

2024

Essential Messages from ESC Guidelines

Clinical Practice
Guidelines Committee

Guidelines for the management of
Chronic Coronary Syndromes



ESC

European Society
of Cardiology

Essential Messages

2024 ESC Guidelines for the management of chronic coronary syndromes

Developed by the task force for the management of chronic coronary syndromes of the European Society of Cardiology (ESC).

Endorsed by the European Association for Cardio-Thoracic Surgery (EACTS).

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Councils: Council for Cardiology Practice.

Working Groups: Cardiovascular Pharmacotherapy, Cardiovascular Surgery, Coronary Pathophysiology and Microcirculation, Thrombosis.

Patient Forum

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ESSENTIAL MESSAGES FROM THE 2024 ESC GUIDELINES FOR THE MANAGEMENT OF CHRONIC CORONARY SYNDROMES

Table of contents

- **Section 1 - Key messages**
- Section 2 - Gaps in evidence

Key messages

- Symptoms of myocardial ischaemia due to obstructive atherosclerotic CAD overlap with those of CMD or vasospasm.
- Similar guideline-directed cardiovascular preventive therapy is recommended in women and men in spite of the sex differences in the clinical presentation.
- Inclusion of risk factors to classic pre-test likelihood models of obstructive atherosclerotic CAD improves the identification of patients with very low ($\leq 5\%$) pre-test likelihood of obstructive CAD in whom deferral of diagnostic testing should be considered.
- CACS is a reliable 'simple' test to modify the pre-test likelihood of atherosclerotic obstructive CAD.
- First-line diagnostic testing of suspected CCS should be done by noninvasive anatomic or functional imaging.
- Selection of the initial non-invasive diagnostic test should be based on the pre-test likelihood of obstructive CAD, other patient characteristics that influence the performance of non-invasive tests, and local expertise and availability.
- CCTA is preferred to rule out obstructive CAD and detect nonobstructive CAD.
- Functional imaging is preferred to correlate symptoms to myocardial ischaemia, estimate myocardial viability, and guide decisions on coronary revascularization.
- PET is preferred for absolute MBF measurements, but CMR perfusion studies may offer an alternative.
- Selective second-line cardiac imaging with functional testing in patients with abnormal CCTA and CCTA after abnormal functional testing may improve patient selection for ICA.
- ICA is recommended to diagnose obstructive CAD in individuals with a very high pre- or post-test likelihood of disease, severe symptoms refractory to GDMT, angina at a low level of exercise, and/or high event risk.
- When ICA is indicated, it is recommended to evaluate the functional severity of 'intermediate' stenoses by invasive functional testing (FFR, iFR) before revascularization.
- Computed FFR based on the 3D reconstruction of ICA is emerging as a valuable alternative to wire-based coronary pressure to evaluate the functional severity of 'intermediate' stenoses.

Key messages

- The use of imaging guidance is now recommended when performing complex PCI.
- A single antiplatelet agent, aspirin or clopidogrel, is generally recommended long term in CCS patients with obstructive atherosclerotic CAD.
- For high thrombotic-risk CCS patients, long-term therapy with two antithrombotic agents is reasonable, as long as bleeding risk is not high.
- For CCS patients with sinus rhythm, DAPT is recommended at the time of PCI and for 1 to 6 month(s), according to high or low bleeding risk, respectively.
- For CCS patients requiring OAC and undergoing PCI, OAC and DAPT (aspirin and clopidogrel) for 1 to 4 weeks, followed by OAC and clopidogrel for up to 6 months in patients not at high ischaemic risk and up to 12 months in patients at high ischaemic risk, followed by OAC alone should be considered.
- In CCS patients with functionally significant multivessel CAD, current evidence indicates benefit of myocardial revascularization over GDMT alone for symptom improvement, prevention of spontaneous MI, and reduction of cardiovascular mortality at long follow-up.
- Among CCS patients with normal LV function and no significant left main or proximal LAD lesions, current evidence indicates that myocardial revascularization over GDMT alone does not prolong overall survival.
- Among CCS patients with reduced LV function and ischaemic cardiomyopathy, current evidence indicates that surgical revascularization compared with GDMT alone prolongs overall survival at very long follow-up.
- Among patients with complex multivessel CAD without LMCAD, particularly in the presence of diabetes, who are clinically and anatomically suitable for both revascularization modalities, current evidence indicates longer overall survival after CABG than PCI.
- Among patients who are clinically and anatomically suitable for both revascularization modalities, a greater need for repeat revascularization after PCI than surgery, independently of multivessel CAD anatomical severity, has been consistently reported with current surgical and stent technology.
- Lifestyle and risk-factor modification combined with disease modifying and antianginal medications are cornerstones in the management of CCS.

Key messages

- Shared decision-making between patients and healthcare professionals, based on patient-centred care, is paramount in defining the appropriate therapeutic pathway for CCS patients. Patient education is key to improve risk-factor control in the long term.
- The relatively high prevalence of ANOCA/INOCA and its associated MACE rate warrants improvement in the diagnosis and treatment of affected patients.
- Persistently symptomatic patients with suspected ANOCA/INOCA who do not respond to GDMT should undergo invasive coronary functional testing to determine underlying endotypes.
- Characterization of endotypes is important to guide appropriate medical therapy for ANOCA/INOCA patients.
- Research on effective methods to support specific healthy lifestyle behaviours, and sustain medication and healthy lifestyle adherence over time, is needed.
- More research is needed on improving the implementation of health-promoting policies and practices in the workplace setting.

Gaps in evidence

- It remains unclear if screening for subclinical obstructive CAD in the general population is useful. Further large-scale studies are needed to investigate the prognostic benefit of screening and treating asymptomatic CCS in the general population, preferably involving different geographical regions. Optimal screening options remain to be determined for specific groups at high risk (e.g. asymptomatic individuals with diagnosed diabetes for longer than 10 years).
- Most studies assessing diagnostic strategies in individuals with symptoms suspected of CCS were performed in populations with a moderate (>15%-50%) pre-test clinical likelihood of obstructive CAD. Further studies are needed to determine the optimal and most cost-effective diagnostic strategy in individuals with a low (>5%-15%) pretest clinical likelihood of obstructive CAD.
- The current diagnosis of ANOCA/INOCA and its different endotypes is mainly determined by invasive coronary functional testing. Further research is needed to refine and assess non-invasive diagnostic imaging modalities for CMD. Currently available and new non-invasive imaging modalities should be calibrated against invasive testing, allowing the use of their measurements interchangeably.
- The role of antithrombotic therapy in CCS patients with ANOCA/INOCA remains to be established.
- Because of how evidence has accrued over time, there is no clear evidence about the existence of first- and second-line antianginal therapy. It is unclear whether long-acting nitrates, ranolazine, nicorandil, ivabradine, trimetazidine, or any of their combinations improve anginal symptoms more than beta-blockers or CCBs.
- The optimal type and duration of DAPT is still uncertain in some subsets of patients (e.g. patients with prior revascularization who might benefit from shorter or longer DAPT strategies).
- The long-term benefit of beta-blocker therapy in post-MI patients without reduced EF remains to be elucidated.
- In view of the reported positive impact of low-dose colchicine in patients with CCS in reducing MI, stroke, and revascularization, future studies should identify whether certain patient subgroups (e.g. those with elevated biomarker levels) might derive even greater clinical benefit from this treatment.

Gaps in evidence

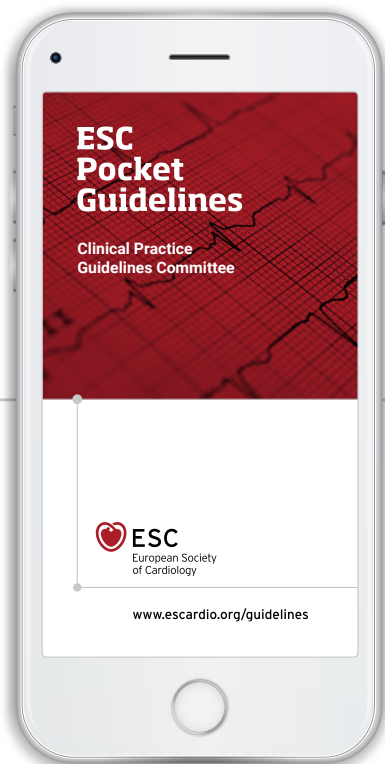
- A post hoc analysis of ISCHEMIA detected a graded association between the severity of obstructive CAD assessed by CCTA and all-cause mortality and acute MI during follow-up. There is a need for randomized data comparing contemporary medical treatment against early revascularization plus medical therapy in subsets of patients with an increased risk for death or MI as determined by the post hoc analysis. Moreover, because the benefit of an invasive strategy with respect to cardiac mortality was shown in a meta-analysis of chronologically heterogeneous trials, including several conducted more than two decades ago, the impact of early revascularization plus GDMT vs. contemporary GDMT on all-cause and cardiac mortality in patients with CCS should ideally be tested in a well-designed, adequately powered randomized trial.
- Some meta-analyses have reported a reduction in cardiac mortality without a reduction in all-cause mortality. There is a need to clarify the impact of revascularization in CCS patients on cardiovascular and non-cardiovascular mortality.
- Complete revascularization of multivessel CAD by PCI can be achieved as a single procedure (index PCI) or as staged PCI. In the setting of CCS, the value of staged PCI and the optimal interval between interventions needs to be evaluated.
- Whether CABG surgery and PCI are comparable among patients with ischaemic cardiomyopathy and HFrEF in the modern era of HF treatment needs to be evaluated.
- Various imaging techniques, such as low-dose DSE, CMR, and PET/CT, can identify hibernating myocardium with the potential for functional recovery after revascularization. Further randomized trials with contemporary, well-defined modalities and strict adherence to protocol are needed to clarify the clinical benefits (if any) of viability testing.
- Residual ischaemia post-PCI, as determined by FFR/iFR, reflects remaining atherosclerotic lesions and/or suboptimal PCI results, but also persistent or worsening microvascular dysfunction. Whether post-PCI FFR/iFR is a 'modifiable' risk factor remains to be proved.
- Among patients suitable for off-pump CABG with complex multivessel CAD but no LMCAD, the impact of hybrid revascularization on outcomes, including peri-operative complications other than MACE, needs more extensive investigation. Data on the optimal time interval between MIDCAB-LIMA and PCI are lacking.

Gaps in evidence

- Whether the decision process based on a multidisciplinary Heart Team leads to better outcomes than standard institutional practice remains to be investigated.
- The medical therapy of ANOCA/INOCA is largely empirical. Therefore, prospective randomized clinical trials are needed to determine the efficacy of antianginal treatments in improving symptoms and outcomes for the different endotypes.
- Research on effective methods to support healthy lifestyle behaviours, and sustain medication and healthy lifestyle adherence over time, is needed. In addition, more research is needed on improving the implementation of health-promoting policies and practices in the workplace setting.
- There is a need for further evidence on the effectiveness of neuromodulation, spinal cord stimulation, therapeutic angiogenesis, and coronary sinus occlusion in patients who suffer from refractory angina, despite guideline-directed medical treatment and revascularization.

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The following material was adapted from the 2024 ESC Guidelines for the management of chronic coronary syndromes (European Heart Journal; 2024 - doi: 10.1093/eurheartj/ehae177) as published on 30 August 2024.

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