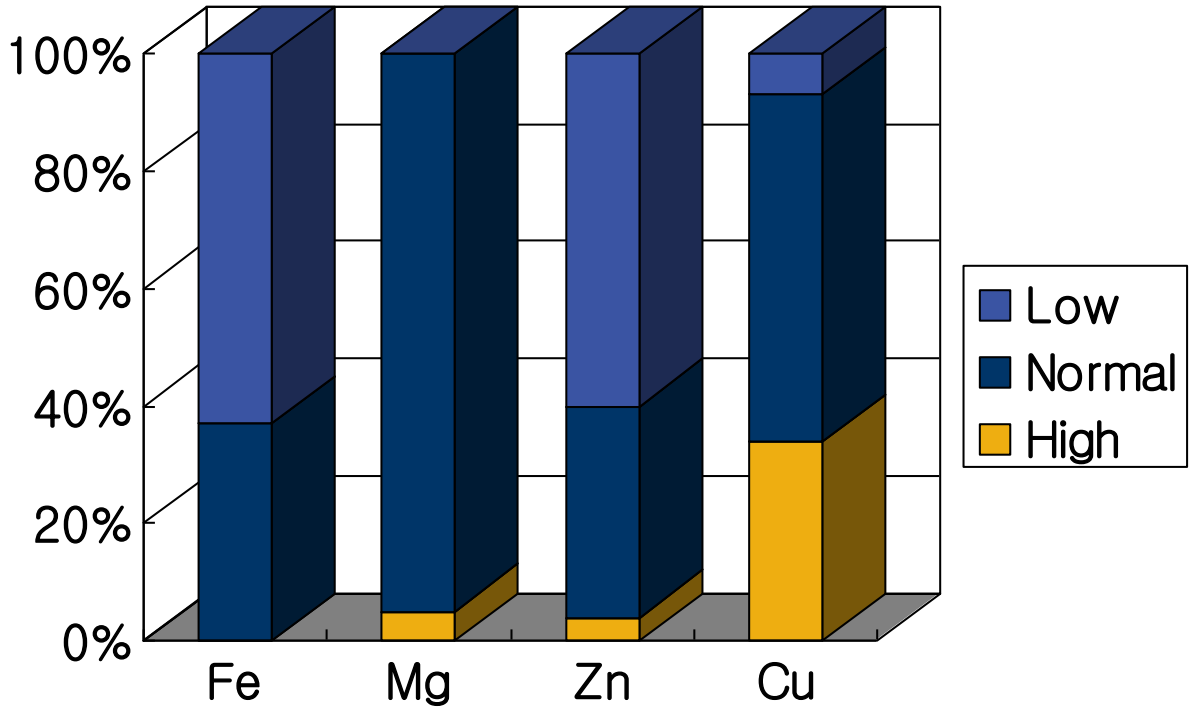
	High	Normal	Low	Total(%)
Hb	0	13	87	100
Protein	0	76	24	100
Albumin	0	61	39	100



Vitamin	High	Normal	Low	Total(%)
A	39	54	7	100
C	0	45	55	100
E (α)	0	100	0	100
(β)	57	43	0	100
(γ)	100	0	0	100

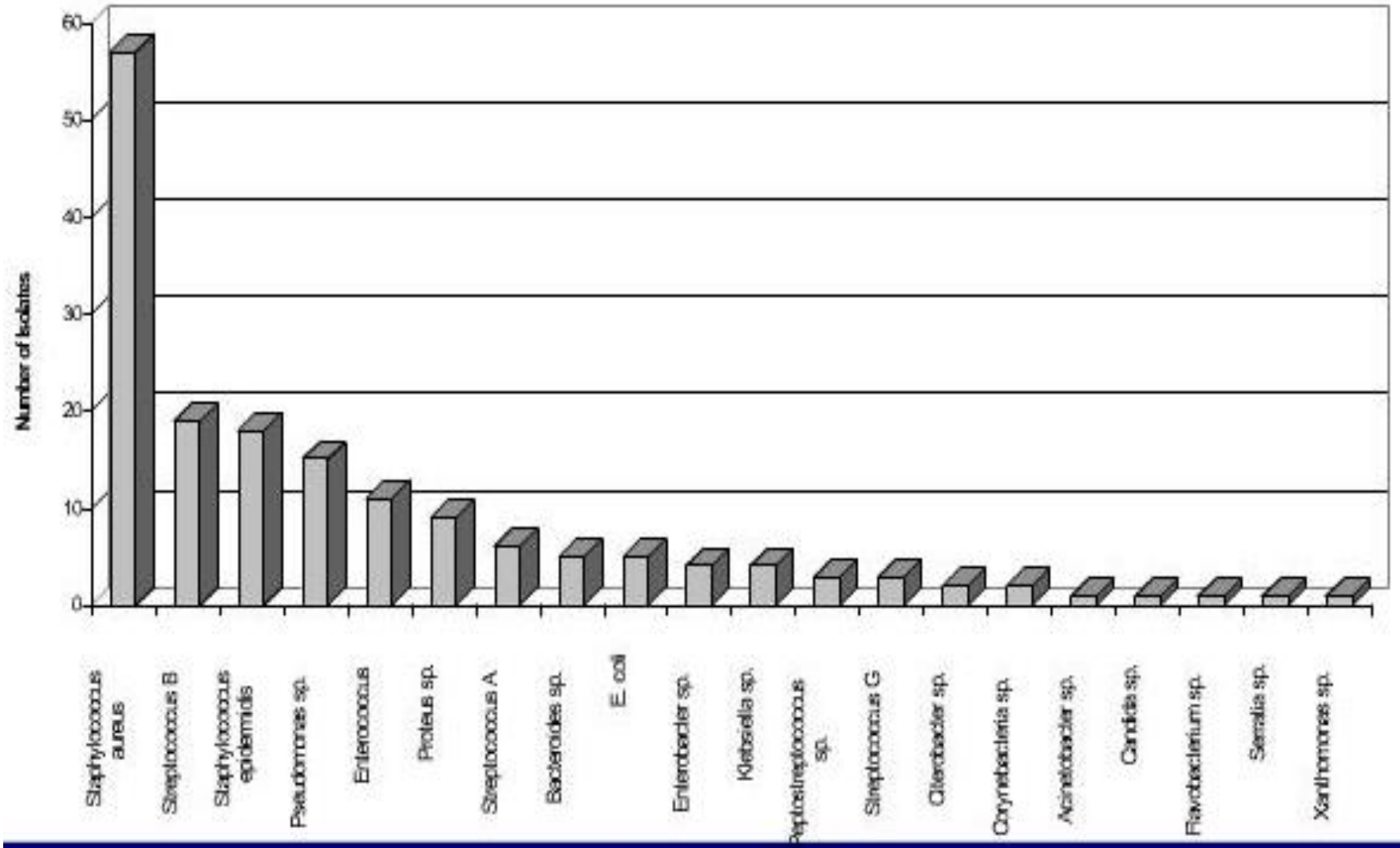


	High	Normal	Low	Total(%)
Fe	0	37	63	100
Mg	5	95	0	100
Zn	4	36	60	100
Cu	34	59	7	100



Bacteriology in Korea

Isolated Organisms



Armstrong et. al, J Amer Podiatr Med Assn, 1995

Worldwide MRSA Rates

- MRSA infection averaged:
  - 22% across Europe*(<1% in Denmark & the Netherlands vs. >30% in France, Italy, Spain)
  - 24% across US and Canada**
  - 70% in Japan and Korea***

* *Jones et al.* Eur J Clin Microbiol & Infect Dis ; 18 (6): 403-8, 1999
** *Xxxxx et al.* Diagn Microbiol & Infect Dis; 34 (1): 65-72, 1999
*** Standing Medical Advisory Comitee. London, Dept of Health; 1998

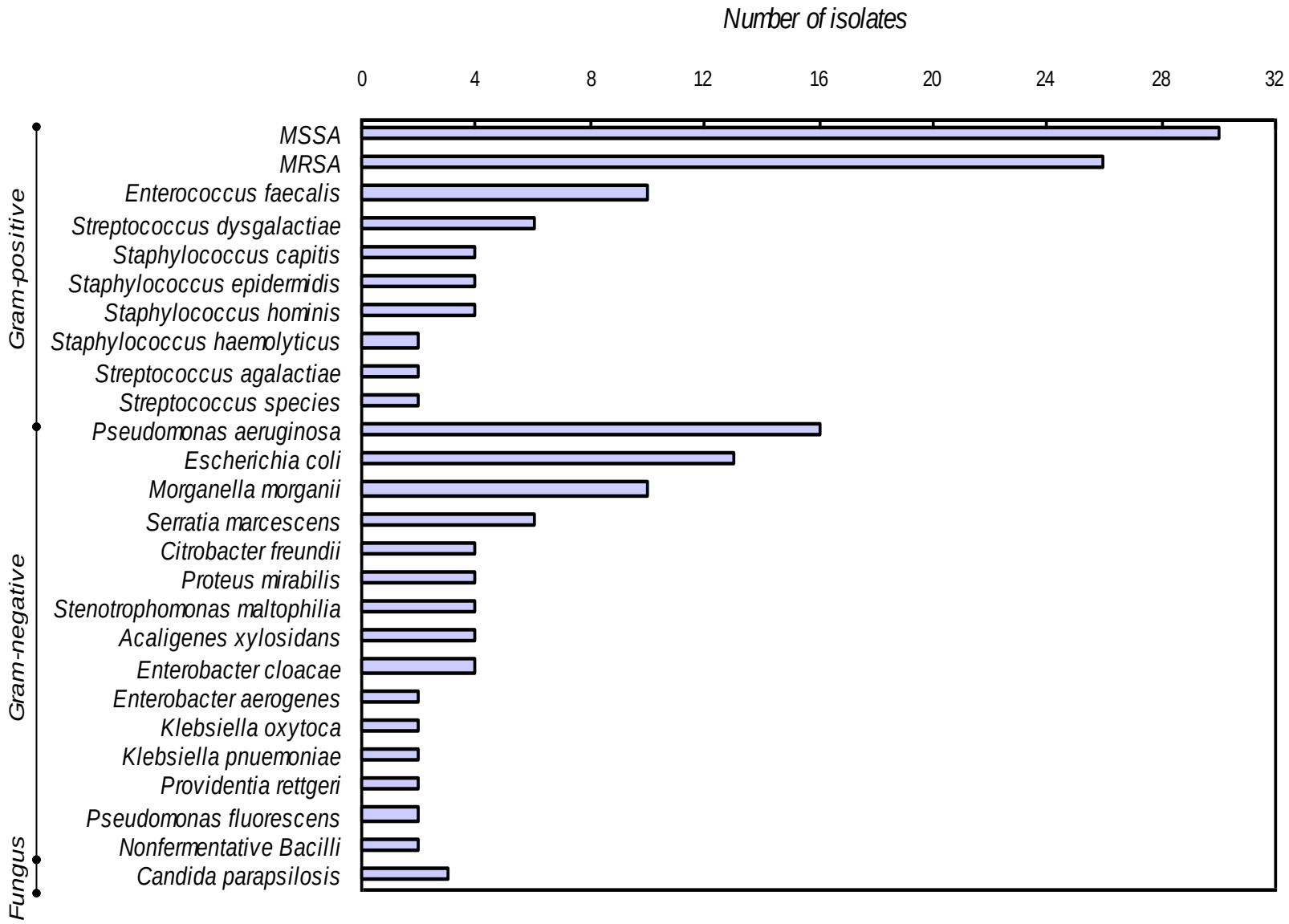

Number of isolates
0
4
8
12
16
20
24
28
32
Gram-positive
Gram-negative
Fungus
MSSA
MRSA
Enterococcus faecalis
Streptococcus dysgalactiae
Staphylococcus capitis
Staphylococcus epidermidis
Staphylococcus hominis
Staphylococcus haemolyticus
Streptococcus agalactiae
Streptococcus species
Pseudomonas aeruginosa
Escherichia coli
Morganella morganii
Serratia marcescens
Citrobacter freundii
Proteus mirabilis
Stenotrophomonas maltophilia
Acaligenes xylosidans
Enterobacter cloacae
Enterobacter aerogenes
Klebsiella oxytoca
Klebsiella pnuemoniae
Providentia rettgeri
Pseudomonas fluorescens
Nonfermentative Bacilli
Candida parapsilosis

Fig. 2. *In vitro* antimicrobial susceptibility against isolated gram-positive organisms with and without MRSA(TMP/SMX: trimethoprim/sulfamethoxazole).

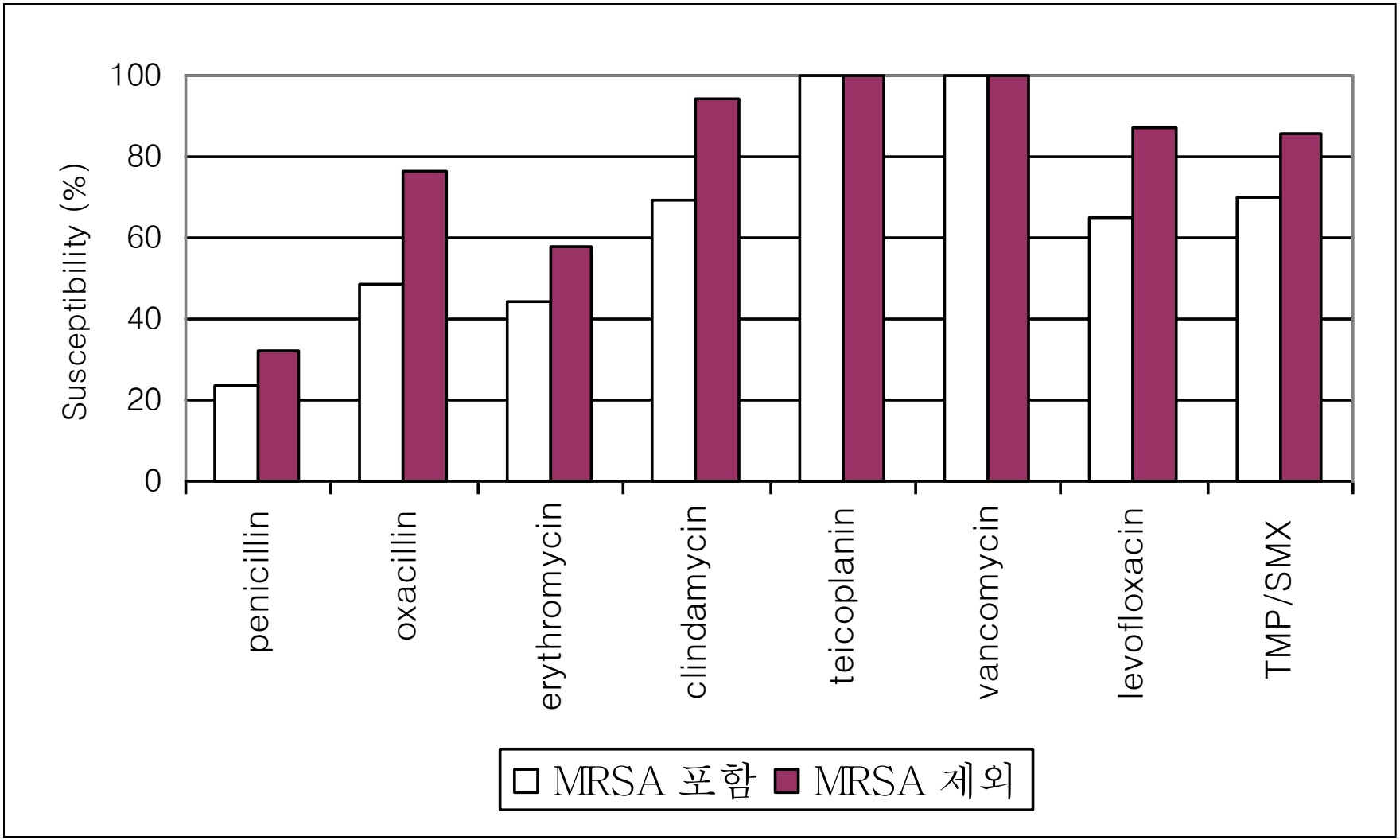
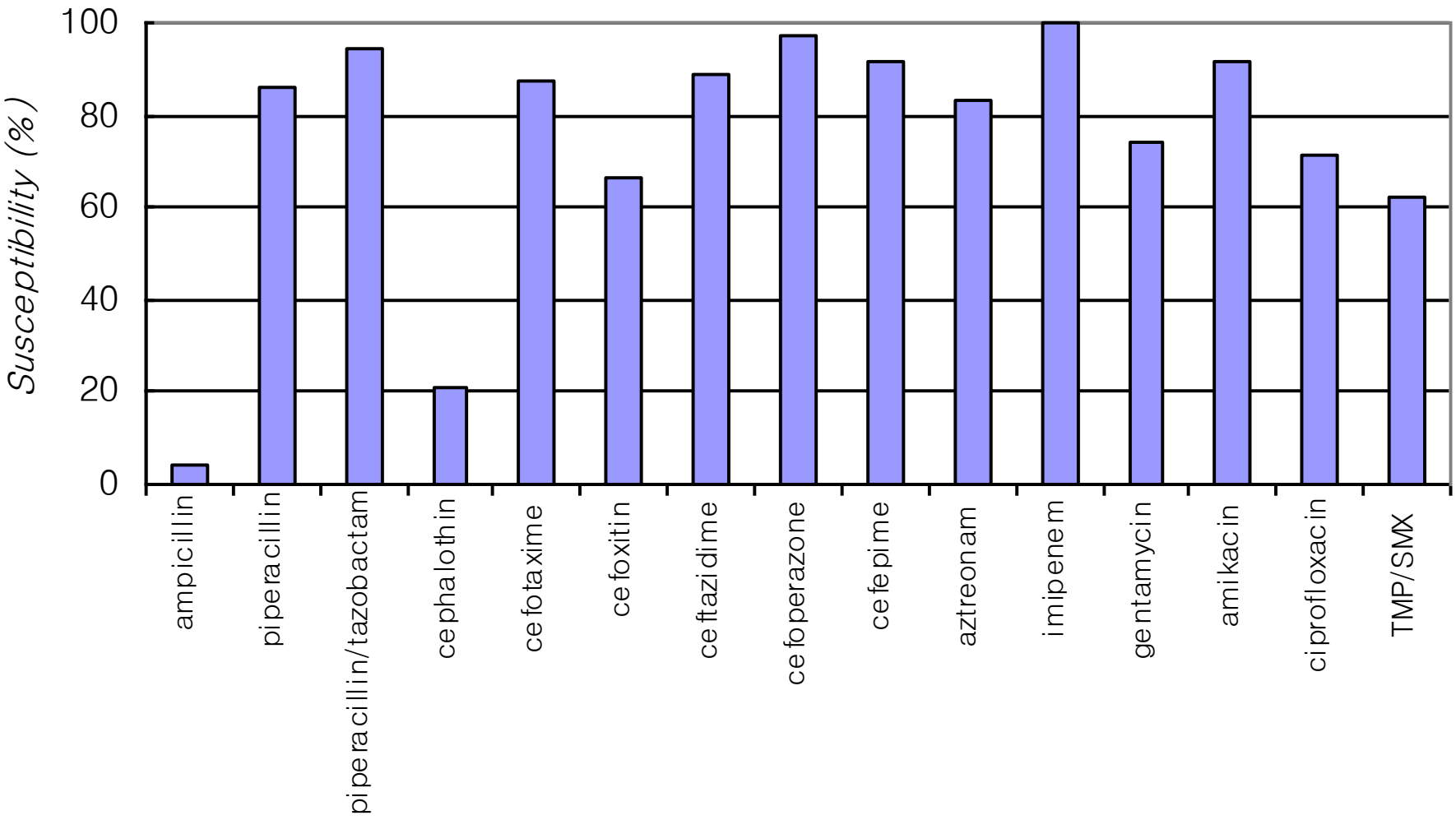


Fig. 3. *In vitro* antimicrobial susceptibility against isolated gram-negative organisms.



Potential of Human Bone Marrow Stromal Cells to Accelerate Wound Healing in Vitro

Seung-Kyu Han, MD, PhD, FEACS, Tae-Hwan Yoon, MD, Dong-Geun Lee, MD, PhD, Min-Ah Lee, MD, and Woo-Kyung Kim, MD, PhD

Advantages of the Presence of Living Dermal Fibroblasts Within Restylane for Soft Tissue Augmentation

Eul-Sik Yoon, MD, PhD, Seung-Kyu Han, MD, PhD, and Woo-Kyung Kim, MD, PhD

Abstract: For the elimination of facial wrinkles and skin contour defects, injectable filler substances composed of commercially prepared nonanimal stabilized hyaluronic acid (Restylane) are now

week. On the other hand, the mean weight of the test-group nodules decreased only over the first 2 weeks. Beyond 2 weeks, there was no further significant weight change. The mean weight at the 16th week

The Effect of Human Bone Marrow Stromal Cells and Dermal Fibroblasts on Angiogenesis

Seung-Kyu Han, M.D., Ph.D.
Kyung-Wook Chun, M.D.
Min-Seok Gye, M.D., Ph.D.
Woo-Kyung Kim, M.D., Ph.D.

Seoul, Korea

Background: A cell therapy methodology for angiogenesis using fibroblasts has already been developed. Bone marrow stromal cells, which contain mesenchymal stem cells, have a low immunity-assisted rejection and are capable of expanding profoundly in culture. Therefore, these cells offer several advantages for transplantation over mature cells. The aim of this study was to compare the angiogenic activity of bone marrow stromal cells with that of fibroblasts.

Methods: For in vitro study, cultured human bone marrow stromal cells and

Development of a New Wound Healing Model

Seung-Kyu Han, Chang-Hoon Won, Kyung-Wook Chun, Byung-Il Lee, Woo-Kyung Kim

Department of Plastic and Reconstructive Surgery, Korea University College of Medicine, Seoul, Korea

Comparison of Estrogen Effect on Wound Healing by Gender and Age

Seung-Kyu Han, Seung-Han Shin, Byung-Il Lee, Woo-Kyung Kim

Department of Plastic Surgery, Korea University College of Medicine, Seoul, Korea

Co-supplementation Effect of GM-CSF and Vitamin-C on Wound Healing *In Vitro*

Yong-Taek Hong, Seung-Kyu Han, Jeong-Bae Kim[1], Woo-Kyung Kim

Department of Plastic Surgery, Korea University College of Medicine, Seoul
[1]Department of Plastic Surgery, Konyang University College of Medicine, Daejeon, Korea

Optimal Concentration of OSM for Wound Healing Activity of Fibroblasts

Kyung-Wook Chun, Seung-Kyu Han, Byung-Il Lee, Woo-Kyung Kim

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Why the Multidisciplinary Approach is important?

1. CLI patients may have several concomitant disease and risk factors including DM & CRI

   ; single specialist can not handle all the specialties
2. Screening and management of CAD is critically important for patient's prognosis.
3. Cost-effectiveness
4. Synergism
5. Better clinical outcomes and improving prognosis
6. Co-work yields high-volume center and abundant clinical experience
7. Good for research products for every specialized department

Summary-Management of PAD/CLI

1. The imperative for the endovascular specialist is to reduce the mortality and morbidity associated with PAD & revascularization.
2. Excellent limb-salvage rates are now being achieved with a variety of endovascular therapies.
3. *Multidisciplinary approach* and team work of every specialty is important to achieve the optimal results.

Thank You for Your Attention!!