

INTRODUCTION

Chest pain is one of the commonest reasons for seeking emergency medical advice.

Chest pain is a cardinal, but not the only, symptom of acute coronary syndrome (ACS) or 'heart attack'.

Coronary heart disease (CHD) is the commonest single cause of death in the UK.

Time is of the essence in restoring coronary blood flow in patients with ST segment elevation myocardial infarction (STEMI). The benefits of reperfusion by thrombolytic treatment or primary percutaneous coronary intervention (PCI) are time-dependent.

Patients with STEMI who are ineligible for thrombolysis have a high mortality rate and should be referred for PCI where facilities exist.¹⁻⁵

Patients with non-STEMI and unstable angina manifestations of ACS are at significant risk of death and should be treated as medical emergencies.

Resuscitation

The risk of cardiac arrest from ventricular fibrillation (VF) or other arrhythmia is highest in the first few hours from symptom onset. VF can occur without warning. A third to one half of deaths from myocardial infarction (MI) occur before hospitalisation.

Survival from VF occurring in the presence of ambulance personnel with a defibrillator immediately available is as high as 40%. This falls rapidly to 2% or less if the defibrillator is not immediately available.

A defibrillator must always be taken, at the earliest opportunity, to patients with symptoms suggestive of a heart attack and remain with the patient until handover to hospital staff.^{1,4,5}

ASSESSMENT

The pain associated with ACS typically comes on over seconds and minutes rather than starting abruptly.

The classical presentation is of central chest pain which is constricting in nature and may radiate to the left arm and neck.

Many patients do not have 'classical' presentation as described above and some people, especially the elderly, and those with diabetes, may not experience pain as their chief complaint. This group have a high mortality rate.

Associated symptoms

Nausea and vomiting are common and the patient may express feelings of 'impending doom'.

The patient may be pale and the skin clammy and cold to the touch.

MANAGEMENT

In patients with symptoms suggestive of acute coronary syndrome:

- ensure a defibrillator is immediately available and stays with the patient
- administer **aspirin** (*refer to the aspirin drug protocol for dosages and information*)^{1,5}
- administer **glyceryl trinitrate (GTN)** (*refer to the GTN drug protocol for dosages and information*) for patients with ongoing ischaemic discomfort
- administer high concentration oxygen (O₂) (*refer to oxygen guideline*)⁶ via a non-re-breathing mask, using the stoma in laryngectomee and other neck breathing patients. High concentration O₂ should be administered routinely, whatever the oxygen saturation, except in patients with chronic obstructive pulmonary disease (COPD) (*refer to COPD guideline*)

NOTE: the best place for further assessment and treatment is in the ambulance, to where the patient should be moved at the earliest safe opportunity. It is usually safe and feasible to undertake the following actions while en-route to hospital:

- monitor ECG for arrhythmias
- obtain intravenous access
- monitor vital signs
- repeat dose of GTN if chest discomfort persists
- assess pain score and administer morphine as required IV with anti-emetic cover
- record 12-lead ECG

Patients with ECG evidence of STEMI should be assessed for suitability for reperfusion treatment with thrombolysis (*refer to the thrombolysis drug protocol for dosages and information*) or PCI according to local arrangements. Thrombolytic treatment is increasingly provided by Paramedics in the pre-hospital setting.^{1,2,5}

Patients with STEMI but ineligible for thrombolysis (e.g. advanced age, severe hypertension, recent surgery) or in cardiogenic shock should be transferred as an emergency to a suitably experienced centre for PCI according to local arrangements.^{1,2,5}

PATIENTS WITH SUSPECTED ACUTE CORONARY SYNDROMES SHOULD BE TRANSFERRED TO HOSPITAL AS BLUE LIGHT EMERGENCIES

ADDITIONAL INFORMATION

The treatment of patients with ACS is a rapidly developing area of medicine.

National and international standards and guidelines for ACS care consistently emphasise the importance of rapid access to defibrillation and reperfusion.⁷

Pre-alerting the hospital can speed up appropriate treatment of STEMI patients. In high performing urban systems this may be all that is required to achieve very rapid treatment times.

The aim of reperfusion treatment, whether by thrombolysis or PCI, is rapid restoration of coronary blood flow to limit heart damage and reduce mortality.

Pre-hospital thrombolysis reduces all-cause mortality compared with hospital thrombolysis and reduces treatment delay by 60 minutes on average.

Primary PCI is of proven superiority to hospital thrombolysis, especially when PCI is provided in high volume, experienced specialist centres.

Primary PCI has not been proven superior to *very early* thrombolysis (within 3 hours of symptom onset) in reducing mortality, but has the advantage of lower bleeding risk.

Key Points – Acute Coronary Syndrome

- Chest pain is a cardinal, but not the only, symptom of ACS.
- Take drugs, oxygen and a defibrillator to the patient.
- Patients with ECG evidence of STEMI should be assessed for suitability for reperfusion treatment with thrombolysis or PCI according to local arrangements.
- The best place for further assessment and treatment is in the ambulance, to where the patient should be moved at the earliest safe opportunity.
- Patients with STEMI but ineligible for thrombolysis (e.g. advanced age, severe hypertension, recent surgery) or in cardiogenic shock should be transferred as an emergency to a suitably experienced centre for PCI.

REFERENCES

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METHODOLOGY

Refer to methodology section.