Acute coronary syndrome guidelines european

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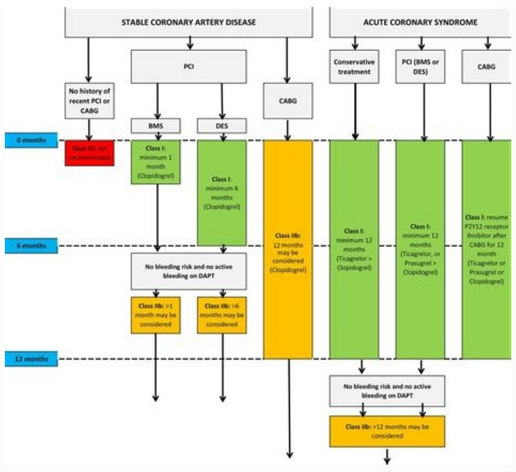
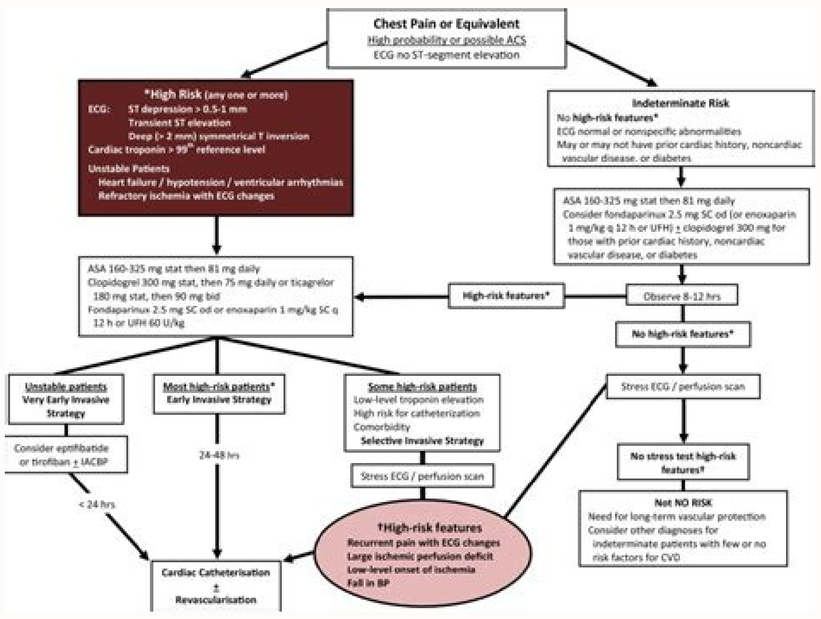
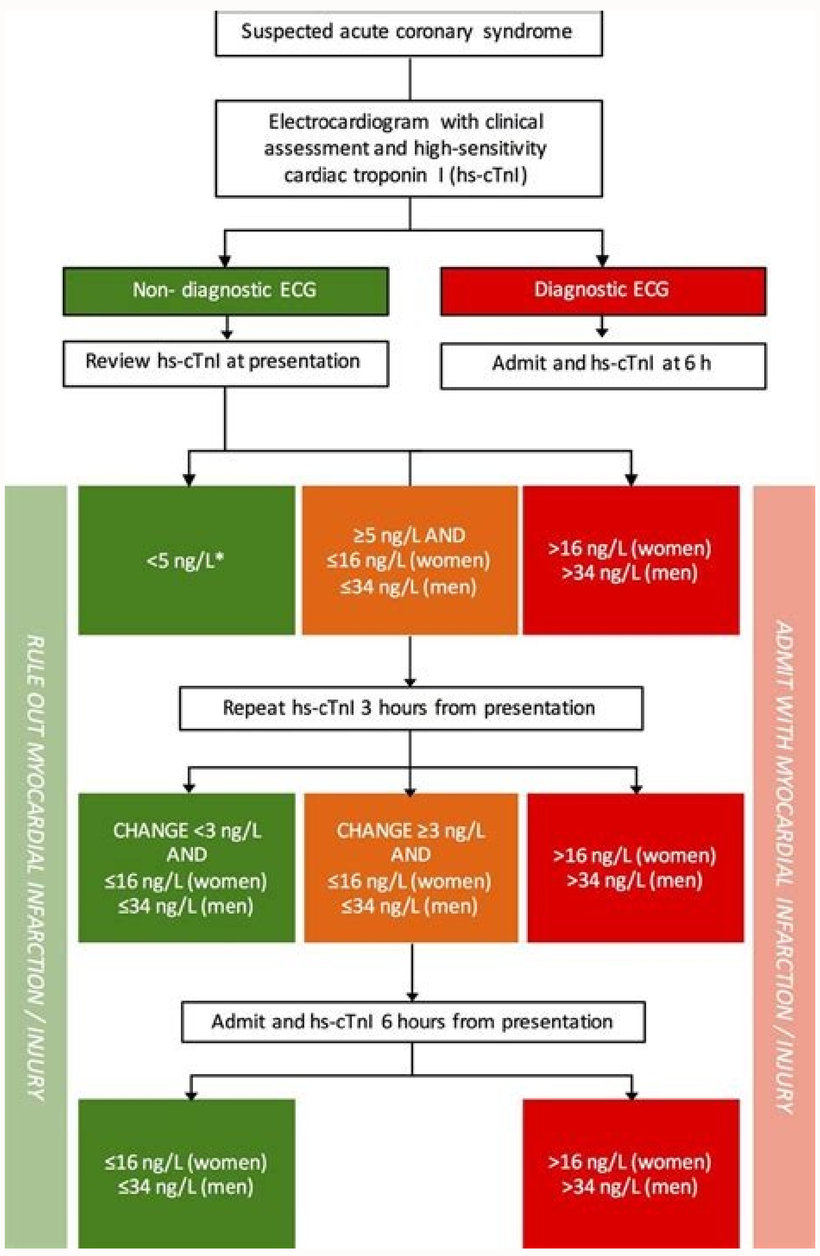
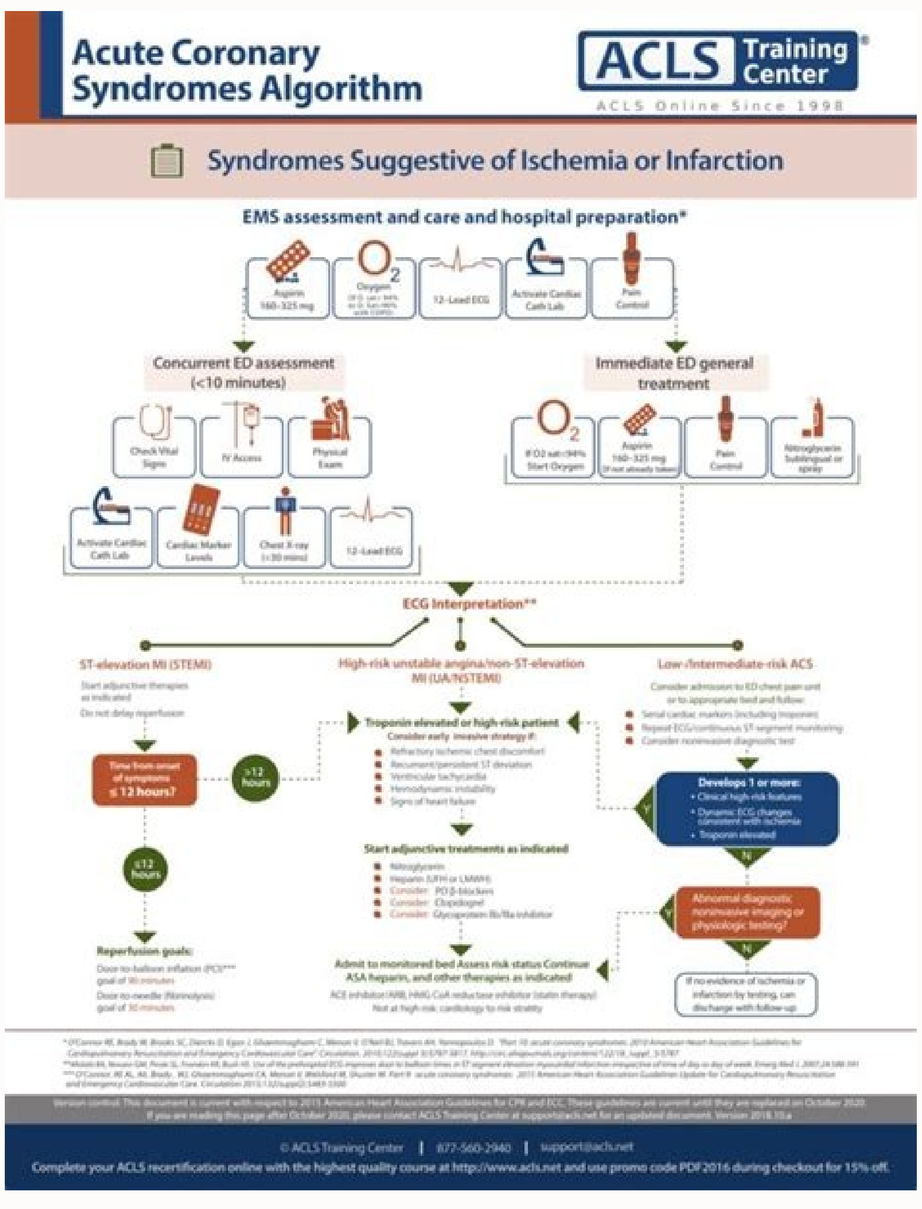

STABLE CORONARY ARTERY DISEASE
ACUTE CORONARY SYNDROME
PCI
No history of recent PCI or CABG
CABG
Conservative treatment
PCI (BMS or DES)
CABG
BMS
DES
0 months
Class IIb: not recommended
Class I: minimum 1 month (Clopidogrel)
Class I: minimum 6 months (Clopidogrel)
Class IIb: 12 months may be considered (Clopidogrel)
Class I: minimum 12 months (Ticagrelor > Clopidogrel)
Class I: minimum 12 months (Ticagrelor, or Prasugrel > Clopidogrel)
Class I: resume P2Y12 receptor inhibitor after CABG for 12 month (Ticagrelor or Prasugrel or Clopidogrel)
6 months
No bleeding risk and no active bleeding on DAPT
Class IIb: >1 month may be considered
Class IIb: >6 months may be considered
12 months
No bleeding risk and no active bleeding on DAPT
Class IIb: >12 months may be considered


Chest Pain or Equivalent
High probability or possible ACS
ECG no ST-segment elevation
*High Risk (any one or more)
ECG: ST depression > 0.5-1 mm
Transient ST elevation
Deep (> 2 mm) symmetrical T inversion
Cardiac troponin > 99th reference level
Unstable Patients
Heart failure / hypotension / ventricular arrhythmias
Refractory ischemia with ECG changes
Indeterminate Risk
No high-risk features*
ECG normal or nonspecific abnormalities
May or may not have prior cardiac history, noncardiac vascular disease, or diabetes
ASA 160-325 mg stat then 81 mg daily
Consider fondaparinux 2.5 mg SC od (or enoxaparin 1 mg/kg q 12 h or UFH) ± clopidogrel 300 mg for those with prior cardiac history, noncardiac vascular disease, or diabetes
ASA 160-325 mg stat then 81 mg daily
Clopidogrel 300 mg stat, then 75 mg daily or ticagrelor 180 mg stat, then 90 mg bid
Fondaparinux 2.5 mg SC od or enoxaparin 1 mg/kg SC q 12 h or UFH 60 U/kg
High-risk features*
Observe 8-12 hrs
No high-risk features*
Unstable patients Very Early Invasive Strategy
Most high-risk patients* Early Invasive Strategy
Some high-risk patients
Low-level troponin elevation
High risk for catheterization
Comorbidity
Selective Invasive Strategy
Stress ECG / perfusion scan
No stress test high-risk features†
Consider eptifibatide or tirofiban ± IACBP
24-48 hrs
< 24 hrs
†High-risk features
Recurrent pain with ECG changes
Large ischemic perfusion deficit
Low-level onset of ischemia
Fall in BP
Not NO RISK
Need for long-term vascular protection
Consider other diagnoses for indeterminate patients with few or no risk factors for CVD
Cardiac Catheterisation ± Revascularisation


Suspected acute coronary syndrome
Electrocardiogram with clinical assessment and high-sensitivity cardiac troponin I (hs-cTnI)
Non- diagnostic ECG
Diagnostic ECG
Review hs-cTnI at presentation
Admit and hs-cTnI at 6 h
<5 ng/L*
≥5 ng/L AND ≤16 ng/L (women) ≤34 ng/L (men)
>16 ng/L (women) >34 ng/L (men)
RULE OUT MYOCARDIAL INFARCTION / INJURY
ADMIT WITH MYOCARDIAL INFARCTION / INJURY
Repeat hs-cTnI 3 hours from presentation
CHANGE <3 ng/L AND ≤16 ng/L (women) ≤34 ng/L (men)
CHANGE ≥3 ng/L AND ≤16 ng/L (women) ≤34 ng/L (men)
>16 ng/L (women) >34 ng/L (men)
Admit and hs-cTnI 6 hours from presentation
≤16 ng/L (women) ≤34 ng/L (men)
>16 ng/L (women) >34 ng/L (men)


Acute Coronary Syndromes Algorithm
ACLS Training Center
ACLS Online Since 1998
Syndromes Suggestive of Ischemia or Infarction
EMS assessment and care and hospital preparation*
Aspirin 160-325 mg
Oxygen
12-Lead ECG
Activate Cardiac Cath Lab
Pain Control
Concurrent ED assessment (<10 minutes)
Immediate ED general treatment
Check Vital Signs
IV Access
Physical Exam
Activate Cardiac Cath Lab
Cardiac Marker Levels
Chest X-ray (≤30 mins)
12-Lead ECG
If O2 sat ≤94% Start Oxygen
Aspirin 160-325 mg (if not already taken)
Pain Control
Nitroglycerin Sublingual or spray
ECG Interpretation**
ST-elevation MI (STEMI)
Start adjunctive therapies as indicated
Do not delay reperfusion
Time from onset of symptoms ≤ 12 hours?
>12 hours
≤12 hours
Reperfusion goals:
Door-to-balloon inflation (PCI)*** goal of 90 minutes
Door-to-needle (fibrinolysis) goal of 30 minutes
High-risk unstable angina/non-ST-elevation MI (UA/NSTEMI)
Troponin elevated or high-risk patient
Consider early invasive strategy if:
Refractory ischemic chest discomfort
Recurrent/persistent ST deviation
Ventricular tachycardia
Hemodynamic instability
Signs of heart failure
Start adjunctive treatments as indicated
Nitroglycerin
Heparin (UFH or LMWH)
Consider: PO β-blockers
Consider: Clopidogrel
Consider: Glycoprotein IIb/IIIa inhibitor
Admit to monitored bed Assess risk status Continue ASA heparin, and other therapies as indicated
ACE inhibitor/ARB, HMG CoA reductase inhibitor (statin therapy)
Not at high risk: cardiology to risk stratify
Low-/Intermediate-risk ACS
Consider admission to ED chest pain unit or to appropriate bed and follow:
Serial cardiac markers (including troponin)
Repeat ECG/continuous ST-segment monitoring
Consider noninvasive diagnostic test
Develops 1 or more:
• Clinical high-risk features
• Dynamic ECG changes consistent with ischemia
• Troponin elevated
Y
N
Abnormal diagnostic noninvasive imaging or physiologic testing?
Y
N
If no evidence of ischemia or infarction by testing, can discharge with follow-up
* O'Connor RE, Brady W, Brooks SC, Diercks D, Egan J, Ghaemmaghami C, Menon V, O'Neil BJ, Travers AH, Yannopoulos D. "Part 10: acute coronary syndromes: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care" Circulation. 2010;122(suppl 3):S787-S817. http://circ.ahajournals.org/content/122/18_suppl_3/S787
** Nikolaou NI, Arntzen GM, Prout SL, Fromlen KR, Bush HS. Use of the prehospital ECG improves door-to-balloon times in ST segment elevation myocardial infarction irrespective of time of day or day of week. Emerg Med J. 2007;24:588-591
*** O'Connor RE Al, Al, Brady WJ, Ghaemmaghami CA, Menon V, Welsford M, Shuster M. Part 9: acute coronary syndromes: 2015 American Heart Association Guidelines Update for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Circulation 2015;132(suppl2):S483-S500
Version control: This document is current with respect to 2015 American Heart Association Guidelines for CPR and ECC. These guidelines are current until they are replaced on October 2020. If you are reading this page after October 2020, please contact ACLS Training Center at support@acls.net for an updated document. Version 2018.10.a
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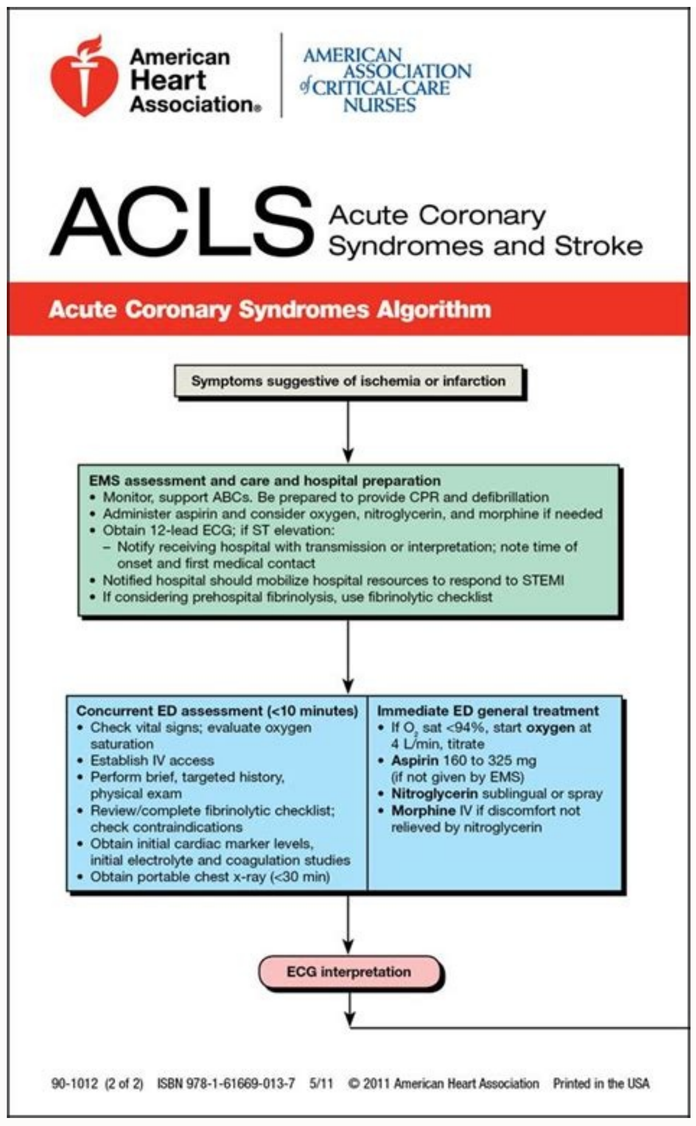

Acute coronary syndrome guidelines. Acute coronary syndrome european guidelines. What is an acute coronary syndrome.

Chest pain is a common presentation, and the diagnosis of acute coronary syndrome is frequently suspected. Acute coronary syndrome (ACS) encompasses a variety of diagnoses and can be subcategorised into: You might also be interested in our medical flashcard collection which contains over 2000 flashcards that cover key medical topics. Aetiology Two of the three diagnoses that exist under the umbrella of ACS are types of myocardial infarction (STEMI and NSTEMI). Definition of myocardial infarction (MI) The European Society of Cardiology's definition of MI is as follows... Detection of a rise and/or fall in cardiac biomarker values (preferably troponin) with at least one value above the 99th percentile (upper reference limit) with at least one of the following: Symptoms of ischaemia (the patient's history and clinical presentation and the history are vital to guide your interpretation of the tests you are about to perform) New or presumed new significant ST segment or T wave changes or new left bundle branch block (LBBB) Pathological Q wave changes on the ECG Imaging evidence of new loss of viable myocardium or new regional wall motion abnormality Identification of an intracoronary thrombus by angiography A 'new left bundle branch block' does not mean 'a left bundle branch block that has just been found because the patient has never had an ECG before'. Nor does it mean 'a left bundle branch block that is present now but was not present on an ECG in 2006'. A new LBBB due to ischaemia is the result of an occluded proximal left anterior descending (LAD) or left main stem artery. A large amount of myocardium and conductive tissue needs to be affected to cause this ECG appearance and these patients are usually acutely unwell. Development of Q waves on the ECG The Q wave reflects septal depolarisation. This is usually hidden behind the much more forceful and electrically active ventricular wall depolarisation. If the ventricular wall is dead, a 'window' is created that allows the septal depolarisation to show up on the surface ECG. Imaging evidence of new regional wall abnormality The sequence of changes and signs of ischaemia (the ischaemic cascade) on various tests is shown in Figure 1. Figure 1. Ischaemic cascade flowchart Troponin A troponin level is only a number. It is only relevant when applied in the context of other clinical findings. There are many causes of a raised troponin, including:1 Myocardial infarction Tachy/bradyarrhythmias Aortic dissection Severe aortic valve disease Hypertrophic cardiomyopathy Severe respiratory failure Severe anaemia Coronary spasm Heart failure Takotsubo cardiomyopathy Sepsis Renal failure Stroke Subarachnoid haemorrhage Classification of myocardial infarctions Type 1: spontaneous myocardial infarction This is your 'typical' myocardial infarction. Atherosclerosis originates from damage to the endothelium and a build-up of cholesterol. The inflammatory reaction to atherosclerosis by macrophages causes a plaque of foam cells, lipids, cellular debris and (eventually) calcium to build up with a fibrous cap on top. When this cap cracks, the exposed debris triggers thrombus formation in the confines of the affected coronary artery (which are only typically between 2 and 5mm in diameter), causing partial or total occlusion of the artery. Type 2: myocardial infarction secondary to ischaemia A type 2 myocardial infarction is a common event in hospitals where patients with stable coronary artery disease +/- previous coronary intervention (PCI or CABG) are unwell and put additional stress on their heart that would not normally be present. If there is a sufficient imbalance between the supply of blood (e.g. anaemia/hypovolaemia, coronary vasospasm) and demand for blood (e.g. sepsis/hypovolaemic shock, tachyarrhythmia) then the myocardium can become ischaemic without a plaque rupture event. Type 3 MI: post-mortem A type 3 myocardial infarction is diagnosed post-mortem. Type 4a MI: percutaneous coronary intervention This is related to percutaneous coronary intervention (i.e. caused by an angioplasty procedure blocking a side branch or damaging the main coronary artery causing ischaemia) Type 4b MI: stent thrombosis This is related to stent thrombosis. If patients stop anti-platelets early post-angioplasty or continue to smoke, stents can occlude (this usually results in a STEMI if complete sudden thrombosis or NSTEMI if gradual re-stenosis over time). Type 5 MI: bypass Type 5 myocardial infarction is related to a bypass graft (CABG) operation. Clinical features The clinical features of ACS are similar, regardless of the underlying diagnosis (e.g. NSTEMI, STEMI or unstable angina). Typical clinical presentations of ACS include:2 pain in the chest and/or other areas (for example, the arms, back or jaw) lasting longer than 15 minutes chest pain associated with nausea and vomiting, marked sweating and breathlessness chest pain associated with haemodynamic instability new-onset chest pain, or abrupt deterioration in previously stable angina, with recurrent chest pain occurring frequently and with little or no exertion, and with episodes often lasting longer than 15 minutes. For more information, see the Geeky Medics guide to a chest pain history. Management When ACS is suspected, initial management should be commenced as soon as possible:2 Resting 12-lead ECG Morphine Oxygen: only if low SpO2 Nitrates (e.g. glyceryl trinitrate) Aspirin (300 mg) and a second rapid-acting antiplatelet such as Ticagrelor or Prasugrel For more information, see the Geeky Medics guide to the emergency management of ACS. ST-elevation ACS ST-elevation myocardial infarction (STEMI) Patients with STEMI typically present with acute chest pain and persistent (>20 minutes) ST-segment elevation. ST elevation is a sign of complete occlusion of an epicardial coronary artery by thrombus causing immediate myocardial death relating to the territory affected: Anterior: V1-V4 Inferior: II, III, aVF High lateral: I, aVL Low lateral: V5, V6 Posterior: a dominant R wave in V1-3 with ST depression in V1-3 (the mirror image of an anterior MI) These patients are at elevated risk of ventricular arrhythmias and myocardial damage can be minimised by rapidly opening the artery. Management of STEMI3 The current gold standard treatment option is primary percutaneous intervention (PCI) to allow the vessel to be opened as quickly as possible (as 'time is muscle'). Studies have shown that it is beneficial to delay treatment for up to 90 minutes to allow transfer to a primary PCI centre rather than resorting to thrombolysis. There is a benefit associated with performing primary PCI up to 12 hours from the onset of pain. After that point, the OAT trial suggests that there is limited benefit in opening up the occluded artery as the damage is already done.4 The recommended treatment used to be thrombolysis to try and break down the clot in the artery. However, this has significant bleeding risks attached to it and often failed to open the artery up requiring the patient to undergo 'rescue angioplasty' with higher bleeding risks associated due to the pre-medication. Non-ST-elevation ACS Non-ST-elevation myocardial infarction (NSTEMI) Non-ST elevation myocardial infarctions (NSTEMIs) are often seen as a more 'routine' heart attack. However, they have worse long-term outcomes than STEMIs (although a lower risk of death in the short term). They tend to be associated with partial coronary occlusion. Diagnosis of an NSTEMI involves a combination of, clinical assessment, serial troponin measurement and ECG analysis (see definition of MI earlier in the article). For more information, see the Geeky Medics guide to NSTEMIs. Management of NSTEMI5 Initiate further medical treatment once a diagnosis of NSTEMI is confirmed (with serial troponin measurement): Beta blockade (or alternative rate-limiting agent if contraindicated – aim HR of 50-60 bpm) ACE inhibitor (unless contraindicated – aim for a systolic blood pressure of 120 mmHg or less) Atorvastatin 80mg OD Once someone is diagnosed with a type I NSTEMI and commenced on appropriate medical therapy, there are various risk scores that can be calculated to assess the value of invasive angiography. NICE recommends the use of the GRACE score which is used to predict in-hospital and post-discharge to 6-month mortality. Other factors that should be considered before proceeding to angiography include: Renal function (there is a risk of contrast nephropathy and this can leave predialysis patients permanently dependent on dialysis) Bleeding risk (as above) Can the patient lie flat? Although angiography can be performed whilst patients with severe heart failure are sat upright, it is not fun for the operator, cath lab team or the patient. In a non-urgent setting, angiography should be delayed until the patient is able to tolerate lying flat. Other significant co-morbidities: patients with poor quality of life and/or short life expectancy (age/dementia/malignancy) may not gain any prognostic benefit from the procedure and should be managed medically. Offer conservative management without early coronary angiography to patients with a low risk of adverse cardiovascular events (predicted 6-month mortality 3.0% or less). Offer coronary angiography (with follow-on PCI if indicated) to patients initially assessed to be at low risk of adverse cardiovascular events (predicted 6-month mortality 3.0% or less) if ischaemia is subsequently experienced or is demonstrated by ischaemia testing. Offer coronary angiography (with follow-on PCI if indicated) within 96 hours of first admission to hospital to patients who have an intermediate or higher risk of adverse cardiovascular events (predicted 6-month mortality above 3.0%) if they have no contraindications to angiography (such as active bleeding or comorbidity). Perform angiography as soon as possible for patients who are clinically unstable or at high ischaemic risk. Unstable angina Stable (or 'exertional') angina is defined as: Typical cardiac pain Brought on by exertion and relieved by rest Lasting less than 20 minutes Unstable angina is an acute coronary syndrome that is defined by the absence of biochemical evidence of myocardial damage. It is characterised by specific clinical findings of: 6 prolonged (>20 minutes) angina at rest new onset of severe angina angina that is increasing in frequency, longer in duration, or lower in threshold angina that occurs after a recent episode of myocardial infarction Diagnosis of unstable angina is based on clinical assessment. Troponin measurements will be normal as there has not been any ischaemic damage (yet) and the ECG may be normal for similar reasons. Management of unstable angina5 Management of unstable angina is the same as for NSTEMI discussed above. Editor Dr Chris Jefferies References Third Universal Definition of Myocardial Infarction. European Heart Journal (2012) 33, 2551 – 2567. Acute coronary syndromes (including myocardial infarction); NICE Quality Standard, Sept 2014. Available from: [LINK] NICE Guideline. Myocardial infarction with ST-segment elevation: acute management. Clinical guideline [CG167]. Published date: 10 July 2013. Available from: [LINK] Yousef ZR, Redwood SR, Bucknall CA, Sulke AN, Marber MS. Late intervention after anterior myocardial infarction: effects on left ventricular size, function, quality of life, and exercise tolerance: results of the Open Artery Trial (TOAT Study). J Am Coll Cardiol 2002;40:869-876 NICE Guideline. Unstable angina and NSTEMI; NICE Clinical Guideline (March 2010 – last updated November 2013). Available from: [LINK] Roffi M, Patrono C, Collet JP, et al. 2015 ESC guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC). Eur Heart J. 2016 Jan 14;37(3):267-315.

Drug therapy and choice of revascularization depend on the type of acute coronary syndrome as well as ... intensive glucose control is no longer recommended; guidelines call for an insulin-based ... representatives of the European Society of Cardiology and 12 medical societies With the special contribution of the European Association ... May 18, 2021 · Acute coronary syndrome refers to many conditions that cause sudden, low blood flow to the heart. Know the symptoms, causes and ... Aug 29, 2019 · Guidelines summarize and evaluate available evidence with the aim of assisting health professionals in proposing the best management strategies for an individual patient with a given condition. Guidelines and their recommendations should facilitate decision making of health professionals in their daily practice. However, the final decisions concerning an ... Dec 14, 2020 · The term 'acute coronary syndrome' (ACS) covers a range of disorders, including a heart attack (myocardial infarction) and unstable angina, that are caused by the same underlying problem. ... 2017 ESC Guidelines for the management of acute myocardial infarction in patients presenting with ST-segment elevation: The Task Force for the management ... May 18, 2021 · Acute coronary syndrome usually results from the buildup of fatty deposits (plaques) in and on the walls of coronary arteries, the blood vessels delivering oxygen and nutrients to heart muscles. When a plaque deposit ruptures or splits, a blood clot forms. This clot blocks the flow of blood to heart muscles. Nov 12, 2021 · Roffi M, Patrono C, Collet JP, et al. 2015 ESC guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: Task Force for the Management of Acute Coronary Syndromes in Patients Presenting without Persistent ST-Segment Elevation of the European Society of Cardiology (ESC). Noninvasive mechanical ventilation (NIV) is widely used in the acute care setting for acute respiratory failure (ARF) across a variety of aetiologies. This document provides European Respiratory Society/American Thoracic Society recommendations for the clinical application of NIV based on the most current literature. The guideline committee was composed of clinicians, ...