

2024

Essential Messages from ESC Guidelines

Clinical Practice
Guidelines Committee

Guidelines for the management of
**Peripheral Arterial and
Aortic Diseases**



ESC

European Society
of Cardiology

Essential Messages

2024 ESC Guidelines for the management of peripheral arterial and aortic diseases

Developed by the task force on the management of peripheral arterial and aortic diseases of the European Society of Cardiology (ESC)

Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS), the European Reference Network on Rare Multisystemic Vascular Diseases (VASCERN), and the European Society of Vascular Medicine (ESVM)

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Associations: Association for Acute CardioVascular Care (ACVC), Association of Cardiovascular Nursing & Allied Professions (ACNAP), European Association of Cardiovascular Imaging (EACVI), European Association of Preventive Cardiology (EAPC), European Association of Percutaneous Cardiovascular Interventions (EAPCI), Heart Failure Association (HFA).

Councils: Council for Cardiology Practice, Council on Hypertension.

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Patient Forum

Adapted from the 2024 ESC Guidelines for the management of peripheral arterial and aortic diseases

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ESSENTIAL MESSAGES FROM THE 2024 ESC GUIDELINES FOR THE MANAGEMENT OF PERIPHERAL ARTERIAL AND AORTIC DISEASES

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Key messages

Peripheral arterial and aortic diseases are highly prevalent, often asymptomatic, and linked to increased morbidity and mortality. Early diagnosis is crucial for better outcomes and management requires a multidisciplinary team. CVRF control is crucial to prevent progression and complications. Despite the benefit of medical therapy, lifestyle changes, healthy diet, abstinence from smoking, exercise/rehabilitation, and education are essential for effective management. Patient empowerment is essential to improve adherence and close/regular monitoring is essential to improve prognosis. Use of web- or app-based calculators for estimation of CV risk in the secondary prevention of ASCVD may aid patient motivation for lifestyle changes and adherence to medication.

Peripheral arteries

- Atherosclerotic lower-extremity PAD is a chronic disease needing lifelong follow-up.
- Assessment of walking impairment, functional status, and amputation risk is crucial in PAD management.
- Ankle-brachial index should be the initial diagnostic test for screening and diagnosing PAD, and serves as a surrogate marker for CV and all-cause mortality. DUS is the first-line imaging method to confirm PAD lesions.
- Supervised exercise training or, if not available, HBET, improves walking and functional performances, and reduces CV risk. Exercise training remains underused and increased awareness is warranted.
- In asymptomatic PAD patient revascularization is not recommended. In symptomatic PAD patient need for interventional treatment, following a period of optimal medical treatment and exercise, should be discussed in a multidisciplinary setting.
- Chronic limb-threatening ischaemia increases the risk of CV events, needs early diagnosis, rapid referral to a multidisciplinary vascular team, and revascularization for limb salvage.
- Acute limb ischaemia warrants rapid clinical assessment by a vascular team and urgent revascularization.
- Duplex ultrasound is the first-line diagnostic modality for carotid stenosis. Routine revascularization is not recommended if asymptomatic. In symptomatic patients multidisciplinary assessment is recommended.
- Atherosclerotic UEAD is most frequently located in the subclavian artery and may be suspected because of an absolute inter-arm SBP difference >10 - 15 mmHg. DUS is first-line imaging and routine revascularization is not recommended.
- The key to early diagnosis of acute and chronic mesenteric ischaemia is a high level of clinical suspicion—laboratory tests are unreliable for the diagnosis. Acute SMA occlusion requires immediate revascularization.

Aorta

- Aortic aneurysms are managed based on size, location, and growth rate. Small aneurysms are monitored regularly (Guidelines provide disease-specific follow-up algorithms), while larger ones may require surgical/endovascular repair to prevent rupture.
- In aortic root aneurysms, aortic replacement may be considered at >52 mm in low-risk patients and at experienced centres.
- Aortic diameter is the primary risk factor for aortic events. However, evidence supports diameter indexation (especially in extreme BSA populations) and the use of aortic length (>11 cm), the AHI (>32.1 mm/m), growth rate (≥ 3 mm per year for ascending aorta and arch or >5 mm per 6 months in the thoracoabdominal aorta), and age/sex for risk assessment.
- Multidisciplinary collaboration, hybrid operating rooms, and advanced stent technology have increased the adoption of hybrid approaches and endovascular therapies for different thoracoabdominal aortic diseases.
- Acute aortic syndrome management involves medical treatment in critical care units and selective surgical intervention based on location and complications. The main problem in these conditions continues to be a delay in diagnosing patients or transferring them to an aortic centre. Improved diagnostic algorithms and reduced surgical complications have lowered mortality rates. Surgical/endovascular treatment in the subacute phase is advised for high-risk patients with type B aortic syndrome.
- Suspected genetic aortic conditions require evaluation at experienced centres to assess both the patient and their FDRs for genetic studies. Genetic aortic conditions should be considered based on family history, syndromic features, age <60 years, and no CVRFs (Guidelines offer a screening algorithm for thoracic aorta disease). A comprehensive evaluation of the entire aorta and other vascular territories is recommended in HTAD. Recent advances in genetics are enabling personalized and patient-centred assessment. This includes using different aortic diameter thresholds to indicate surgery and implementing diverse surveillance algorithms.

Gaps in evidence

There are several areas where robust evidence is still lacking and which deserve to be addressed in future clinical research.

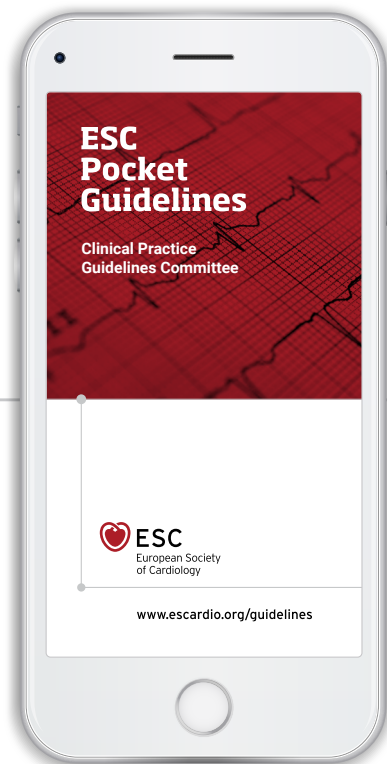
1. Epidemiology and risk factors in PAAD:
 - i. Improve PAAD risk definition.
 - ii. Provide contemporary data on PAAD prevalence in Europe.
 - iii. Inflammation biomarkers, metabolomics, and proteomics may have prognostic value in PAAD.
2. Evaluation of peripheral arteries and aorta:
 - i. Follow-up algorithms can assist PAAD patient management but have limitations and evidence on cost-effectiveness is needed.
 - ii. The best methodology for aortic measurements remains to be elucidated.
3. Screening for carotid, peripheral arterial, and aortic diseases:
 - i. Screening in specific populations: research is needed to understand the nuances of screening in particular populations and whether modifications to current guidelines are necessary.
 - ii. Patient outcomes and benefits of screening: impact of screening on patient outcome should be assessed.
4. OMT and PAAD:
 - i. Research needed on QoL and workability.
 - ii. Research needed for optimal preventive strategies.
 - iii. Exercise therapy and rehabilitation for PAAD should be more accessible and employed.
 - iv. Anti-inflammatory therapy should be investigated.
 - v. Antithrombotic therapies in specific risk groups of PAAD and patients undergoing revascularization should be addressed.

Gaps in evidence

5. Aortic aneurysms:
 - i. Discovering novel individualized risk stratification parameters beyond well-established markers.
 - ii. Assessing the safety of fluoroquinolone use in patients with aortic aneurysm.
6. Acute aortic syndromes:
 - i. Assess the management of pregnancy-related AAS.
 - ii. Identify diagnostic biomarkers other than D-dimer.
 - iii. Management in uncomplicated TBAD and IMH should be assessed.
7. Genetic aortic diseases:
 - i. Need to refine risk estimation in AD, particularly in HTAD, especially the risk of type B aortic dissection.
 - ii. There is insufficient evidence to support the efficacy of any medication in reducing the risk of AD.
8. Sex differences in PAAD:
 - i. Investigate sex and age differences.
 - ii. Assess the optimal parameter or indexed parameter to guide intervention decisions in women with aortic and PAD diseases.

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The following material was adapted from the 2024 ESC Guidelines for the management of peripheral arterial and aortic diseases (European Heart Journal; 2024 - doi: 10.1093/eurheartj/ehae179) as published on 30 August 2024.

Post-publication corrections and updates are available at: www.escardio.org/guidelines

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