LOÉT DO THIẾU MÁU ĐỘNG MẠCH CHI DƯỚI MẠN TÍNH

Ths Bs Phan Duy Kiên
Khoa Phẫu thuật Mạch máu BV Chợ Rẫy

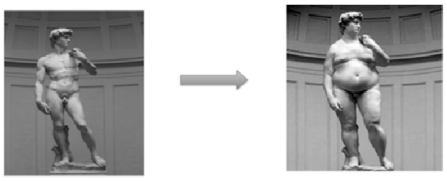
"ĐÔI CHÂN LÀ TRÁI TIM THỨ 2 CỦA CƠ THỂ"

LOÉT CHI DƯỚI MẠN TÍNH

- Loét chi dưới ảnh hưởng 0,6 – 3% dân số trên 60 tuổi
- 90 % nguyên nhân liên quan mạch máu
- Mỹ : Khoảng 600000 ca mới mắc hàng năm
- Chi phí điều trị :
  - 2 tỷ USD/ năm tại Mỹ
  - 9569 Euro/ bệnh nhân/năm tại Đức

Rayner R, Carville K, Keaton J, et al. Leg ulcers: atypical presentations and associated comorbidities. Wound Pract Res. 2009;17(4):168–85.

LOÉT DO THIẾU MÁU ĐỘNG MẠCH CHI DƯỚI



1501 2017

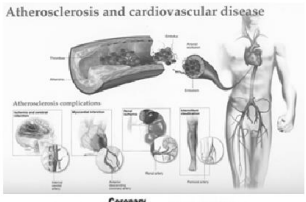
- Hơn 95% liên quan đến bệnh lý động mạch ngoại biên (PAD) do xơ vữa động mạch
- 15-20% bệnh nhân PAD chuyển sang thiếu máu chi trầm trọng và loét

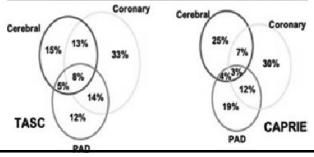
Norgen L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FG, TASC II Working Group. Inter-society consensus for the management of peripheral arterial disease (TASC II). J Vasc Surg. 2007;45(Suppl S):S5–67.

Bệnh lý mạch máu là bệnh lý hệ thống

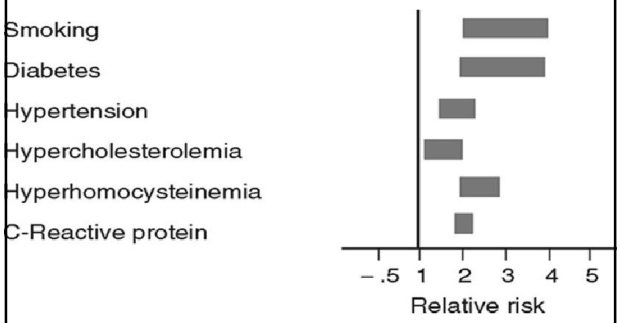
CHÚNG TA THẤY…

THỰC TẾ THÌ…





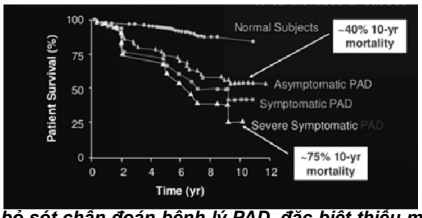
YẾU TỐ NGUY CƠ



Norgen L, Hiatt WR, Dormandy JA, Nehler MR, Harris KA, Fowkes FG, TASC II Working Group. Inter-society consensus for the management of peripheral arterial disease (TASC II). J Vasc Surg. 2007;45(Suppl S):S5–67.

DIỄN TIẾN BỆNH

- 38 % bệnh nhân có biểu hiện thiếu máu chi trầm trọng cần đoạn chi trong 12 tháng
- Chỉ 25% lành thương trong 6 tháng, 52% trong 12 tháng



" Nếu bỏ sót chẩn đoán bệnh lý PAD, đặc biệt thiếu máu chi trầm trọng, tiên lượng sẽ rất kém"

ĐẶC ĐIỂM LOÉT DO THIẾU MÁU ĐỘNG MẠCH CHI DƯỚI MẠN TÍNH

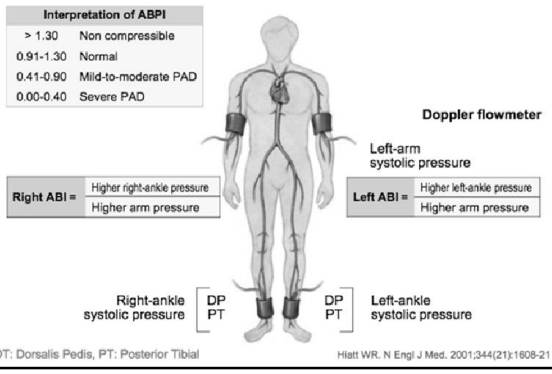
- Vị trí : đầu xa của chi (ngón, kẽ ngón, gót)
- Nền VT : vàng, nâu, đen, ít mô hạt
- Bờ VT : rõ ràng, có thể hoại tử
- Da xung quanh: nhạt, thiểu dưỡng lông, móng
- Đau nhiều

PHÂN BIỆT CÁC LOẠI LOÉT CHI DƯỚI

TEST CHẨN ĐOÁN MẠCH MÁU

- ABI (Ankle – brachial index)
- TSPI (Toe systolic pressure index)
- TcPO2 (transcutaneous oxygen tension)
- Siêu âm Doppler
- Chụp cắt lớp điện toán, cộng hưởng từ dựng hình mạch máu (CTA, MRA)
- Chụp mạch máu xoá nền (DSA)

ABI (ankle -brachial index)



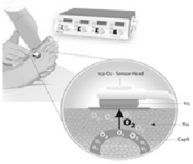
TBI (Toe brachial index)

Diagnostic Criteria for TBI

Range	Interpretation
>0.7	Normal
0.5-0.7	Mild
0.35-0.5	Moderate
<0.35 toe pressure 40 mmHg	Moderate-Severe
<0.35 toe pressure < 30 mmHg	Severe

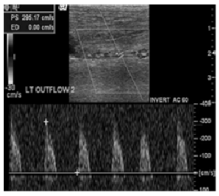
TcPO2

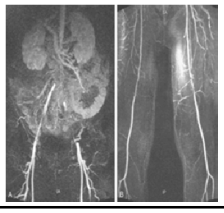
- TCOM > 40 mmHg ở loét ĐTĐ dự báo lành thương
- TCOM > 30 mmHg ở vết loét không do ĐTĐ
- Nhận biết vùng thiếu máu chi



Introduction to Hyperbaric medicine Course v.2015

CHẨN ĐOÁN HÌNH ẢNH





PHÂN ĐỘ FONTAINE VÀ RUTHERFORD

Fontaine		Rutherford		
Giai đoạn	Lâm sàng	Giai đoạn	Độ	Lâm sàng
I	Không triệu chứng	0	0	Không triệu chứng
IIa	ĐCH nhẹ	I	1	ĐCH nhẹ
IIb	ĐCH vừa đến nặng		2	ĐCH vừa
			3	ĐCH nặng
III	Đau chân khi nghỉ	II	4	Đau chân khi nghỉ
IV	Loét hoặc hoại tử	III	5	Mất mô ít
			6	Mất mô nhiều

PHÂN LOẠI WIFI

- **Wound**: extent and depth
- **Ischemia:** perfusion/flow
- **Foot Infection**: presence and extent
- Based upon existing validated systems or best available data with 4 point scales where
  - 0 = none
  - 1 = mild-moderate
  - 2 = moderate-severe
  - 3 = severe

PHÂN LOẠI WIFI

Wound

Grade 0: Rest pain; no wound, no ulcer, no gangrene

Grade 1: Small shallow ulcer(s) on the distal leg or foot, any exposed bone is only limited to distal phalanx (i.e., minor tissue loss: limb salvage possible with simple digital amputation [one or two digits] or skin coverage)

Grade 2: Deeper ulcer on distal leg or foot with exposed bone, joint, or tendon or shallow heel ulcer without involvement of the calcaneus (i.e., major tissue loss: salvageable with >3 digital amputations or standard transmetatarsal amputation plus skin coverage)

Grade 3: Extensive deep ulcer of the forefoot and/or midfoot or full-thickness heel ulcer with or without involvement of the calcaneus (i.e., extensive tissue loss: salvageable only with complex foot reconstruction or nontraditional TMA [e.g., Chopart or Lifranc amputation])

Ischemia

Grade 0: ABI ≥ 0.8, ankle systolic pressure > 100 mmHg, toe pressure (TP)/transcutaneous oxygen ($TcPO_2$) ≥ 60

Grade 1: ABI 0.6–0.79, ankle systolic pressure 70–100 mmHg, TP/$TcPO_2$ 40–59

Grade 2: ABI 0.4–0.59, ankle systolic pressure 50–70 mmHg, TP/$TcPO_2$ 30–49

Grade 3: ABI ≤ 0.39, ankle systolic pressure <50 mmHg, TP/$TcPO_2$ <30

Foot Infection

Grade 0: No symptoms or signs of infection

Grade 1: Infection is present and at least two of the following are present: local swelling or induration, erythema >0.5 to ≤2 cm around ulcer, local tenderness or pain, local warmth, or purulent discharge. Other causes of inflammatory response of the skin have been excluded

Grade 2: Local infection is present as defined for Grade 1, but extends >2 cm around ulcer, or involves the structures deeper than the skin and subcutaneous tissues (e.g., abscess, osteomyelitis, septic arthritis, fasciitis). No clinical signs of systemic inflammatory response

Grade 3: Local infection is present as defined for Grade 2, but clinical signs of systemic inflammatory response are present as manifested by two or more of the following: temperature >38 °C or <36 °C; heart rate >90 beats per minute, respiratory rate >20 breaths per minute or PaCO2 < 32 mmHg; white blood cell count >12,000 or <4000 (cu/mm) or >10 % immature band forms present

PHÂN LOẠI WIFI

a, Estimate risk of amputation at 1 year for each combination

	Ischemia – 0				Ischemia – 1				Ischemia – 2				Ischemia – 3			
W-0	VL	VL	L	M	VL	L	M	H	L	L	M	H	L	M	M	H
W-1	VL	VL	L	M	VL	L	M	H	L	M	H	H	M	M	H	H
W-2	L	L	M	H	M	M	H	H	M	H	H	H	H	H	H	H
W-3	M	M	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	fl-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3

b, Estimate likelihood of benefit of/requirement for revascularization (assuming infection can be controlled first)

	Ischemia – 0				Ischemia – 1				Ischemia – 2				Ischemia – 3			
W-0	VL	VL	VL	VL	VL	L	L	M	L	L	M	M	M	H	H	H
W-1	VL	VL	VL	VL	L	M	M	M	M	H	H	H	H	H	H	H
W-2	VL	VL	VL	VL	M	M	H	H	H	H	H	H	H	H	H	H
W-3	VL	VL	VL	VL	M	M	M	H	H	H	H	H	H	H	H	H
	f-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3	fl-0	fl-1	fl-2	fl-3

ĐIỀU TRỊ

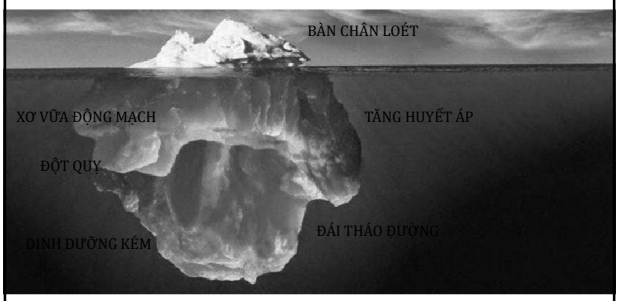
NỘI KHOA VÀ KIỂM SOÁT YẾU TỐ NGUY CƠ

LOÉT DO THIẾU MÁU ĐM CHI DƯỚI

CHĂM SÓC VẾT LOÉT, BIỆN PHÁP HỖ TRỢ

PHỤC HỒI LƯU THÔNG MẠCH MÁU

NỘI KHOA VÀ KIỂM SOÁT NGUY CƠ



" luôn luôn là điều trị nền tảng"

PHỤC HỒI LƯU THÔNG MẠCH MÁU

Wound healing society 2014 update on guidelines for arterial ulcers

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2. Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland,
3. Department of Surgery, Yale University School of Medicine and VA Connecticut Healthcare System, West Haven, Connecticut,
4. Department of Emergency Medicine, University of Pennsylvania, Philadelphia, Pennsylvania,
5. Department of Emergency Medicine, University of Alabama at Birmingham, Birmingham, Alabama,
6. Department of Surgery, Indiana University School of Medicine, Indianapolis, Indiana,
7. Department of Dermatology, Northeast Ohio Medical University and Case Western Reserve, Cleveland, Ohio,
8. Department of Dermatology, University of Miami Miller School of Medicine, Miami, Florida,
9. Department of Anesthesia, University Of Utah School of Medicine, Salt Lake City, Utah

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DOI:10.1111/wrr.12395

The Wound Healing Society guidelines for the treatment of arterial insufficiency ulcers were originally published in 2006. These guidelines provided recommendations, along with their respective levels of evidence on seven categories: diagnosis, surgery, infection control, wound bed preparation, dressings, adjuvant therapy, and long-term maintenance. Over the last 7 years, a great deal of literature regarding these aspects of arterial ulcer management has been published. An advisory panel comprised of academicians, clinicians, and researchers was chosen to update the 2006 guidelines. Members included vascular surgeons, internists, plastic surgeons, anesthesiologists, emergency medicine physicians, and registered nurses, all with expertise in wound healing. The goal of this article is to evaluate relevant new findings, upon which an updated version of the guidelines will be based.

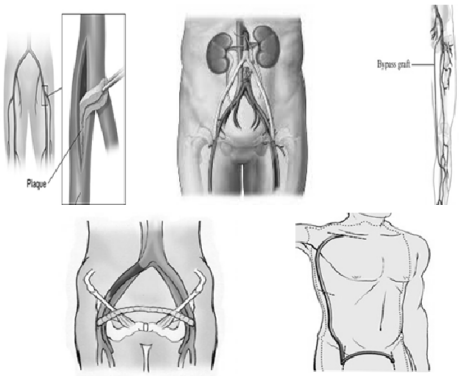
" Ở bệnh nhân loét do thiếu máu động mạch chi dưới mạn tính, phục hồi lưu thông mạch máu là biện pháp hiệu quả nhất giúp lành thương"

PHỤC HỒI LƯU THÔNG MẠCH MÁU

MỔ MỞ

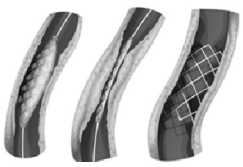
CAN THIỆP NỘI MẠCH

MỔ MỞ



CAN THIỆP NỘI MẠCH

- Nong tạo hình động mạch qua da
- Đặt giá đỡ nội mạch



PHỤC HỒI LƯU THÔNG MẠCH MÁU

Bypass versus Angioplasty in Severe Ischaemia of the Leg (BASIL) trial: An intention-to-treat analysis of amputation-free and overall survival in patients randomized to a bypass surgery-first or a balloon angioplasty-first revascularization strategy

Andrew W. Bradbury, BSc, MD, MBA, FRCSEd,[a,b] Donald J. Adam, MD, FRCSEd,[c] Jocelyn Bell, PhD,[b] John F. Forbes, PhD,[e] F. Gerry R. Fowkes, PhD, FRCPE,[d] Ian Gillespie, MD, FRCR,[e] Charles Vaughan Ruckley, ChM, FRCSEd, CBE,[a] and Gillian M. Raab, PhD,[e] on behalf of the BASIL trial Participants,* *Birmingham and Edinburgh, United Kingdom*

Background: A 2005 interim analysis of the Bypass versus Angioplasty in Severe Ischaemia of the Leg (BASIL) trial showed that in patients with severe lower limb ischemia (SLI; rest pain, ulceration, gangrene) due to infrainguinal disease, bypass surgery (BSX)-first and balloon angioplasty (BAP)-first revascularization strategies led to similar short-term clinical outcomes, although BSX was about one-third more expensive and morbidity was higher. We have monitored patients for a further 2.5 years and now report a final intention-to-treat (ITT) analysis of amputation-free survival (AFS) and overall survival (OS).
Methods: Of 452 enrolled patients in 27 United Kingdom hospitals, 228 were randomized to a BSX-first and 224 to a BAP-first revascularization strategy. All patients were monitored for 3 years and more than half for >5 years.
Results: At the end of follow-up, 250 patients were dead (56%), 168 (38%) were alive without amputation, and 30 (7%) were alive with amputation. Four were lost to follow-up. AFS and OS did not differ between randomized treatments during the follow-up. For those patients surviving 2 years from randomization, however, BSX-first revascularization was associated with a reduced hazard ratio (HR) for subsequent AFS of 0.85 (95% confidence interval [CI], 0.5-1.07; P = .108) and for subsequent OS of 0.61 (95% CI, 0.50-0.75; P = .009) in an adjusted, time-dependent Cox proportional hazards model. For those patients who survived for 2 years after randomization, initial randomization to a BSX-first revascularization strategy was associated with an increase in subsequent restricted mean overall survival of 7.3 months (95% CI, 1.2-13.4 months, P = .02) and an increase in restricted mean AFS of 5.9 months (95% CI, 0.2-12.0 months, P = .06) during the subsequent mean follow-up of 3.1 years (range, 1-5.7 years).
Conclusions: Overall, there was no significant difference in AFS or OS between the two strategies. However, for those patients who survived for at least 2 years after randomization, a BSX-first revascularization strategy was associated with a significant increase in subsequent OS and a trend towards improved AFS. (J Vasc Surg 2010;51:58-178.)

"Chọn lựa phương pháp thích hợp tuỳ thuộc vào thể trạng , nguy cơ phẫu thuật, kinh nghiệm và trang thiết bị hiện có"

CÁC BIỆN PHÁP HỖ TRỢ

- Oxy cao áp (HBOT)
- Kích thích tuỷ sống
- Cắt hạch giao cảm thắt lưng
- VAC
- Liệu pháp tế bào gốc và yếu tố tăng trưởng

OXY CAO ÁP

Hyperbaric oxygen for the treatment of nonhealing arterial insufficiency ulcers

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Manuscript received: December 6, 2013
Accepted in final form: March 5, 2014

DOI:10.1111/wvr.12176

ABSTRACT

There is limited data regarding hyperbaric oxygen's effectiveness in the treatment of nonhealing arterial insufficiency ulcers. This study was designed to analyze healing rates and amputation rates in patients who underwent adjunctive hyperbaric oxygen for a nonhealing arterial insufficiency ulcer. A retrospective chart review was completed on patients who underwent hyperbaric oxygen for arterial insufficiency ulcers that failed to heal despite standard treatment. Information collected included complete ulcer healing, amputation, and patient characteristics. There were 82 patients identified. A majority did not have diabetes (84.1%). The overall rate of healing was 43.9%. The overall major amputation rate was 17.1%. The amputation rate among those who healed was 0% compared to 42.4% among those not healed ($p < 0.0001$). Dialysis was predictive of major amputation ($p = 0.03$). Our findings suggest hyperbaric oxygen can play a role in management of arterial insufficiency ulcers that have failed standard treatment. The overwhelming majority of these patients did not have diabetes, which allows this study to be translated to patients with a primary arterial insufficiency ulcer. These results support the use of hyperbaric oxygen for select nonhealing arterial insufficiency ulcers that have failed standard therapy and the need for a prospective pilot study.

OXY CAO ÁP

Clinical Care/Education/Nutrition/Psychosocial Research

ORIGINAL ARTICLE

Hyperbaric Oxygen Therapy Facilitates Healing of Chronic Foot Ulcers in Patients With Diabetes

MAGNUS LÖNDAHL, MD[1]
PER KATZMAN, MD, PHD[1]
ANDERS NILASON, MD[2]
CHRISTER HAMMARLUND, MD, PHD[1]

OBJECTIVE — *Chronic diabetic foot ulcers are a source of major concern for both patients and health care systems. The aim of this study was to evaluate the effect of hyperbaric oxygen therapy (HBOT) in the management of chronic diabetic foot ulcers.*

RESEARCH DESIGN AND METHODS — The Hyperbaric Oxygen Therapy in Diabetics with Chronic Foot Ulcers (HODFU) study was a randomized, single-center, double-blinded, placebo-controlled clinical trial. The outcomes for the group receiving HBOT were compared with those of the group receiving treatment with hyperbaric air. Treatments were given in a multi-place hyperbaric chamber for 85-min daily (session durations 95 min), five days a week for eight weeks (40 treatment sessions). The study was performed in an ambulatory setting.

RESULTS — *Ninety-four patients with Wagner grade 2, 3, or 4 ulcers, which had been present for >3 months, were enrolled. In the intention-to-treat analysis, complete healing of the index ulcer was achieved in 37 patients at 1-year of follow-up: 25/48 (52%) in the HBOT group and 12/42 (29%) in the placebo group ($P = 0.03$). In a sub-analysis of these patients completing >35 HBOT sessions, healing of the index ulcer occurred in 23/38 (61%) in the HBOT group and 10/37 (27%) in the placebo group ($P = 0.009$). The frequency of adverse events was low.*

CONCLUSIONS — The HODFU study showed that adjunctive treatment with HBOT facilitates healing of chronic foot ulcers in selected patients with diabetes.

Diabetes Care 33:988–1003, 2010

grade 1 and 2 ulcers. Therefore, the clinical utility of HBOT in treating diabetic foot ulcers was not established. The final conclusion of an analysis completed in 2004 by the Cochrane Collaboration found that further research was needed and the need for larger randomized placebo-controlled studies was highlighted (13).

The aim of the Hyperbaric Oxygen Treatment in Diabetic Patients with Chronic Foot Ulcers (HODFU) study was to evaluate if adjunctive treatment with HBOT, when compared with treatment with hyperbaric air (placebo), would have any therapeutic effect on chronic foot ulcers in patients with diabetes.

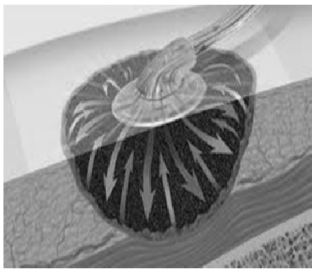
RESEARCH DESIGN AND METHODS — This study was initiated, designed, and performed by the authors. A steering committee was in charge of organization, data handling, and general conduct of the study. A blinded clin-

KÍCH THÍCH TUỶ SỐNG

- TcPO2 10-30 mmHg
- Giảm đau
- Không cải thiện tỷ lệ đoạn chi

Ubbink DT, Vermeulen H. Spinal cord stimulation for critical leg ischemia: a review of effectiveness and optimal patient selection. J Pain Symptom Manage 2006; 31: S30–35.

VAC



- Hỗ trợ tốt trong lành thương trong loét động mạch
- Chỉ có 2 nghiên cứu case series
- Mức độ chứng cứ còn yếu

KasaiY,Svensson,Bj€orckM,AcostaS.Vacuum assisted wound closure in patients with lower extremity arterial disease. The experience from two tertiary refer- ral-centres. J Plast Reconstr Aesthet Surg 2012; 65: 395–8.
Nordmyr J, Svensson S, Bj€orck M, Acosta S. Applica- tion of low-pressure negative pressure wound therapy to ischaemic wounds. Int Angiol 2009; 28: 26–31.

Liệu pháp gen và tế bào

- Đa số thử nghiệm pha 1,2
- Triển vọng, nhiều hứa hẹn
- Cần thêm thời gian để chứng minh hiệu quả

Reference	Year	Study type	Gene	Vector	Route of delivery	Improvements in
Isner et al. [10]	1996	Phase I	VEGF	Plasmid	Intra-arterial	Collateral vessels and distal flow
Baumgartner et al. [11]	1998	Phase I	$VEGF_{165}$	Plasmid	Intramuscular	Distal flow, ulcer healing
Simovic et al. [12]	2001	Phase I	$VEGF_{165}$	Plasmid	Intramuscular	Symptom score, neurological exam, ABI, collaterals
Kim et al. [13]	2004	Phase I	$VEGF_{165}$	Plasmid	Intramuscular	Collaterals
Makinen et al. [14]	2002	Phase II	VEGF	Adenovirus	Intramuscular	Vascularity
Kusumanto et al. [15]	2006	Phase II	$VEGF_{165}$	Plasmid	Intramuscular	Ulcer healing
						Hemodynamics
Comerota et al. [16]	2001	Phase I	FGF-1	Plasmid	Intramuscular	Pain
						Ulcer healing
						ABPI
						Transcutaneous oxygen pressure
Nikol et al. [17]	2008	Phase II	FGF-1	Plasmid	Intramuscular	Risk of amputation
Belch et al. [18]	2011	Phase III	FGF-1	Plasmid	Intramuscular	No benefit
Morishita et al. [19]	2004	Phase I	HGF	Plasmid	Intramuscular	Pain, ABI, ulcer size
Powell et al. [20]	2008	Phase II	HGF	Plasmid	Intramuscular	Transcutaneous oxygen pressure
Powell et al. [21]	2010	Phase II	HGF	Plasmid	Intramuscular	Rest pain
Shigematsu et al. [22]	2010	Phase III	HGF	Plasmid	Intramuscular	Rest pain, ulcer size, QOL
Rajagopalan et al. [23]	2007	Phase I	HIF-1α	Adenovirus	Intramuscular	Rest pain, ulcer size

VEGF vascular endothelial growth factor, FGF fibroblast growth factor, HGF hepatocyte growth factor, HIF-1α hypoxia-inducible transcription factor-1α

Shigematsu H, et al. Randomized, double-blind, placebo-controlled clinical trial of hepatocyte growth factor plasmid for critical limb ischemia. Gene Ther. 2010;17(9):1152–61

KẾT LUẬN

- Loét do thiếu máu động mạch chi dưới mạn tính thường do XVĐM, bệnh lý hệ thống
- Kiểm soát nguy cơ , nội khoa là nền tảng
- Phục hồi lưu thông mạch máu là điều trị hiệu quả nhất trong lành thương
- Chăm sóc vết loét, điều trị hỗ trợ quan trọng, đặc biệt khi tái thông mạch máu không hiệu quả