

Acute Coronary Syndrome – Part 2

According to 2023 ESC guidelines

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Figure 15

Underlying causes for patients with a working diagnosis of myocardial infarction with non-obstructive coronary arteries

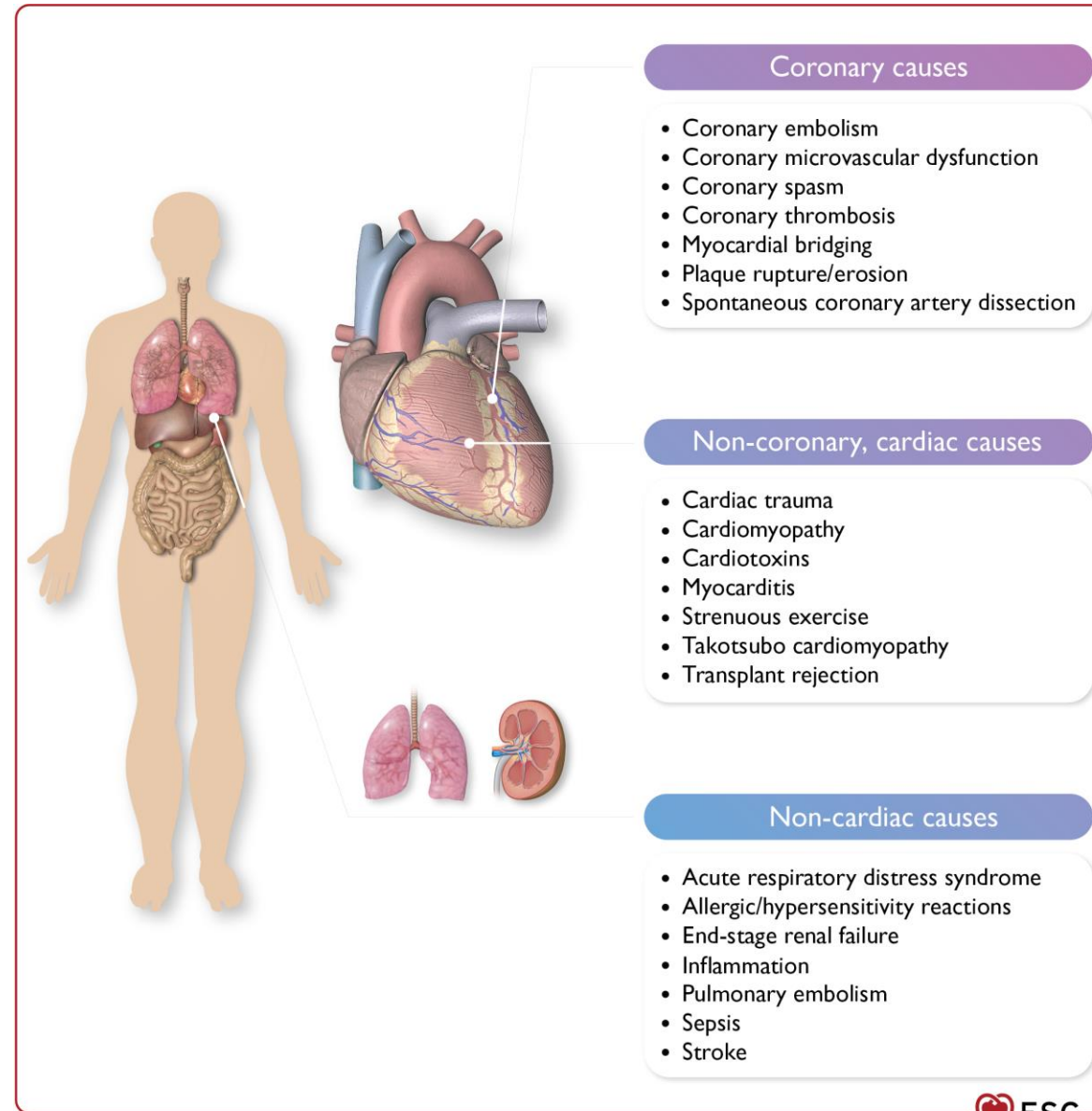


Figure 16

Evaluation of patients with a working diagnosis of MINOCA

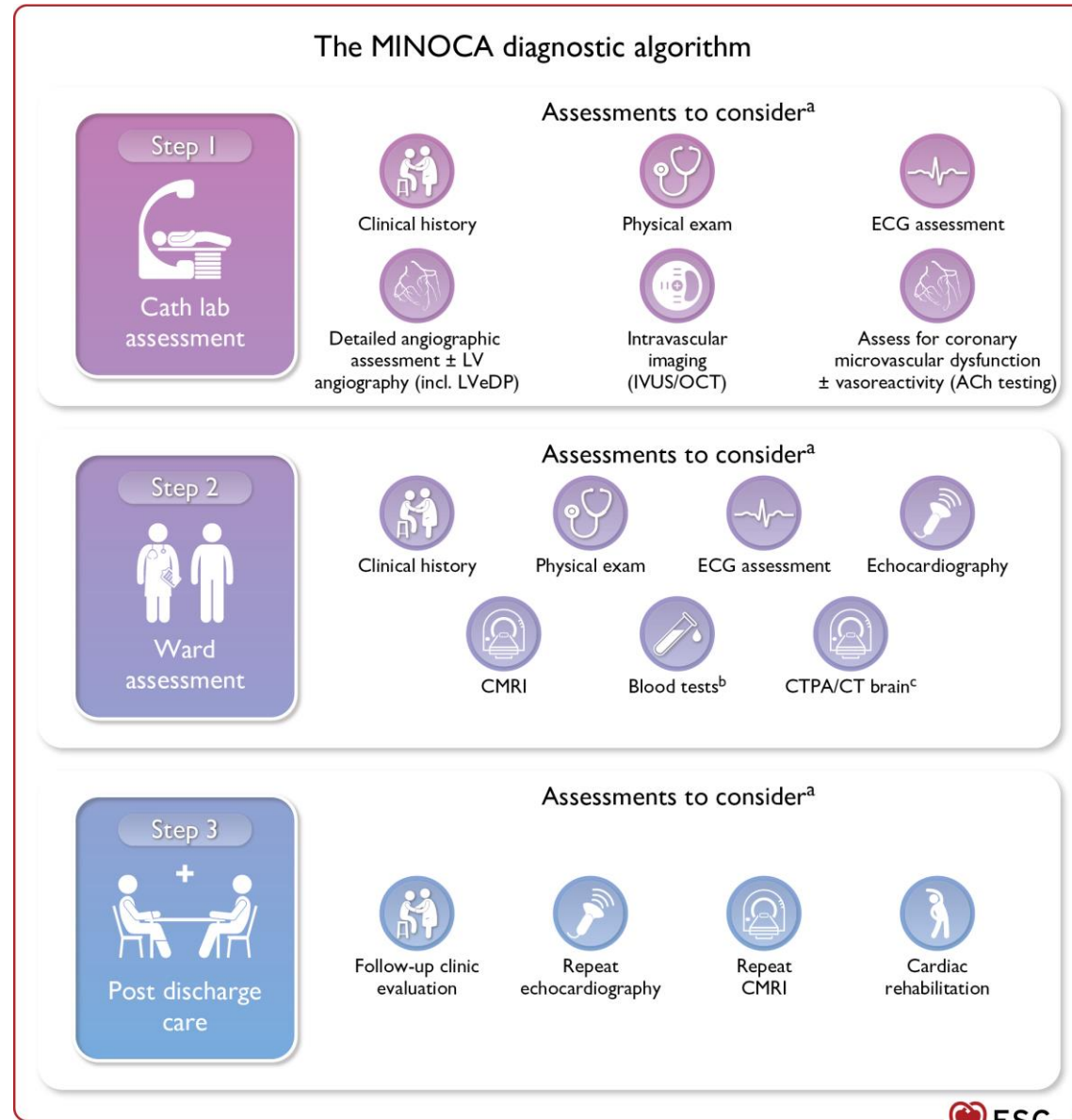


Figure 17

Long-term management after acute coronary syndrome

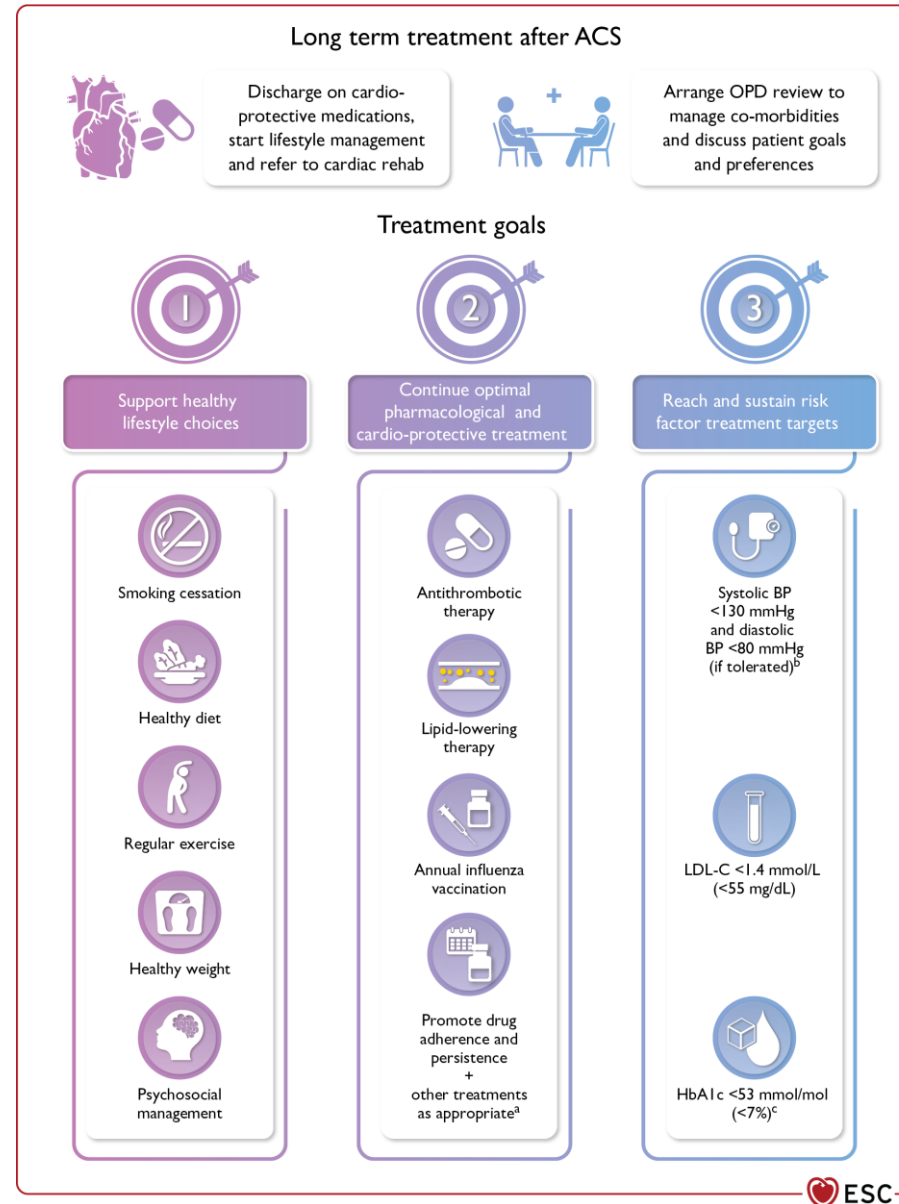
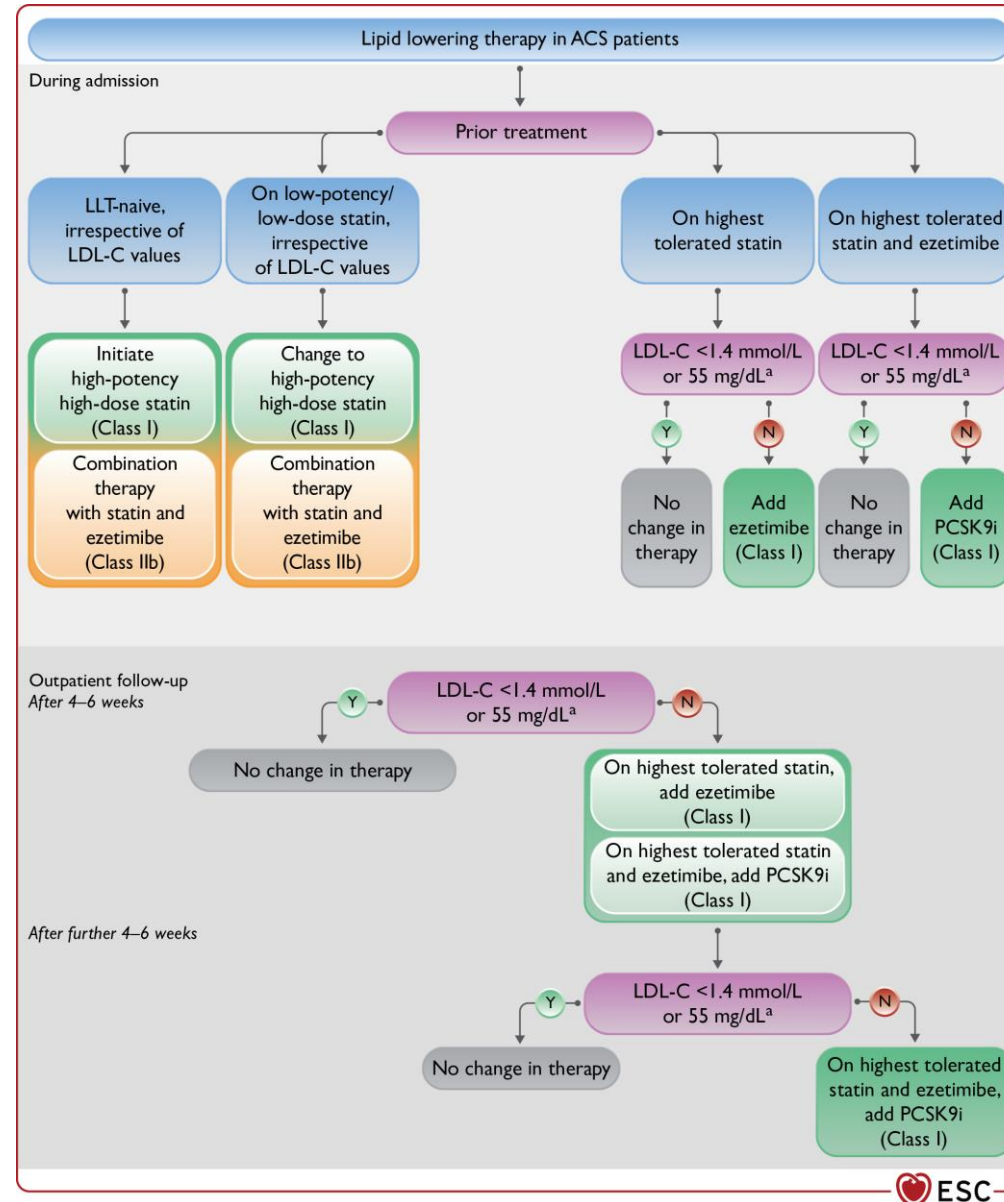


Figure 18

Lipid-lowering therapy in ACS patients



Recommendations for long-term management (1)

Recommendations	Class	Level
<i>Cardiac rehabilitation</i>		
It is recommended that all ACS patients participate in a medically supervised, structured, comprehensive, multidisciplinary exercise-based cardiac rehabilitation and prevention programme.	I	A
<i>Lifestyle management</i>		
It is recommended that ACS patients adopt a healthy lifestyle, including: <ul style="list-style-type: none">• stopping all smoking of tobacco• healthy diet (Mediterranean style)• alcohol restriction• regular aerobic physical activity and resistance exercise• reduced sedentary time	I	B
In smokers, offering follow-up support, nicotine replacement therapy, varenicline or bupropion, individually or in combination, should be considered.	IIa	A

Recommendations for long-term management (2)

Recommendations	Class	Level
<i>Pharmacological treatment</i>		
<i>Lipid-lowering therapy</i>		
It is recommended that high-dose statin therapy is initiated or continued as early as possible, regardless of initial LDL-C values.	I	A
It is recommended to aim to achieve an LDL-C level of <1.4 mmol/L (<55 mg/dL) and to reduce LDL-C by $\geq 50\%$ from baseline.	I	A
If the LDL-C goal is not achieved despite maximally tolerated statin therapy after 4–6 weeks, the addition of ezetimibe is recommended.	I	B
If the LDL-C goal is not achieved despite maximally tolerated statin therapy and ezetimibe after 4–6 weeks, the addition of a PCSK9 inhibitor is recommended.	I	A
It is recommended to intensify lipid-lowering therapy during the index ACS hospitalization for patients who were on lipid-lowering therapy before admission.	I	C

Recommendations for long-term management (3)

Recommendations	Class	Level
<i>Pharmacological treatment</i>		
<i>Lipid-lowering therapy (continued)</i>		
For patients with a recurrent atherothrombotic event (recurrence within 2 years of first ACS episode) while taking maximally tolerated statin-based therapy, an LDL-C goal of <1.0 mmol/L (<40 mg/dL) may be considered.	IIb	B
Combination therapy with high-dose statin plus ezetimibe may be considered during index hospitalization.	IIb	B
<i>Beta-blockers</i>		
Beta-blockers are recommended in ACS patients with LVEF ≤40% regardless of HF symptoms.	I	A
Routine beta-blockers for all ACS patients regardless of LVEF should be considered.	IIa	B

Recommendations for long-term management (4)

Recommendations	Class	Level
<i>Pharmacological treatment</i>		
<i>RAAS system inhibitors</i>		
Angiotensin-converting enzyme (ACE) inhibitors are recommended in ACS patients with HF symptoms, LVEF \leq 40%, diabetes, hypertension, and/or CKD.	I	A
Mineralocorticoid receptor antagonists are recommended in ACS patients with an LVEF \leq 40% and HF or diabetes.	I	A
Routine ACE inhibitors for all ACS patients regardless of LVEF should be considered.	IIa	A
<i>Adherence to medication</i>		
A polypill should be considered as an option to improve adherence and outcomes in secondary prevention after ACS.	IIa	B

Recommendations for long-term management (5)

Recommendations	Class	Level
Imaging		
In patients with pre-discharge LVEF $\leq 40\%$, repeat evaluation of the LVEF 6–12 weeks after an ACS (and after complete revascularization and the institution of optimal medical therapy) is recommended to assess the potential need for sudden cardiac death primary prevention ICD implantation.	I	C
Cardiac magnetic resonance imaging should be considered as an adjunctive imaging modality in order to assess the potential need for primary prevention ICD implantation.	IIa	C
Vaccination		
Influenza vaccination is recommended for all ACS patients.	I	A
Anti-inflammatory drugs		
Low-dose colchicine (0.5 mg once daily) may be considered, particularly if other risk factors are insufficiently controlled or if recurrent cardiovascular disease events occur under optimal therapy.	IIb	A

Figure 19

A person-centred approach to the ACS journey

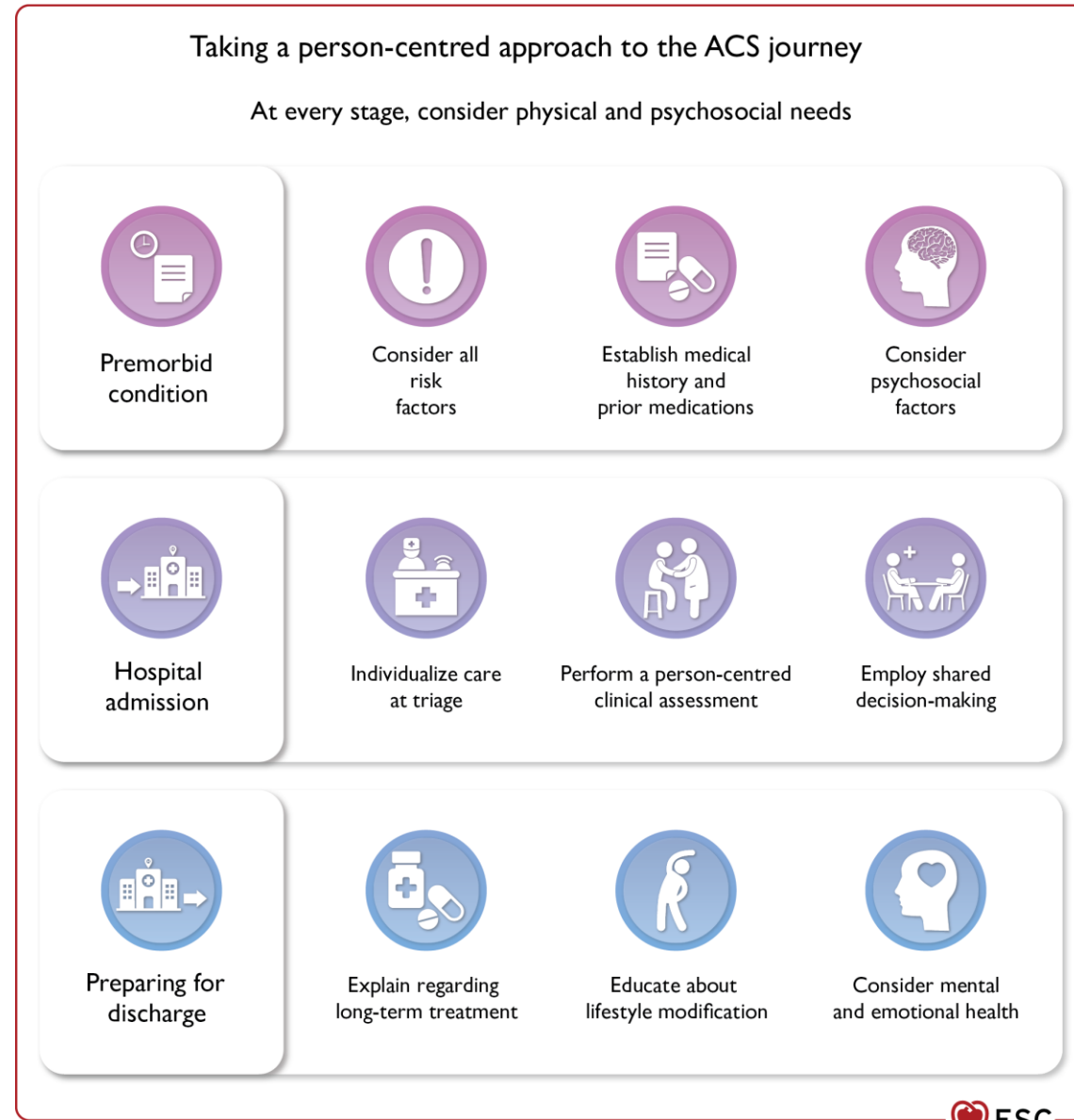


Figure 20

Acute coronary syndrome patient expectations

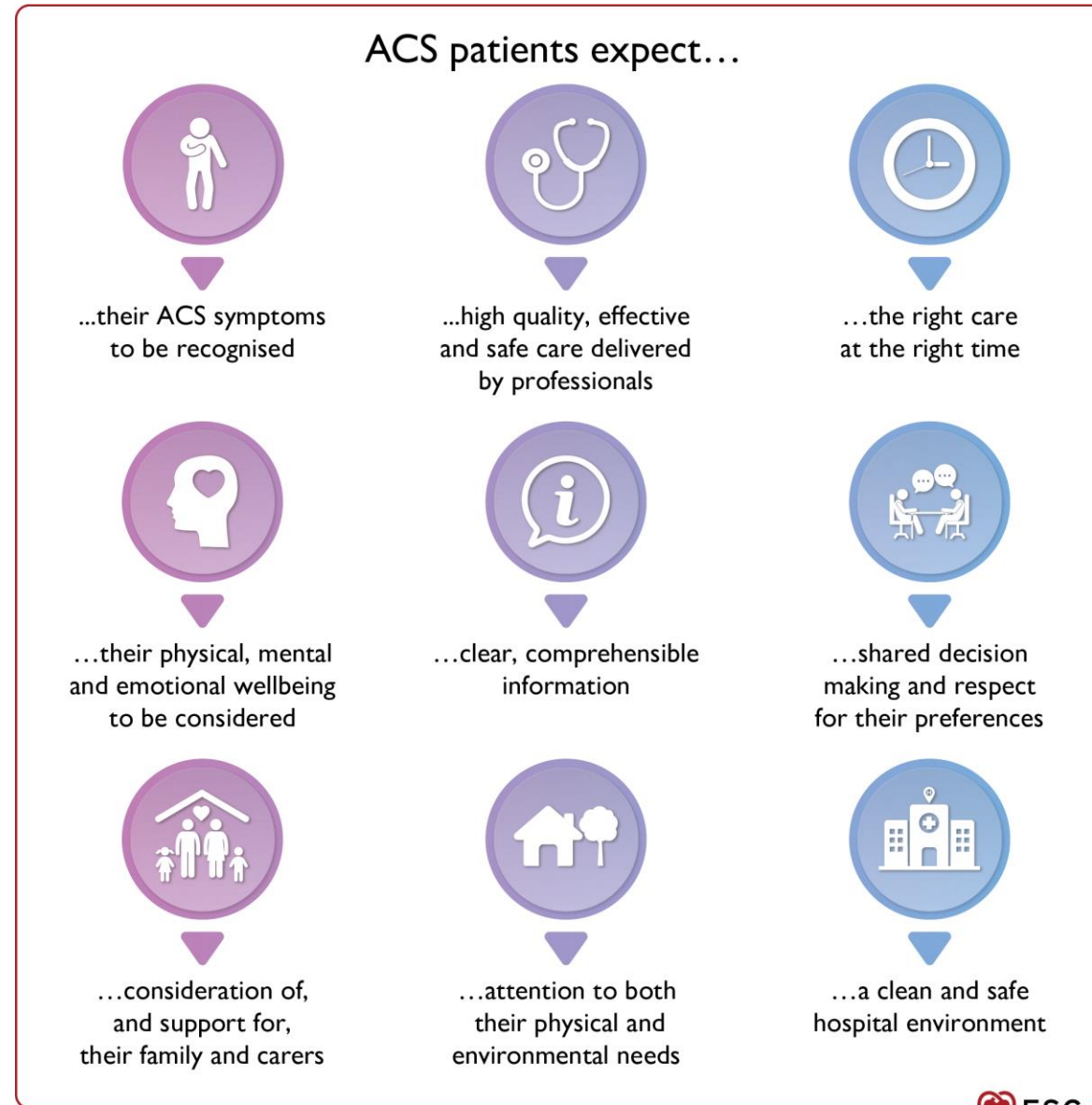


Figure S1

Symptoms at presentation in acute coronary syndrome in women and men

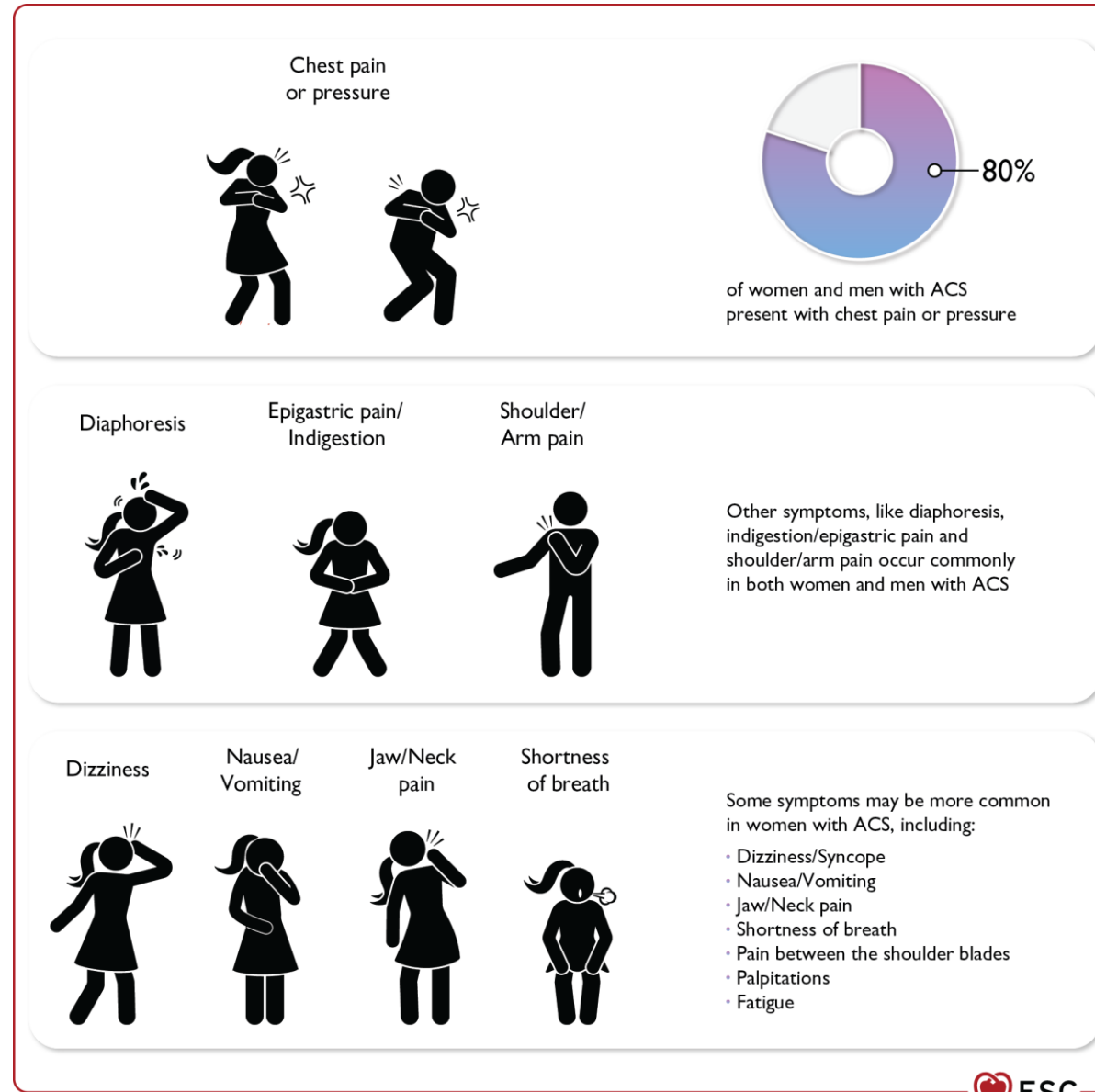


Figure S2

Electrocardiographic abnormalities in patients with STEMI and ECG findings that, if present, may prompt triage for immediate reperfusion therapy

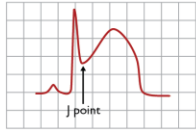
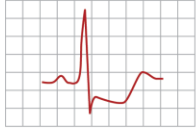
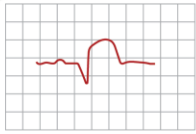
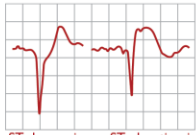
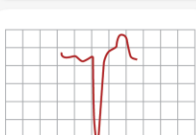
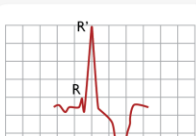
ECG pattern	Criteria	Signifying	Figure
i STEMI	New ST-elevation at the J-point in ≥ 2 contiguous leads ^a ≥ 2.5 mm in men <40 years, ≥ 2 mm in men ≥ 40 years, or ≥ 1.5 mm in women regardless of age in leads V2–V3 and/or ≥ 1 mm in the other leads (in the absence of LV hypertrophy or left bundle branch block) ^a Including V3R and V4R	Ongoing acute coronary artery occlusion	
ii Posterior STEMI	ST-segment depression in leads V1–V3, especially when the terminal T-wave is positive (ST-segment elevation equivalent), and concomitant ST-segment elevation ≥ 0.5 mm recorded in leads V7–V9	Posterior STEMI	
iii LCx occlusion/ right ventricular MI	ST-segment elevation in V7–V9 and V3R and V4R, respectively	Left circumflex (LCX) artery occlusion or right ventricular MI	
iv Multivessel ischaemia/ left main obstruction	ST depression ≥ 1 mm in six or more surface leads (inferolateral ST depression), coupled with ST-segment elevation in aVR and/or V1	Multivessel ischaemia or left main coronary artery obstruction, particularly if the patient presents with haemodynamic compromise	
v Left bundle branch block/ paced rhythm	QRS duration greater than 120 ms Absence of Q wave in leads I, V5 and V6 Monomorphic R wave in I, V5 and V6 ST and T wave displacement opposite to the major deflection of the QRS complex	Patients with a high clinical suspicion of ongoing myocardial ischaemia should be managed in a similar way to STEMI patients	
vi Right bundle branch block	QRS duration greater than 120 ms rsR' "bunny ear" pattern in the anterior precordial leads (leads V1–V3) Slurred S waves in leads I, aVL and frequently V5 and V6	Patients with a high clinical suspicion of ongoing myocardial ischaemia should be managed in a similar way to STEMI patients	

Figure S3

Electrocardiographic abnormalities in patients with non-ST-segment elevation acute coronary syndrome




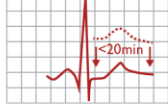

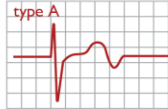
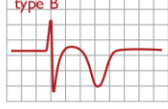
ECG pattern	Criteria	Signifying	Figure
a Isolated T-wave inversion	T-wave inversion >1 mm in ≥ 5 leads including I, II, aVL, and V2–V6	Only mildly impaired prognosis	 I, II, aVL, or V2 to V6
b ST-segment depression	J point depressed by ≥ 0.05 mm in leads V2 and V3 or ≥ 1 mm in all other leads followed by a horizontal or downsloping ST-segment for ≥ 0.08 s in ≥ 1 leads (except aVR)	More severe ischaemia	 ≥ 1 leads  ≥ 1 leads
c Transient ST-segment elevation	ST segment elevation in ≥ 2 contiguous leads of ≥ 2.5 mm in men <40 years, ≥ 2 mm in men ≥ 40 years, or ≥ 1.5 mm in women regardless of age in leads V2–V3 and/or ≥ 1 mm in the other leads lasting <20 min	Only mildly impaired prognosis	 ≥ 2 contiguous leads
d De Winter ST-T	1–3 mm upsloping ST-segment depression at the J point in leads V1–V6 that continue into tall, positive, and symmetrical T waves	Proximal LAD occlusion/ severe stenosis	 V1–V6
e Wellens sign	Isoelectric or minimally elevated J point (<1 mm) + biphasic T wave in leads V2 and V3 (type A) or symmetric and deeply inverted T waves in leads V2 and V3, occasionally in leads V1, V4, V5, and V6 (type B)	Proximal LAD occlusion/ severe stenosis	 type A (V1-)V2-V3(-V4)  type B (V1-)V2-V3(-V4)

Figure S4

Antithrombotic strategies beyond the first 12 months after ACS

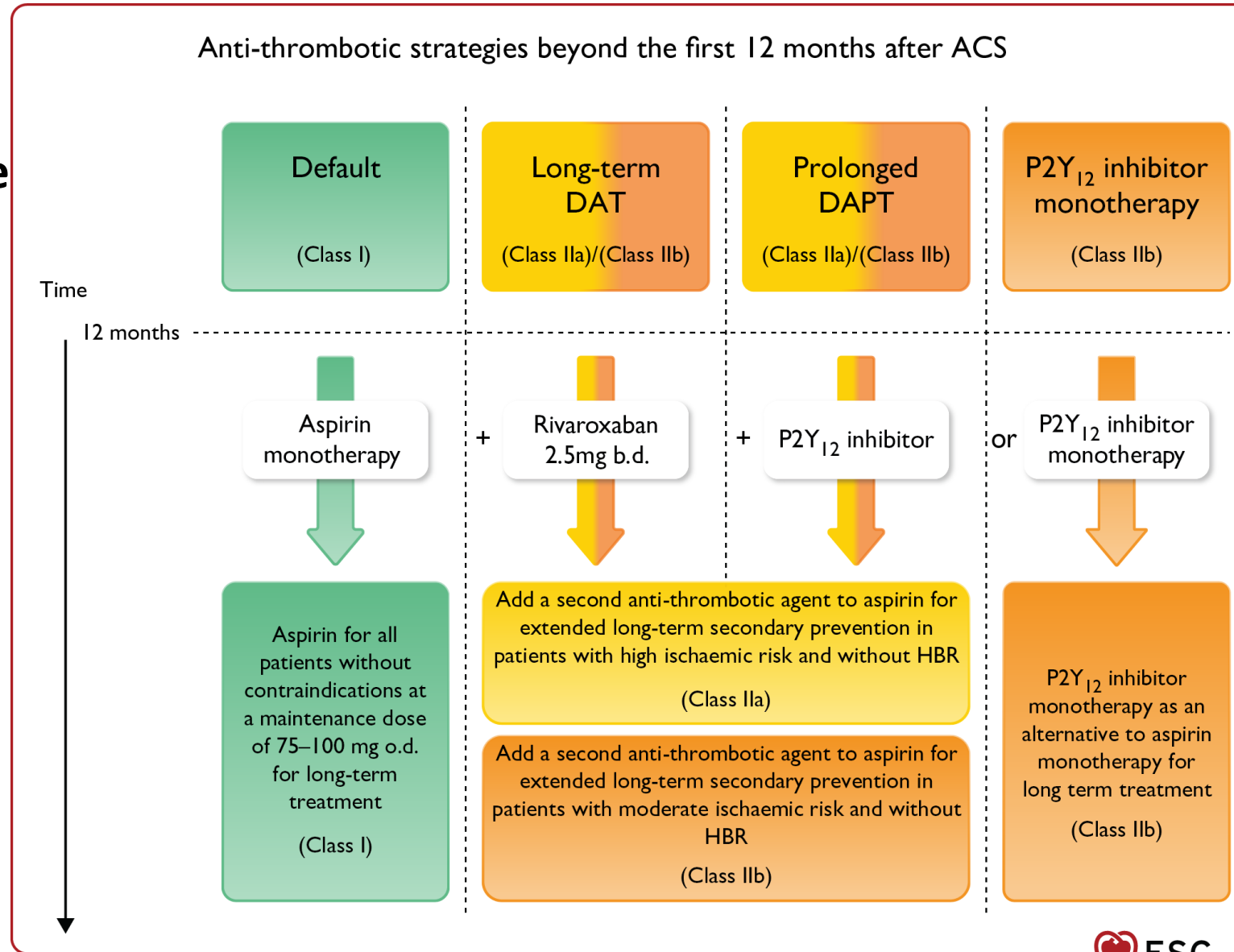


Figure S5

Information for patients on how to optimize their 'heart health' after an acute coronary syndrome

How can I improve my heart health after an acute coronary syndrome?









 <p>Don't smoke</p> <p>If you smoke, discuss with your doctor or nurse how they can support you to stop</p>	 <p>Eat healthily</p> <p>Try to eat a balanced Mediterranean-type diet, with lots of fruit and vegetables</p>	 <p>Avoid alcohol</p> <p>Not drinking alcohol is best. If you do drink, discuss with your doctor or nurse how to cut down</p>
 <p>Exercise regularly</p> <p>Try to exercise to the point of breathlessness, aiming for 150 min a week, spread over 5 days</p>	 <p>See your doctor</p> <p>Make sure to see your doctor regularly to get a check-up</p>	 <p>Take your medications</p> <p>Take the medications that your doctor has prescribed for you</p>
 <p>Get your flu vaccine</p> <p>Make sure to get your flu vaccine each year</p>	 <p>Know your numbers</p> <p>Know your BMI, LDL (bad) cholesterol and blood pressure. Discuss with your doctor/nurse how to reach your goals</p>	 <p>Manage your stress</p> <p>If you are feeling stressed, discuss with your doctor how you can try to manage this</p>

Figure S6

Informed consent process using the 'teach back' technique

