



CHANGE PAGE

Patients with cardiac chest pain should call emergency services

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KEY POINTS

In acute myocardial infarction the most important means of saving life is to get the patient to a defibrillator and to start reperfusion therapy as soon as possible after the onset of symptoms

The time it takes patients with chest pain to seek help accounts for up to 75% of the total delay before treatment

Ambulance transport is the most effective means of accessing medical help, yet up to half of all patients with myocardial infarction do not use the emergency services

Healthcare professionals who deal with at-risk groups should educate them about how to recognise symptoms and the need to act quickly in the event of cardiac chest pain by calling for help from emergency services, rather than consulting general practitioners or medical helplines

Change Page aims to alert clinicians to the immediate need for a change in practice to make it consistent with current evidence. The change must be implementable and must offer therapeutic or diagnostic advantage for a reasonably common clinical problem. Compelling and robust evidence must underpin the proposal for change.

The clinical problem

In acute myocardial infarction, the risk of ventricular fibrillation (and the capacity for external defibrillation or reperfusion therapy to reduce mortality) is highest in the first 12 hours after onset of symptoms. In hospital, reperfusion therapy is now given rapidly in most cases, but the time it takes the patient with chest pain to seek medical help has resisted change.¹ This delay accounts for as much as 75% of the total delay to treatment,² and in patients outside of hospital, ventricular fibrillation soon after onset of symptoms remains the primary cause of death.³

Patients with cardiac chest pain should be encouraged to seek help early from emergency services, rather than through their general practitioner or helplines such as NHS Direct.

The evidence for change

A secondary analysis of registry data on 3693 patients shows that at most half of patients with suspected heart attack seek access to medical help through the emergency services.⁴ The remainder call their primary care doctor or make their own way to hospital. Yet observational studies are consistent in showing that a direct call to the emergency services as early as possible after the onset of symptoms gets the patient to a defibrillator—in hospital if not in the ambulance—more quickly than other means of accessing help.^{1 4} In the United Kingdom the national infarct angioplasty project (NIAP) pilot sites report that 3.1% of 1497 patients with acute S-T segment elevation myocardial infarction who were transferred by ambulance to primary angioplasty centres had ventricular tachycardia or ventricular fibrillation requiring cardioversion, and an additional 0.4% did not require cardioversion. Cardioversion was successful in all patients, and no patients died before reaching hospital.⁵

The observational study by the atherosclerosis risk in the community (ARIC) investigators showed that among 21 119 patients with acute myocardial infarction, use of emergency medical services reduced the odds of delayed (≥ 4 hours) arrival at hospital by 65% (adjusted odds ratio 0.35, 95% confidence interval 0.32 to 0.38).¹ Findings were similar in a second observational study, the global registry of acute coronary events (GRACE), where among 3693 patients with acute ST elevation myocardial infarction, use of the emergency medical services reduced the odds of delayed (≥ 2 hours) hospital arrival by 35% (0.65, 0.51 to 0.83).⁴ These two observational trials of 24 812 patients show that use of the emergency

medical services enables earlier hospital arrival and permits earlier delivery of reperfusion therapy. Meta-analysis of 22 randomised trials of thrombolysis, with a total of 50 246 patients, shows that earlier reperfusion decreases mortality in patients with ST elevation myocardial infarction,⁶ and a prospective cohort study in 1791 primary angioplasty patients showed that shorter onset to reperfusion time is related to reduced mortality.⁷ Thus, the use of emergency services allows earlier hospital arrival and earlier delivery of reperfusion, thereby limiting myocardial damage and improving prognosis.

Barriers to change

The time it takes the patient with chest pain to seek medical help and get to hospital has scarcely declined in recent years.¹ Behaviour can be modified by experience—patients who have had myocardial infarction arrive at hospital sooner than patients with a first myocardial infarction.⁴ However, attempts to modify patients' behaviour through community education programmes focusing on recognising symptoms and the need to act quickly in the event of cardiac chest pain have often been disappointing.⁸ The only large randomised trial of community intervention reported no effect on delays either by patients or transport.⁹ Programmes might benefit from targeting education at those most at risk of delaying the call for help, particularly women and elderly people.

How should we change our practice?

In the short term, increasing the availability of defibrillators in busy public locations should be encouraged because their use by trained people saves lives early after the onset of acute myocardial infarction.¹⁰ In the longer term, heightening public awareness about the need to call the emergency services as soon as possible after the onset of cardiac chest pain is likely to be the only way to reduce prehospital delay and reduce mortality in line with other reductions achieved in hospital practice.¹¹ All healthcare professionals who deal with groups at risk, such as people with known coronary artery disease or important risk factors and those awaiting outpatient investigation of suspected cardiac chest pain should educate them about the symptoms of cardiac chest pain and the need to dial 999 immediately if the symptoms don't respond promptly to sublingual nitrates. Future public awareness programmes will need to be targeted at groups most likely to delayed hospital arrival, particularly women and people aged over 60.^{1 4}

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