Resuscitation in primary care


Date of acceptance: September 13 2002.

Summary

The Resuscitation Council (UK) in its publication Cardiopulmonary Resuscitation – Guidance for Clinical Practice and Training in Primary Care (2001) has made recommendations for the provision of resuscitation and training in the primary care setting. This article aims to provide an overview of these recommendations.

The PROJECT team selected to develop guidance on cardiopulmonary resuscitation (CPR) in primary care (Resuscitation Council (UK) 2001) comprised representatives from the primary care team including GPs, a practice nurse, a community midwife, representatives from the ambulance service, the UKCC – now the Nursing and Midwifery Council – and the Resuscitation Council (UK). The team’s intention was to advise on best practice with resuscitation in primary care.

The publication provides guidance about standards in resuscitation and training for those working in the community as part of a primary healthcare team. Central to the publication is the treatment of patients in ventricular fibrillation, that is those most likely to survive a cardiac arrest with early defibrillation.

Throughout this article the use of the term primary care organisation is an umbrella term for primary care trust, primary care group, local health care co-operative and local healthcare group. In addition, the term doctor’s surgery refers to primary healthcare centres, GPs’ surgeries and other places where the primary healthcare team is based.

Sudden cardiac arrest, particularly from coronary heart disease, remains one of the most common causes of death encountered in primary care (Colquhoun and Jevon 2000). It is commonly associated with the early stages of myocardial infarction and, in approximately 90 per cent of cases, results from ventricular fibrillation, a treatable arrhythmia (Resuscitation Council (UK) 2000).

The definitive treatment for ventricular fibrillation is early defibrillation. The chances of a successful outcome diminish by about 7-10 per cent for every minute it is delayed (Cobbe et al 1991). The current National Framework for Coronary Heart Disease in England recognises the importance of early defibrillation (DoH 2000). It specifies that patients with symptoms of a possible heart attack should be attended by a practitioner trained and equipped to defibrillate within eight minutes of calling for help (DoH 2000).

Survival rates following a cardiac arrest are highest when the rhythm is ventricular fibrillation, reflecting the relative difficulty of treating asystole and pulseless electrical activity (Colquhoun and Jevon 2000). Approximately 60 per cent of patients who have a cardiac arrest at home, and 75 per cent who have a cardiac arrest in the doctor’s surgery, survive to be discharged from hospital following early defibrillation by their GP (Colquhoun and Jevon 2000).

Modern automated external defibrillators (AEDs) are lightweight, easy to use, relatively inexpensive and require minimal maintenance. Following adequate training, they can be used by a wide range of staff.

Managing resuscitation

Ventricular fibrillation, secondary to the early stages of an acute myocardial infarction, is the most likely cause of a cardiac arrest witnessed by primary care staff (Colquhoun and Jevon 2000). A significant number of patients collapse at home in the presence of a GP and in the doctor’s surgery. Primary healthcare team members must, therefore, be equipped to attempt defibrillation and perform other resuscitation techniques as appropriate.

If defibrillation is delayed, the provision of basic life support (BLS) will enhance the chances of successful resuscitation. All medical, nursing and paramedical
Box 1. Minimum recommended equipment

- Oxygen mask with reservoir bag
- Pocket mask with one-way valve
- Automated defibrillator with electrodes and razor
- Syringe and needles
- Oxygen
- Adrenaline (epinephrine)
- Atropine
- Tape
- Gloves
- Sharps box
- Scissors
- Suction
- Saline flush
- Tissues

Airway management Ventilation using a pocket mask, incorporating a one-way valve to prevent patient secretions from reaching the practitioner, is the minimum standard for ventilation. If trained in its use, a range of sizes of oropharyngeal or Guedel airways could be kept available. Although the laryngeal mask airway (LMA) may have an increasing role in airway management in unconscious patients in primary care, the appropriate training and experience is essential. Tracheal intubation is limited to practitioners who have undergone extensive training and practise the skill on a regular basis.

Oxygen Current Resuscitation Council (UK) guidelines (Resuscitation Council (UK) 2000) emphasise the importance of using oxygen in resuscitation. It should, therefore, be available whenever possible. It is important that oxygen cylinders are appropriately maintained and national safety standards followed. Every surgery should have guidance allowing non-medical staff to administer high flow rates of oxygen in an emergency, such as during resuscitation.

Suction A suction device should also be available. A device that is battery operated or that needs a mains electrical source is not always ideal. A simple, portable, mechanical, handheld device is recommended.

Drugs The minimum standard is to have adrenaline (epinephrine) and atropine available. Adrenaline (epinephrine) 1mg is routinely administered every three minutes during resuscitation as it increases the effectiveness of CPR by improving coronary and cerebral blood flow (Colquhoun and Jevon 2000). Atropine is indicated for bradycardia and in resuscitation for asystole and pulseless electrical activity (formally termed EMD) when the ventricular rate is <60 (Resuscitation Council (UK) 2000). The dose of atropine in resuscitation is 3mg. Both drugs should ideally be administered via a large vein, for example, in the antecubital fossa, followed by a flush, for example, normal saline 0.9%. The bronchial route can also be used if the patient is intubated, although double the intravenous doses are recommended (Colquhoun and Jevon 2000).

Universal precautions Measures should be taken to minimise risk of cross infection. Gloves should be available and a sharps box used for disposing of sharps. Resuscitation training Although members of the primary healthcare team might be called on to resuscitate a patient relatively infrequently, they must, nevertheless, be trained and equipped to provide a level of care appropriate to their role (Colquhoun and Jevon 2000).

All personnel who come into contact with patients should be trained in BLS and should be able to provide effective ventilation using an airway adjunct, for example, a pocket mask. Medical, nursing and paramedical staff should be trained in the use of an AED. Other personnel, such as receptionists, may also be trained to use an AED. Refresher training should be undertaken every six to 12 months. The training

staff should be able to provide effective BLS. Other staff, such as receptionists, who come into contact with patients should also be competent at BLS.

Automated external defibrillators (AEDs) have simplified the process of defibrillation. Consequently, training requirements are reduced and a wider range of personnel can use them. All medical and nursing staff in primary health care should be trained in their use. As lay persons have successfully used them, it is quite appropriate for reception, administrative and secretarial staff to be trained in their use.

All doctors’ surgeries should have an AED. Local circumstances will dictate its use and deployment. In addition those providing out-of-hours cover for doctors’ surgeries – deputising services or co-operatives – should have access to an AED. Although manual defibrillators can still be used, the need for extra training and expertise limits the range of personnel who can use them.

It is also important to ensure that patients with chest pain, possibly due to an acute myocardial infarction, receive the optimal response. These patients are at risk of suffering a cardiac arrest. Every emergency ambulance in the UK carries a defibrillator, so the ambulance service should be alerted as part of a dual response. The GP, by providing additional diagnostic skills and knowledge about the patient, can work with the ambulance crew and provide a co-ordinated response.

Nominated person Primary care organisations should nominate someone to be responsible for co-ordinating resuscitation services in the trust. This person should liaise closely with a nominated person in each doctors’ surgery and with any organisations responsible for providing resuscitation training for staff. A nominated person in a doctors’ surgery should be responsible for administering the resuscitation service. The role should include the purchase, maintenance and replacement of resuscitation equipment, as well as arranging suitable training for all primary healthcare staff and for auditing performance.

Defibrillators Modern first responder AEDs are small, light, portable, relatively inexpensive and require minimal maintenance. Most perform regular self-checks and alert the practitioner to problems or if the battery needs replacing. An AED should be available in the doctors’ surgery and taken on home visits if there is a risk of cardiac arrest.

The AED should be maintained following the manufacturer’s recommendations. This usually involves ensuring it is ready for use and that the defibrillation pads/electrodes are not out of date. Following use, disposable items should be replaced and the manufacturer’s instructions followed to ensure that the AED is in a state of readiness with minimal delay. It is important to ensure there is always at least one spare set of defibrillation pads available and re-ordering procedures should ensure that adequate stocks are maintained.
Paediatric and newborn resuscitation

Paediatric cardiac arrest is uncommon. If it does occur, it must be stressed that the most likely cause is a respiratory problem (Colquhoun and Jevon 2000). Hence the emphasis is on ensuring a clear airway and supporting breathing. This may be sufficient to revive the child. Ventricular fibrillation is a rare cause of a paediatric cardiac arrest. Information on the use of AEDs in paediatric resuscitation can be accessed on the website of the Resuscitation Council (UK) www.resus.org.uk.

Resuscitation of the newborn baby requires special considerations. Two midwives should attend planned home births. Both should be trained in maternal and newborn resuscitation and should carry suitable resuscitation equipment. Arrangements for emergency support in the event of resuscitation should be clarified with the midwives’ supervisor prior to the delivery date. Doctors who provide intrapartum obstetric care should be suitably trained and equipped to provide maternal and newborn resuscitation.

Ethical issues

It is paramount to identify patients for whom cardiac arrest would be a terminal event and where resuscitation would be inappropriate. Establishments where the primary healthcare staff have responsibility for the care of patients, for example, hospitals, community hospitals and nursing homes, should be encouraged to implement ‘do not attempt resuscitation (DNAR)’ policies to avoid inappropriate or unwanted attempts. These policies should be based on national guidelines published by the British Medical Association, Resuscitation Council (UK) and RCN (2001).

The doctor in charge of the patient’s care, usually a GP, has the ultimate responsibility for a DNAR decision. When considering such a decision, the opinions of other members of the medical and nursing teams, together with those of the patient and/or his or her relatives, should be taken into account.

When a DNAR decision is made, the most senior member of the medical team should write it in the patient’s medical records. The justification for the decision, together with what the relatives have been told and any comments they make, should also be documented. The decision should be regularly reviewed in light of the patient’s clinical condition.

Where applicable, a DNAR decision should also be documented in the patient’s nursing notes and communicated to all relevant members of the multidisciplinary team involved with the patient’s care. This should also include all those who might become involved, such as emergency medical services: hopefully inappropriate 999 calls at the time of the patient’s death can then be avoided.

Performance management

The process and outcome of all resuscitation attempts should be audited including:

- Availability and performance of personnel involved.
- Standard and reliability of resuscitation equipment.
- Deficiencies in the training, equipment, or process surrounding the resuscitation attempt.

The subsequent transfer of the patient and liaison with the ambulance service can also be audited. The audit process should also include feedback and discussion with all members of the practice team following an event. This might take the form of a critical incident debriefing.

The risk manager for the primary care organisation should be informed of any problems the audit identifies. Steps should be taken to rectify any deficiencies. Any significant improvements in the service should be made widely available and examples of good practice shared. For audit, training purposes and medico-legal reasons, accurate records should be kept of all resuscitation attempts. In addition, most AEDs have the capability of storing data during the resuscitation attempt. This can be downloaded and used for audit.

Resuscitation training and DNAR policies are subjects that could also be audited.

Conclusion

Most sudden cardiac arrests in primary care result from the eminently treatable arrhythmia, ventricular fibrillation. Members of the primary healthcare team must be able to respond effectively. Every doctors’ surgery should have an AED and key personnel should be trained to use it (Box 3).

Further information

Copies of Cardiopulmonary Resuscitation – Guidance for Clinical Practice and Training in Primary Care (2001) are available via the website of the Resuscitation Council (UK) at www.resus.org.uk.

REFERENCES