Current guidelines on peripheral vascular disease: an overview

2017 ESC Guidelines on the Diagnosis and Treatment of Peripheral Arterial Diseases, in collaboration with the European Society for Vascular Surgery (ESVS)

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Presentations of Peripheral Arterial Diseases (PADs)

Atherosclerosis

- Aorta disease
- Coronary Artery Disease (CAD)
- Peripheral Arterial Diseases (PADs)

Territories

- Cerebrovascular diseases:
  - Carotid artery disease
  - Vertebral artery disease
- Upper-Extremity Artery Disease (UEAD)
- Mesenteric artery disease
- Renal Artery Disease (RAD)
- Lower-Extremity Artery Disease (LEAD)

Presentations

- Stroke, Transient Ischaemic Attack (TIA), acute monocular blindness
- Subclavian steal syndrome, pain on exertion, digital symptoms, acute ischaemia
- Chronic Mesenteric Ischaemia (CMI)
- Acute Mesenteric Ischaemia (AMI)
- Hypertension, renal failure
- Typical claudication, atypical symptoms, Chronic Limb-Threatening Ischaemia (CLTI), Acute Limb Ischaemia (ALI)
Layout

- General aspects
- Lower extremity artery disease
- Multisite artery disease
General aspects
General aspects

In healthcare centres, it is recommended to set up a multi-disciplinary **Vascular Team** to make decisions for the management of patients with PADs.

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Class</th>
<th>Level</th>
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<tbody>
<tr>
<td>In healthcare centres, it is recommended to set up a multi-disciplinary <strong>Vascular Team</strong> to make decisions for the management of patients with PADs.</td>
<td>I</td>
<td>C</td>
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PADs and Cardio-vascular risk  Lower extremity arterial disease (LEAD)

Systematic review including 24955 men and 23339 women from general population with ABI measure at baseline

In the overall stable population with arterial disease, ~1 in 7 pts with atherosclerosis will experience CV death, MI, stroke or hospitalization within 1 yr

ABI ≤0.90 associated with twice the 10-yr total mortality, CV mortality, and major coronary event rate compared with the overall rate in each Framingham risk score category

Ankle Brachial Index Collaboration, JAMA, 2008

LEAD (n= 858) 21.1% 1 in ~5
Cd (n=38602) 15.2% 1 in ~6
CVD (n=18013) 14.5% 1 in ~7

Steg et al, JAMA, 2007 (REACH registry)
General CV prevention

**Best Medical Therapy**

- Smoking cessation
- Healthy diet
- Weight loss
- Regular physical exercise

**Non pharmacologic therapy**

- Smoking cessation
- Healthy diet
- Weight loss
- Regular physical exercise

**Pharmacologic measures**

- Anti-HTN drugs
- Statins
- Optimal glucose control in diabetic pts
- Antithrombotic drugs

**Heart**

- Working Group
  - Aorta & Peripheral Vascular Diseases

**Specific Measures**

- <140/90 mmHg
- LDL < 1.8 mmol/L
- ACE/ARBs
- Optimal glucose control
  - in diabetic pts
- Antithrombotic drugs
  - or <50%

**Recommended Interventions**

- I
- B
- I
- C
- I
- A
- IIa
- B
- I
- C
- I
- C
Lower extremities artery disease (LEAD)
The Ankle-Brachial Index

3. How to interpret the ABI?

- For diagnosis of LEAD interpret each leg separately (one ABI per leg).
- For the CV risk stratification: take the lowest ABI between the two legs.
- Interpretation:

<table>
<thead>
<tr>
<th>Abnormal (Low)</th>
<th>Bordeline</th>
<th>Normal ABI</th>
<th>Abnormal ABI (High)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.90</td>
<td>1.00</td>
<td>1.40</td>
<td></td>
</tr>
</tbody>
</table>
The Ankle-Brachial Index (continued)

Who should have an ABI measurement in clinical practice?

• Patients with clinical suspicion for LEAD:
  – lower extremities pulse abolition and/or arterial bruit,
  – typical intermittent claudication or symptoms suggestive for LEAD,
  – non-healing lower extremity wound.

• Patients at risk for LEAD because of the following clinical conditions:
  – atherosclerotic diseases: CAD, any PADs,
  – other conditions: AAA, CKD, heart failure.

• Asymptomatic individuals clinically-free but at-risk for LEAD:
  – men and women aged >65 years,
  – men and women aged <65 years classified at high CV risk according the ESC Guidelines,
  – men and women aged >50 years with family history for LEAD.
LEAD Management
Clinical stages of LEAD (I)

<table>
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<th>Fontaine classification</th>
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<tr>
<td>Stage</td>
</tr>
<tr>
<td>I</td>
</tr>
<tr>
<td>II</td>
</tr>
<tr>
<td>IIb</td>
</tr>
<tr>
<td>III</td>
</tr>
<tr>
<td>IV</td>
</tr>
</tbody>
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Concept of « Masked LEAD » in:
- Aging
- Frailty
- Neuropathy
- Joint disease
- Heart failure
- COPD

.... with limited/no walking
Clinical stages of LEAD (II)

Modern Management of Claudication:

- CVD prevention
- Supervised exercise therapy
- ± Revascularization

Vasoactive drugs = no proof in the modern management

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<tr>
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<th>Symptoms</th>
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<tr>
<td>I</td>
<td>Asymptomatic</td>
</tr>
<tr>
<td>IIa</td>
<td>Non-disabling intermittent claudication</td>
</tr>
<tr>
<td>IIb</td>
<td>Disabling intermittent claudication</td>
</tr>
<tr>
<td>III</td>
<td>Ischaemic rest pain</td>
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<tr>
<td>IV</td>
<td>Ulceration or gangrene</td>
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Fontaine classification
**Clinical stages of LEAD (III)**

**Chronic Limb Threatening Ischaemia (CLTI)**

- Early referral to a **vascular team** for risk stratification and management

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[Website](https://www.escardio.org/guidelines)
Antithrombotic agents in LEAD

• Dedicated chapter in 2017 guidelines

• Antithrombotic therapy is part of best medical treatment for symptomatic PADs

• In LEAD patients, antiplatelet agents are used to:
  • Prevent limb-related events
  • Prevent CV events
Antithrombotic therapy in patients with asymptomatic LEAD

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<td><strong>Lower extremity artery disease</strong></td>
<td>III</td>
<td>A</td>
</tr>
<tr>
<td>Because of a lack of proved benefit, antiplatelet therapy is not routinely</td>
<td></td>
<td></td>
</tr>
<tr>
<td>indicated in patients with isolated* asymptomatic LEAD.</td>
<td></td>
<td></td>
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- Randomized trials are negative (POPADAD\(^1\), AAA\(^2\))
- There are safety issues
- Inappropriate use is frequent

* Without any other clinical CV condition requiring antiplatelet therapy (e.g. CHD or other multisite artery disease)

\(^1\) The Prevention of Progression of Arterial Disease and Diabetes trial, BMJ, 2008
\(^2\) The Aspirin fo Asymptomatic Atherosclerosis trial, JAMA, 2010
Antithrombotic therapy in patients with symptomatic LEAD

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<td>Lower extremity artery disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term SAPT* is recommended in symptomatic patients</td>
<td>I</td>
<td>A</td>
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- To date, data proving superiority of dual antiplatelet treatment (DAPT) over aspirine alone, to reduce CV events in patients with LEAD, are lacking → No recommandation in 2017

*SAPT: single antiplatelet treatment;
Antithrombotic therapy in patients with symptomatic LEAD (continued)

- CAPRIE study: Clopidogrel was superior to aspirin in the subgroup of patients with clinical LEAD → significant reduction in CV mortality and MACE
Antiplatelet therapy in patients with LEAD

Management of antiplatelet therapy in patients with LEAD not requiring anticoagulation

- **Asymptomatic**
  - No SAPT
  - **Class III A**
- **Symptomatic**
  - SAPT
  - **Class I A**
  - **Class IIa C**
- **Revascularization**
  - **Percutaneous**
    - SAPT
    - **Class IIa C**
  - **Surgery**
    - SAPT
    - **Class IIb B**
    - **VKA**
    - **Class IIb B**

**Time delay**
- 0 mo.
- 1 mo.
- 1 year
- Long term

**Antiplatelet therapy**
- **Aspirin**
  - 75-100 mg/day
- **Clopidogrel**
  - 75 mg/day
- **Oral Anticoagulation**
Antithrombotic therapy in patients with LEAD requiring oral anticoagulation

LEAD in patients requiring long-term oral anticoagulation

- **(A)symptomatic**
  - **Surgery**
  - **Percutaneous intervention**

**Bleeding risk low**
- **OAC Monotherapy**
  - **Class I**
  - **OAC Monotherapy**
  - **DAT**
  - **OAC Monotherapy**
  - **OAC Monotherapy**

**Bleeding risk high**
- **OAC Monotherapy**
  - **Class IIa**
  - **A or C**
  - **A + C**
  - **O**
  - **Oral Anticoagulation**

- **A**
  - Aspirin
  - 75-100 mg/day

- **C**
  - Clopidogrel
  - 75 mg/day

Key:
- A
- C
- O

**Time delay**
- 0
- 1 mo.
- 1 year
- Long term

**Notes**
- High ischaemic risk pts or firm SAPT indication
Multisite artery disease (MSAD)
Epidemiology of MSAD

Prevalence of the association

- CAD
- Carotid stenosis >70%
- LEAD (ABI <0.90)
- RAS >75%
MSAD impact on prognosis

• MSAD is associated with a 1.5 to 2-fold increase in the risk of MACE both in-hospital and at 1 and 3 years, vs. single site disease

• In patients with high-risk CAD, the AMERICA trial failed to prove a benefit of a proactive strategy (total-body DUS and ABI measurement + intensive medical Tx) vs. no screening for MSAD and standard medical Tx on the composite of death, rehospitalisation and organ failure at 2 years

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Collet JP, ESC 2016
Key message

• Multisite artery disease (MSAD) is common in patients with atherosclerotic involvement in one vascular bed, ranging from 10 to 15% in patients with CAD to 60 to 70% in patients with severe carotid stenosis or LEAD

• MSAD is invariably associated with worse clinical outcomes; however, screening for asymptomatic disease in additional vascular sites has not been proven to improve prognosis.
### Screening and management of concomitant LEAD and CAD

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<th>Level</th>
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<tr>
<td>In patients with CAD, screening for LEAD by ABI measurement may be considered for risk stratification.(^5)</td>
<td><strong>IIb</strong></td>
<td><strong>B</strong></td>
</tr>
</tbody>
</table>

Want more details?

2017 ESC Guidelines on the Diagnosis and Treatment of Peripheral Arterial Diseases, in collaboration with the European Society for Vascular Surgery (ESVS)

Questions and answers on diagnosis and management of patients with Peripheral Arterial Diseases: a companion document
Thank you for your attention !
## Screening of associated atherosclerotic disease in additional vascular territories

<table>
<thead>
<tr>
<th>Leading disease</th>
<th>Screened disease</th>
<th>CAD</th>
<th>LEAD</th>
<th>Carotid</th>
<th>Renal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CAD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduled for CABG</td>
<td></td>
<td></td>
<td>IIa(^a)</td>
<td>I(^b)</td>
<td>IIb(^c)</td>
</tr>
<tr>
<td>Not scheduled for CABG</td>
<td></td>
<td></td>
<td>IIb</td>
<td>NR</td>
<td>U</td>
</tr>
<tr>
<td><strong>LEAD</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduled for surgery</td>
<td></td>
<td>I(^d)</td>
<td>NR</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Not scheduled for surgery</td>
<td></td>
<td>NR</td>
<td>NR</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td><strong>Carotid stenosis</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scheduled for CEA/CAS</td>
<td></td>
<td>IIb</td>
<td>NR</td>
<td>U</td>
<td></td>
</tr>
<tr>
<td>Not scheduled for CEA/CAS</td>
<td></td>
<td>NR</td>
<td>NR</td>
<td>U</td>
<td></td>
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\(^a\) Especially if venous harvesting is planned. \(^b\) In patients with stroke/TIA. \(^c\) In asymptomatic patients with: age ≥70 yrs, multivessel CAD, associated LEAD or carotid bruit. \(^d\) Screening with ECG in all patients; with imaging stress testing in case of poor functional capacity and >2 of the following: history of CAD, heart failure, stroke/TIA, CKD, diabetes requiring insulin therapy. NR = no recommendation; U = uncertain.
## Screening and management of concomitant LEAD and CAD

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<td>In patients with LEAD, radial artery access is recommended as the first option for coronary angiography/intervention.</td>
<td>I</td>
<td>C</td>
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<td>In patients with LEAD undergoing CABG, sparing the autologous great saphenous vein for potential future use for surgical peripheral revascularization should be considered.</td>
<td>IIa</td>
<td>C</td>
</tr>
<tr>
<td>In patients undergoing CABG and requiring saphenous vein harvesting, screening for LEAD should be considered.</td>
<td>IIa</td>
<td>C</td>
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