COVID-19 rapid guideline: acute myocardial injury

NICE guideline
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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.
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Overview

The purpose of this guideline is to help healthcare professionals who are not cardiology specialists identify and treat acute myocardial injury and its cardiac complications in adults with known or suspected COVID-19 but without known pre-existing cardiovascular disease.

This guideline focuses on what you need to stop or start doing during the pandemic. Follow the usual professional guidelines, standards and laws (including those on equalities, safeguarding, communication and mental capacity), as described in making decisions using NICE guidelines.

This guideline is for:

- health and care practitioners
- health and care staff involved in planning and delivering services
- commissioners
- The guideline covers care in a hospital setting. The recommendations are specifically for acute myocardial injury associated with COVID-19 and should be used alongside good clinical practice.

The recommendations bring together:

- evidence from published literature on COVID-19 with acute myocardial injury
- existing national and international guidance and policies
- advice from specialists working in the NHS from across the UK. These include people with expertise and experience of treating patients with acute myocardial injury during the current COVID-19 pandemic.

We developed this guideline using the interim process and methods for developing rapid guidelines on COVID-19 in response to the rapidly evolving situation. We will review and update the recommendations as the knowledge base develops using the interim process and methods for guidelines developed in response to health and social care emergencies.
1 Communicating with patients

1.1 Communicate with patients, their families and carers, and support their mental wellbeing to help alleviate any anxiety they may have about COVID-19. For patients with a newly diagnosed myocardial injury, signpost to charities (such as the British Heart Foundation, Pumping Marvellous Foundation, Arrhythmia Alliance, Atrial Fibrillation Association and Cardiomyopathy UK) and support groups (including NHS Volunteer Responders) and UK government guidance on the mental health and wellbeing aspects of COVID-19.

1.2 Provide patients, their families and carers with information that meets their communication needs (see NHS England's Accessible Information Standard).
2 Minimising risk for patients and healthcare workers

2.1 When patients with known or suspected COVID-19 have been identified, follow appropriate UK government guidance on infection prevention and control. This includes recommendations on using personal protective equipment (PPE), patient transfers, and options for outpatient settings.

2.2 If COVID-19 is later diagnosed in a patient not isolated from admission or presentation, follow UK government guidance on management of exposed healthcare workers and patients in hospital settings.

2.3 All healthcare workers involved in receiving, assessing and caring for patients who have known or suspected COVID-19 should follow UK government guidance for infection prevention and control. This contains information on using PPE, including visual and quick guides for putting on and taking off PPE.
3 Diagnosing acute myocardial injury in patients with suspected or confirmed COVID-19

3.1 Be aware that acute myocardial injury and its complications:

- were observed in 11% of all patients dying in Italy with COVID-19 (up to 4 June 2020) [amended 12 June 2020]
- display symptoms and signs similar to respiratory complications of COVID-19
- may develop at any stage of COVID-19.

3.2 Be aware that acute myocardial injuries in patients with COVID-19 include:

- acute coronary syndromes
- arrhythmias
- cardiac arrest
- cardiogenic shock
- cardiomyopathy
- heart failure
- myocarditis
- pericarditis and pericardial effusion.

3.3 Be aware that symptoms suggesting acute myocardial injury in patients with COVID-19 include:

- chest pain
- palpitation
- severe fatigue
- shortness of breath.
Diagnostic tests

3.4 In patients with symptoms or signs that suggest acute myocardial injury, measure high sensitivity troponin I (hs-cTnI) or T (hs-cTnT) and NT-proBNP, and perform an ECG.

Use the following test results to help inform a diagnosis:

- evolving ECG changes suggesting myocardial ischaemia
- NT-proBNP level above 400 ng/litre
- high levels of high sensitivity troponin (hs-cTnI or hs-cTnT), particularly levels increasing over time.

3.5 Be aware that elevated troponin levels may reflect cardiac inflammatory response to severe illness rather than acute coronary syndrome, and should be considered in the clinical context.
4 Managing myocardial injury in patients with suspected or confirmed COVID-19

4.1 For all patients with a suspected or confirmed acute myocardial injury:

- monitor in a setting where cardiac or respiratory deterioration can be rapidly identified
- perform continuous ECG monitoring
- monitor blood pressure, heart rate and fluid balance.

4.2 For patients with a clear diagnosis of a myocardial injury:

- seek specialist cardiology advice on treatment, further tests and imaging
- follow local treatment protocols.

4.3 For patients with a high clinical suspicion of myocardial injury, but without a clear diagnosis:

- repeat high sensitivity troponin (hs-cTnI or hs-cTnT) and ECG daily, as dynamic change may help to monitor the course of the illness and establish a clear diagnosis
- seek specialist cardiology advice on further investigations such as transthoracic echocardiography and their frequency.

4.4 Discuss the risks, benefits and possible likely outcomes of different treatment options with patients, families and carers using decision support tools (where available) so that they can make informed decisions about their treatment wherever possible.

4.5 Be aware that treatments that may be used in COVID-19, such as azithromycin and hydroxychloroquine, may prolong the QTc interval and lead to arrhythmia. At the time of publication (22 April 2020), azithromycin and hydroxychloroquine can only be used to treat COVID-19 as part of nationally approved randomised controlled trials.
4.6 Start all critical care treatment with a clear plan of how the treatment will address the diagnosis and lead to agreed treatment goals (outcomes). For recommendations on critical care treatment, see the NICE COVID-19 rapid guideline: critical care in adults.

4.7 Review critical care treatment regularly and when the patient's clinical condition changes (see recommendations 4.1 and 4.2). Include in the review an assessment of whether the goals of treatment are clinically realistic. For support with decision making, see ethical guidance from the British Medical Association, the Royal College of Physicians and the General Medical Council.

4.8 Stop critical care treatment when it is no longer considered able to achieve the desired overall goals (outcomes). Record the decision and the discussion with family and carers, the patient (if possible) or an independent mental capacity advocate (if appropriate).
Update information

Minor changes since publication

12 June 2020: We amended information in recommendation 3.1 in line with an updated report on the characteristics of patients dying in Italy with COVID-19.