Artériopathie Oblitérante des Membres Inférieurs

Recommandations ESC 2011

Ph Lacroix

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HAS
HAUTE AUTORITÉ DE SANTÉ

Recommandations pour la pratique clinique

Prise en charge de l'artériopathie chronique oblitérante athéroscléreuse des membres inférieurs (indications médicamenteuses, de revascularisation et de rééducation)

Avril 2006

Recommandations

Service des recommandations professionnelles

Inter-Society Consensus for the Management of Peripheral Arterial Disease (TASC II)

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INTRODUCTION

The Trans-Atlantic Inter-Society Consensus Document on Management of Peripheral Arterial Disease (TASC) was published in January 2000[1–3] as a result of cooperation between fourteen medical and surgical vascular, cardiovascular, vascular radiology and cardiology societies in Europe and North America. This comprehensive document had a major impact on vascular care amongst specialists. In subsequent years, the field has progressed with the publication of the CoCaLa document[4] and the American College of Cardiology/American Heart Association Guidelines for the Management of Peripheral Arterial Disease.[5] Aiming to continue to reach a readership of vascular specialists, but also physicians in primary health care who see patients with peripheral arterial disease (PAD), another consensus process was initiated during 2004. This new consensus document has been developed with a broader international representation, including Europe, North America, Asia, Africa and Australia, and with a much larger distribution and dissemination of the information. The goals of this new consensus are to provide an abbreviated document (compared with the publication in 2000), to focus on key aspects of diagnosis and management, and to update the information based on new publications and the newer guidelines, but not to add an extensive list of references. Unreferenced statements are, therefore, to be found, provided they are recognized as common practice by the authors, with existing evidence. The recommendations are graded according to levels of evidence. It should also be emphasized that good practice is based on a combination of the scientific evidence described below, patients' preferences, and local availability of facilities and trained professionals. Good practice also includes appropriate specialist referral.

Process

Representatives of sixteen societies from Europe, North America, Australia, South Africa and Japan were elected from their respective society and were called together in 2004 to form the new Working Group. Specialists in health economics, health outcomes and evidence-based medicine were also included to elaborate on the text for the following sections: history, epidemiology and risk factors; management of risk factors; intermittent claudication; critical limb ischemia; acute limb ischemia; and technologies (intervention/revascularization and imaging).

The Working Group reviewed the literature and, after extensive correspondence and meetings, proposed a series of draft documents with clear recommendations for the diagnosis and treatment of PAD. Each participating society reviewed and commented on these draft consensus documents. The liaison member from each society then took these views back to the Working Group, where all of the amendments, additions and alterations suggested by each participating society were discussed, and the final Consensus Document was agreed upon.

The participating societies were then again invited to review the final document and endorse it if they agreed with its contents. If an individual participating society did not accept any specific recommendation, this is clearly indicated in the final document. Therefore, except where such specific exclusions are indicated, this Consensus Document represents the views of all of the participating societies.

Compared with the original TASC, more emphasis has been put on diabetes and PAD. The text is presented in such a way that vascular specialists will still find most of the information they require, while general practitioners and primary health physicians will easily find guidance for diagnosis and diagnostic procedures, referral of patients and expected outcome of various treatment options.

Grading of recommendations

Recommendations and selected statements are rated according to guidance issued by the former US Agency for Health Care Policy and Research,[6] now renamed the Agency for Healthcare Research and Quality:

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Official publication of the American College of Chest Physicians

CHEST ONLINE

Antithrombotic Therapy for Peripheral Artery Occlusive Disease: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (8th Edition)

Michael Sobel and Raymond Verhaeghe

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European Heart Journal
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ESC Guidelines on the diagnosis and treatment of peripheral artery diseases

Document covering atherosclerotic disease of extracranial carotid and vertebral, mesenteric, renal, upper and lower extremity arteries

The Task Force on the Diagnosis and Treatment of Peripheral Artery Diseases of the European Society of Cardiology (ESC)

Endorsed by: the European Stroke Organisation (ESO)

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† Representing the European Stroke Organisation (ESO).

ESC entities having participated in the development of this document:

Associations: European Association for Cardiovascular Prevention and Rehabilitation (EACPR), European Association of Percutaneous Cardiovascular Interventions (EAPCI), Heart Failure Association (HFA).

Working Groups: Atherosclerosis and Vascular Biology, Thrombosis, Hypertension and the Heart, Peripheral Circulation, Cardiovascular Pharmacology and Drug Therapy, Acute Cardiac Care, Cardiovascular Surgery.

Councils: Cardiology Practice, Cardiovascular Imaging, Cardiovascular Nursing and Allied Professions, Cardiovascular Primary Care.

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doi:10.1093/eurheartj/ehr212

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7. Appendices

Appendix 1. Technical aspects of vascular imaging

Computed tomography angiography

The contrast agent for computed tomography angiography (CTA) is injected through a peripheral vein with an 18 G needle. The risks include the usual ones for contrast medium, particularly contrast allergy. Patient preparation for CTA is similar to that in other contrast-enhanced studies and includes the disclosure of information on contrast risks and an assessment of renal and thyroid function. A slice thickness of 1–3 mm is desirable for all CTAs. Table 1 lists the main CTA parameters for imaging the great vessels.

Contrast administration has to be tailored to each patient to achieve optimum enhancement of the targeted vascular region, irrespective of whether the arterial or the venous phase appears important. Power injectors are needed with pre-defined flow rates of 3–5 mL/s. This is followed by injection of isotonic saline solution at the same rate. The saline flush provides rapid contrast medium inflow, keeps the bolus compact, and prolongs the plateau. If the complete vascular structures are imaged, a biphasic injection protocol can be followed. The initial injection includes 4 mL/s and the next 2–3 mL/s.

A test bolus injection is important, in order to assess the circulation time of the patient and to start the computed tomography (CT) data acquisition in time. Usually a bolus of 20 mL is used. Scans are taken at specific intervals, usually every 2 s. Many CT scanners have automated bolus triggering built into their systems, thereby avoiding the need for a test bolus.

For the imaging of peripheral arteries, electrocardiogram (ECG) gating or triggering is not necessary except for visualization of the supra-aortic vessels. Both prospective ECG-triggering and retrospective ECG-gating are possible.

CTAs are analysed interactively on the basis of the combination of axial images and post-processed views. The latter consist mainly of multiplanar reformatting and maximum intensity projections, which allow imaging according to an angiogram-like appearance. Special analytical software provides sectional images that are precisely orthogonal to the vessel axis and can be used for quantification. The exact location and extent of abnormalities is determined with multiplanar use. Three-dimensional (3D) constructions using surface- or volume-rendering techniques help to depict complex 3D relationships and are helpful in the presentation of abnormalities. In addition, measurement of CT densities is helpful in the differentiation of tissue and vessel structures.[13]

Positron emission tomography/computed tomography

Modern imaging has developed to include a combination of different imaging techniques in order to provide information not only on vessel diameters and structures but also on metabolic or inflammatory processes. In more and more institutions the combination of positron emission tomography (PET) with multislice CT has become available. Very high resolution CT is used to identify the exact location of abnormalities, and [^{18}F]fluorodeoxyglucose (FDG) is used to determine areas of inflammation.

CT images are acquired with 130 mA, 130 kV, a section width of 5 mm, and a table feed of 8 mm per rotation after defining the scanning area for CT and PET on a CT tomogram. Single-section whole-body spiral CT is performed, starting at the upper thigh and scanning in a caudocranial direction to the skull base, subsequently covering the pelvis, abdomen, chest, and neck, up to the base of the skull. A limited breath-hold technique is used to avoid motion-induced artefacts in the area of the diaphragm. Whole-body CT can be used for attenuation correction without the use of intravenous contrast material to avoid hardening artefacts in the mediastinum and to identify possible hyperdense intramural haematoma.

The PET system has an axial field of view of 15.5 cm per bed position and an in-plane spatial resolution of 4.6 mm. PET images cover the same field of view as the whole-body CT scan and are acquired 60 min after administration of 350 MBq of FDG. The tracer is chosen as the best-evaluated tracer in PET imaging to detect inflammation-induced elevated glucose metabolism.

Patients are instructed to fast for a minimum of 6 h prior to tracer injection. In addition, blood samples are collected immediately before the injection of the radioactive tracer to ensure blood glucose levels are within the normal range.

The acquisition time of PET is adapted according to the weight of the patient, using 3 min per bed position for patients up to

http://www.escardio.org/guidelines

3.1 Epidemiology
3.2 Risk factors
3.3 General diagnostic approach
3.4 Treatment—general rules
4. Specific vascular areas
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    4.2 Upper extremity artery disease
    4.3 Mesenteric artery disease
    4.4 Renal artery disease
    4.5 Lower extremity artery disease
    4.6 Multisite artery disease
5. Gaps in evidence

Classes of recommendations	Definition	Suggested wording to use
Class I	Evidence and/or general agreement that a given treatment or procedure is beneficial, useful, effective.	Is recommended/is indicated
Class II	Conflicting evidence and/or a divergence of opinion about the usefulness/efficacy of the given treatment or procedure.	
Class IIa	*Weight of evidence/opinion is in favour of usefulness/efficacy.*	Should be considered
Class IIb	*Usefulness/efficacy is less well established by evidence/opinion.*	May be considered
Class III	Evidence or general agreement that the given treatment or procedure is not useful/effective, and in some cases may be harmful.	Is not recommended

Level of Evidence A	Data derived from multiple randomized clinical trials or meta-analyses.
Level of Evidence B	Data derived from a single randomized clinical trial or large non-randomized studies.
Level of Evidence C	Consensus of opinion of the experts and/ or small studies, retrospective studies, registries.

Recommendations in patients with PAD: general treatment

Recommendations	Class[a]	Level[b]
All patients with PAD who smoke should be advised to stop smoking.	I	B
All patients with PAD should have their LDL cholesterol lowered to <2.5 mmol/L (100 mg/dL), and optimally to <1.8 mmol/L (70 mg/dL), or ≥ 50% when the target level cannot be reached.	I	C[d]
All patients with PAD should have their blood pressure controlled to ≤140/90 mmHg.	I	A

ß-Blockers are not contraindicated in patients with LEAD, and should be considered in the case of concomitant coronary artery disease and/or heart failure.	IIa	B
Antiplatelet therapy is recommended in patients with symptomatic PAD.	I	C[d]
In patients with PAD and diabetes, the HbA1c level should be kept at ≤6.5%.	I	C[d]
In patients with PAD, a multidisciplinary approach is recommended to establish a management strategy.	I	C

Recommendations in patients with PAD: general treatment

Recommendations for ABI measurement

Recommendations	Class[a]	Level[b]
Measurement of the ABI is indicated as a first-line non-invasive test for screening and diagnosis of LEAD.	I	B
In the case of incompressible ankle arteries or ABI >1.40, alternative methods such as the toe-brachial index, Doppler waveform analysis or pulse volume recording should be used.	I	B

Recommendations for treadmill testing in patients with LEAD

Recommendations	Class[a]	Level[b]
The treadmill test should be considered for the objective assessment of treatment to improve symptoms in claudicants.	IIa	A
In the case of typical or atypical symptoms suggestive of LEAD, the treadmill test should be considered for diagnostic confirmation and/or for baseline quantification of functional severity.	IIa	B

Recommendations	Class[a]	Level[b]
Non-invasive assessment methods such as segmental systolic pressure measurement and pulse volume recording, plethysmography, Doppler flowmetry, and DUS are indicated as first-line methods to confirm and localize LEAD lesions.	I	B
DUS and/or CTA and/or MRA are indicated to localize LEAD lesions and consider revascularization options.	I	A
The data from anatomical imaging tests should always be analysed in conjunction with haemodynamic tests prior to therapeutic decision.	I	C

Recommendations for diagnostic tests in patients with LEAD

Recommendations for revascularization in patients with aortoiliac lesions

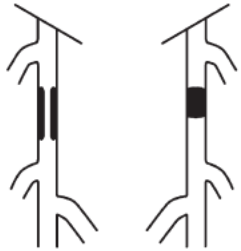
Recommendations	Class[a]	Level[b]
When revascularization is indicated, an endovascular-first strategy is recommended in all aortoiliac TASC A–C lesions.	I	C
A primary endovascular approach may be considered in aortoiliac TASC D lesions in patients with severe comorbidities, if done by an experienced team.	IIb	C
Primary stent implantation rather than provisional stenting may be considered for aortoiliac lesions.	IIb	C

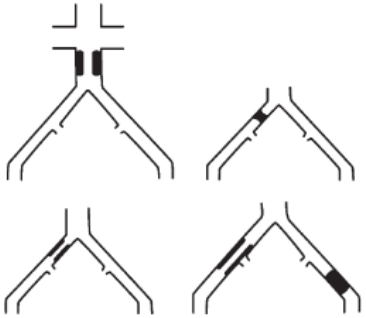
Recommendations	Class[a]	Level[b]
When revascularization is indicated, an endovascular-first strategy is recommended in all femoropopliteal TASC A–C lesions.	I	C
Primary stent implantation should be considered in femoropopliteal TASC B lesions.	IIa	A
A primary endovascular approach may also be considered in TASC D lesions in patients with severe comorbidities and the availability of an experienced interventionist.	IIb	C

Recommendations for revascularization in patients with femoropopliteal lesions

TASC II

Type A





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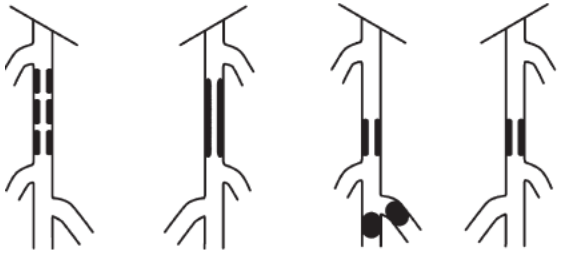

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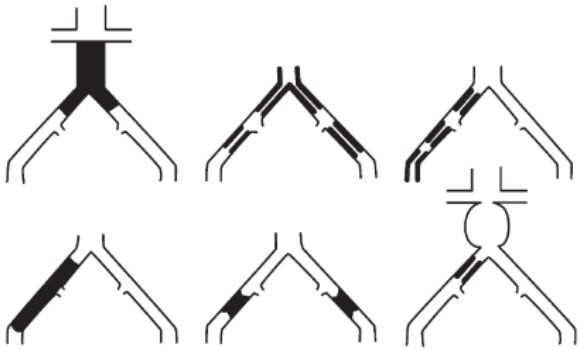
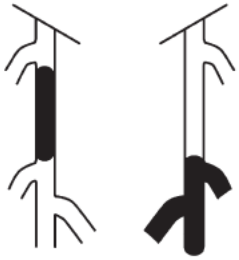


Type D



Recommendations for revascularization in patients with infrapopliteal lesions

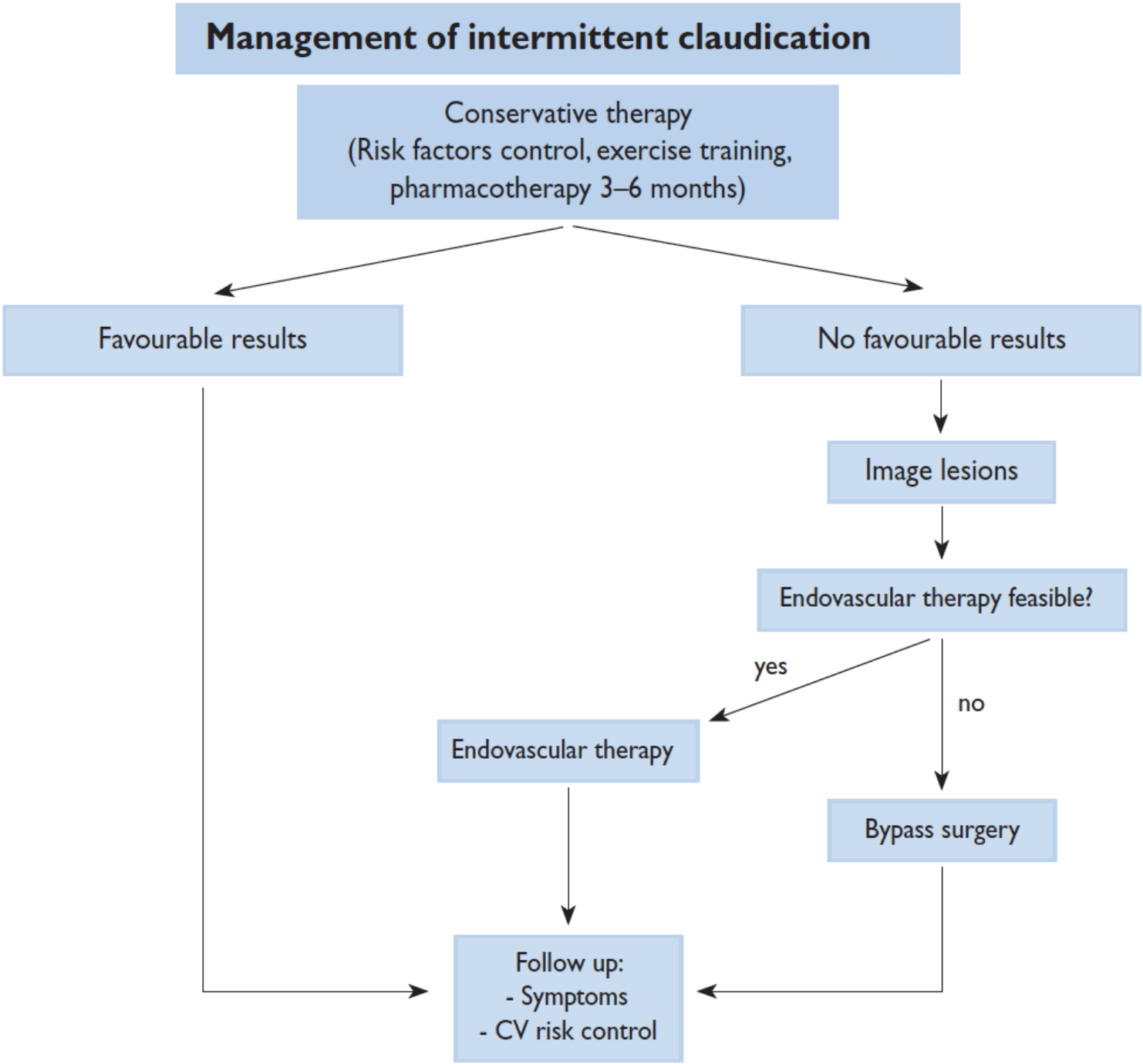
Recommendations	Class[a]	Level[b]
When revascularization in the infrapopliteal segment is indicated, the endovascular-first strategy should be considered.	IIa	C
For infrapopliteal lesions, angioplasty is the preferred technique, and stent implantation should be considered only in the case of insufficient PTA.	IIa	C

Recommendation for surgical revascularization in patients with LEAD

Recommendations	Class[a]	Level[b]
When surgery is considered to revascularize infrailiac lesions, the autologous saphenous vein is the bypass graft of choice.	I	A

Recommendations	Class[a]	Level[b]
Antiplatelet therapy with aspirin is recommended in all patients with angioplasty for LEAD to reduce the risk of systemic vascular events.	I	C
Dual antiplatelet therapy with aspirin and a thienopyridine for at least one month is recommended after infrainguinal bare-metal-stent implantation.	I	C
Antiplatelet treatment with aspirin or a combination of aspirin and dipyridamole is recommended after infrainguinal bypass surgery.	I	A
Antithrombotic treatment with vitamin K antagonists may be considered after autogenous vein infrainguinal bypass.	IIb	B
Dual antiplatelet therapy combining aspirin and clopidogrel may be considered in the case of below-knee bypass with a prosthetic graft.	IIb	B

Recommendations for antiplatelet and anticoagulant therapy after revascularization


Management of intermittent claudication
Conservative therapy
(Risk factors control, exercise training,
pharmacotherapy 3–6 months)
Favourable results
No favourable results
Image lesions
Endovascular therapy feasible?
yes
no
Endovascular therapy
Bypass surgery
Follow up:
- Symptoms
- CV risk control

Recommendations	Class[a]	Level[b]
Supervised exercise therapy is indicated.	I	A
Non-supervised exercise therapy is indicated when supervised exercise therapy is not feasible or available.	I	C
In patients with intermittent claudication with symptoms affecting daily life activity, drug therapy may be considered.	IIb	A
In the case of intermittent claudication with poor improvement after conservative therapy, revascularization should be considered.	IIa	C

Recommendations for patients with intermittent claudication

Recommendations for patients with intermittent claudication

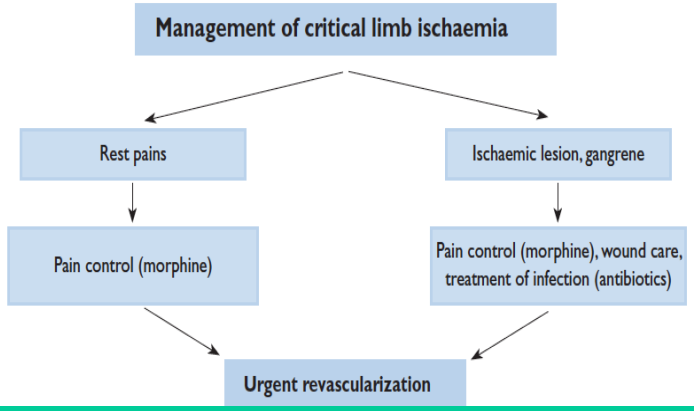
In patients with disabling intermittent claudication that impacts their activities of daily living, with culprit lesions located at the aorta/ iliac arteries, revascularization (endovascular or surgical) should be considered as first-choice therapeutic option, along with the risk factor management.	IIa	C
Stem cell/gene therapy is not indicated.	III	C

Critical Limb Ischaemia

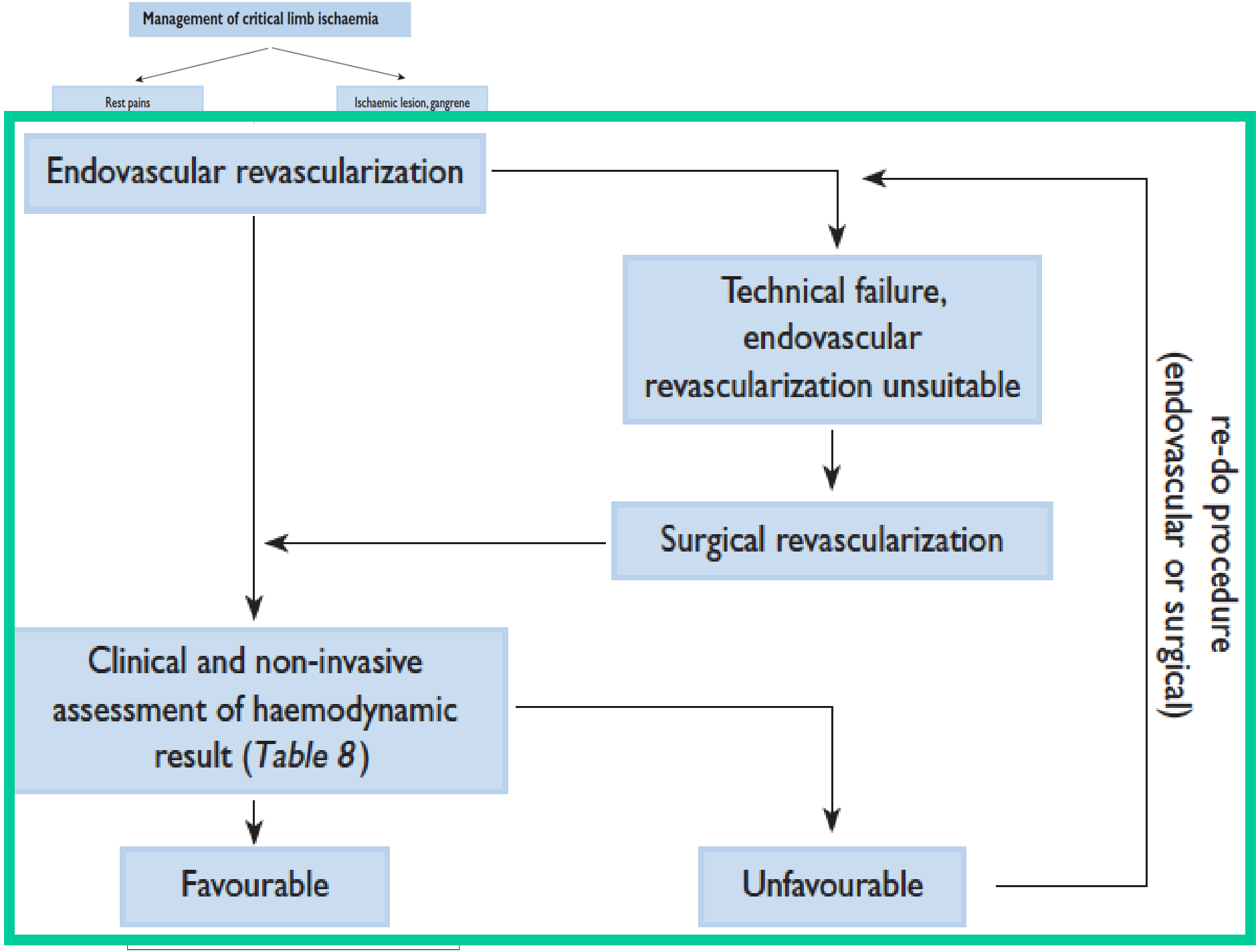
Assessment	Feature	Presentation to define CLI	Remarks
History	Duration of symptoms and clinical signs of CLI	>2 weeks	Needs morphine analgesics to be controlled
Symptoms	Rest pain	Toe, forefoot	Especially with elevation of limb (i.e. during night sleep). Calf pain/cramps do not constitute clinical presentation of CLI
	Ischaemic lesions	Periungual, toes, heel, over-bone prominences	
	Infection		Secondary complication: inflammation and infection
	<50 mmHg or <70 mmHg		Plus rest pain Plus ischaemic lesion(s)
	<30 mmHg		To be measured in the presence of medial calcinosis (incompressible or falsely elevated ankle pressure, ABI >1.40)
	<30 mmHg		Estimation of wound healing, considerable variability

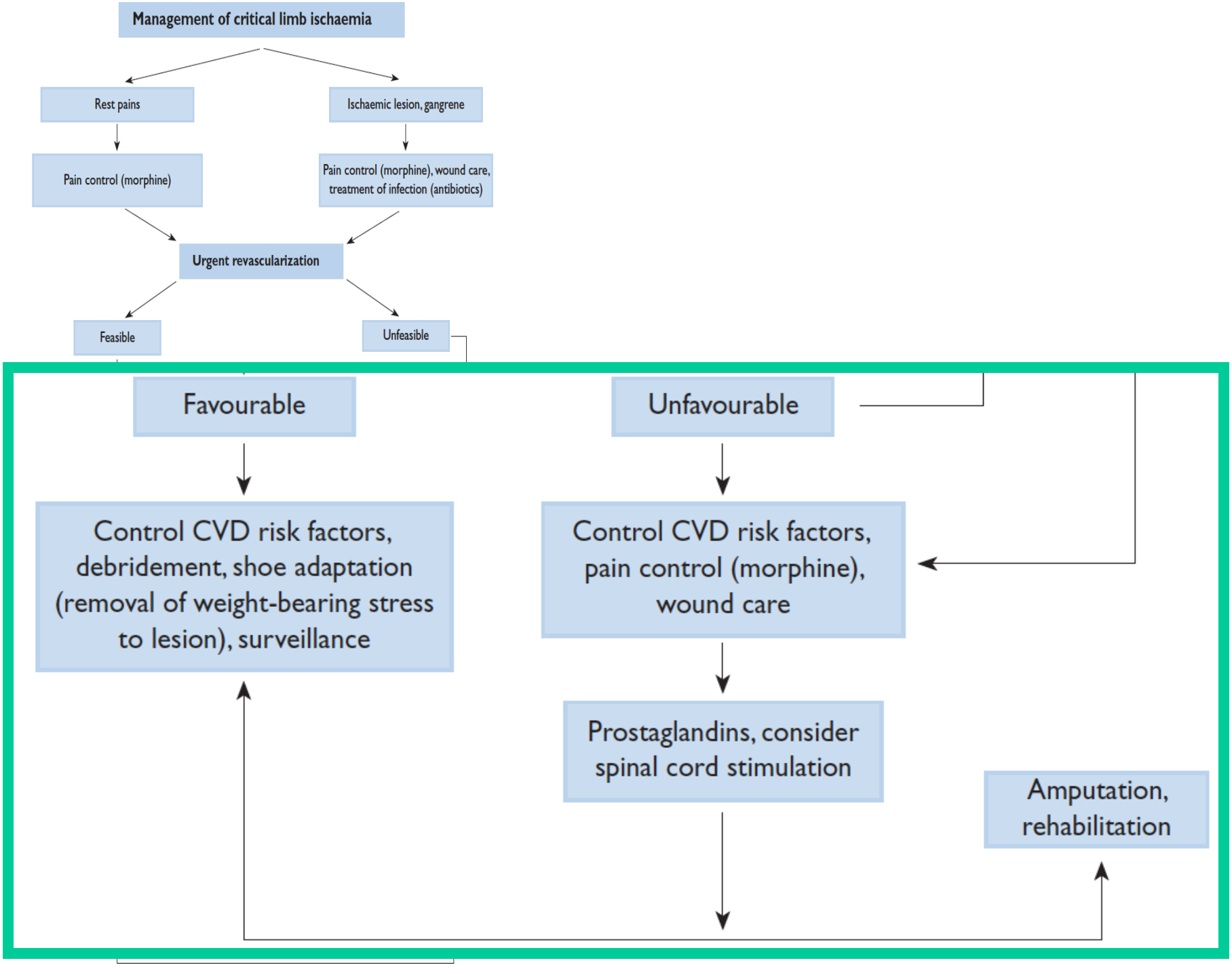
Recommendations for the management of critical limb ischaemia

Recommendations	Class[a]	Level[b]	Ref[c]
For limb salvage, revascularization is indicated whenever technically feasible.	I	A	302, 331, 336
When technically feasible, endovascular therapy may be considered as the first-line option.	IIb	B	302, 331
If revascularization is impossible, prostanoids may be considered.	IIb	B	338, 339



Management of critical limb ischaemia
Rest pains
Ischaemic lesion, gangrene
Pain control (morphine)
Pain control (morphine), wound care, treatment of infection (antibiotics)
Urgent revascularization


Management of critical limb ischaemia
Rest pains
Ischaemic lesion, gangrene
Endovascular revascularization
Technical failure, endovascular revascularization unsuitable
Surgical revascularization
Clinical and non-invasive assessment of haemodynamic result (Table 8)
Favourable
Unfavourable
re-do procedure (endovascular or surgical)


Management of critical limb ischaemia
Rest pains
Ischaemic lesion, gangrene
Pain control (morphine)
Pain control (morphine), wound care, treatment of infection (antibiotics)
Urgent revascularization
Feasible
Unfeasible
Favourable
Unfavourable
Control CVD risk factors, debridement, shoe adaptation (removal of weight-bearing stress to lesion), surveillance
Control CVD risk factors, pain control (morphine), wound care
Prostaglandins, consider spinal cord stimulation
Amputation, rehabilitation

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5. Gaps in evidence

Recommendations for screening for carotid artery stenosis in patients undergoing CABG

Recommendations	Class[a]	Level[b]	Ref[c]
In patients undergoing CABG, DUS scanning is recommended in patients with a history of cerebrovascular disease, carotid bruit, age ≥70 years, multivessel CAD, or LEAD.	I	B	352
Screening for carotid stenosis is not indicated in patients with unstable CAD requiring emergent CABG with no recent stroke/TIA.	III	B	352

In patients undergoing CABG with no history of TIA/ stroke within 6 months		
Carotid revascularization may be considered in men with bilateral 70–99% carotid stenosis or 70–99% carotid stenosis and a contralateral occlusion.	**IIb**	**C**
Carotid revascularization may be considered in men with 70–99% carotid stenosis and ipsilateral previous silent cerebral infarction.	**IIb**	**C**

Screening for RAS in patients planned for coronary angiography

Recommendations	Class[a]	Level[b]
DUS should be considered first in the case of clinical suspicion of renal artery disease in patients planned for coronary angiography.	IIa	C
Renal angiography concomitant to cardiac catheterization may only be considered in the case of persisting suspicion after DUS.	IIb	C

Recommendations	Class[a]	Level[b]
In patients with unstable CAD, vascular surgery should be postponed and CAD treated first, except when vascular surgery cannot be delayed due to a life- or limb-threatening condition.	I	C
The choice between CABG and PCI should be individualized, taking into consideration the clinical presentation of CAD and LEAD, and comorbidities.	I	C
In the case of LEAD in patients with stable CAD, clopidogrel should be considered as an alternative to aspirin for the long-term antiplatelet therapy.	IIa	B

Recommendations for management of patients with LEAD and concomitant CAD

Recommendations for management of patients with LEAD and concomitant CAD

In patients with CAD, screening for LEAD by ABI measurement should be considered.	IIa	C
Prophylactic myocardial revascularization before high-risk vascular surgery may be considered in stable patients if they have persistent signs of extensive ischaemia or are at high cardiac risk.	IIb	B

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À venir

- ACC/AHA 2012
- IPS: ACC/AHA 2012

- TASC III 2012 ou 2013