3 Acute emergencies

When a patient presents to a GP with new symptoms there are three important possibilities to consider:

- is it a benign self-limiting illness (the majority of instances in general practice)?
- is it the first presentation of what will turn out to be a long-term health problem?
- is it an acute medical emergency (Box 3.1)?

Acute emergencies are rare in general practice, but GPs must be able to spot them and respond appropriately.

General approach

The general approach to a possible emergency includes the following:

- make a rapid global assessment of the whole situation – any ongoing dangers

Box 3.1 **Some important medical emergencies that may present to a general practitioner**

- Collapse
- Coma
- Chest pain
- Poisoning
- Shock
- Fits
- Acute severe breathlessness
- The acute abdomen
- Obstetric emergencies
- Deranged/confused patients
- Suicide/threatened suicide
- Road traffic accidents
- Industrial accidents
- Domestic accidents

  - the number of victims
  - the behaviour of the uninjured
  - how help is to be summoned
- make a specific assessment of the condition of any one or more patients
  - determine if they are conscious or unconscious
  - breathing or not breathing
  - whether or not a pulse is present
- prioritise according to ATLS (acute trauma and life support) criteria i.e. airways, breathing and circulation.

When emergencies occur in the community (as opposed to hospital) there are some important implications. Generally speaking:

- less equipment is available
- fewer drugs are available (but ambulances increasingly come supplied with equipment and drugs a doctor might need)
- general practitioners may lack all the skills for managing emergencies (especially in urban practice

where these skills are used less and, hence, tend to atrophy)
- some element of 'crowd control' is often required
- the nature and type of emergency is less predictable and so it is harder to be prepared for all eventualities (lateral thinking and improvised solutions may be required).

The unconscious patient

A patient who is unconscious, not breathing and pulseless is either dead or in cardiorespiratory arrest. If there is any doubt it is generally safer to assume the latter and commence full cardiopulmonary resuscitation (CPR) immediately. This should be performed by people trained in the technique. Check for a pulse and check the airway is unobstructed. If there is no pulse commence external cardiac compressions and mouth-to-mouth resuscitation or Ambubagging in a ratio of 5:1. Further details of this technique are beyond the scope of this book but all medical students should be trained in this vital skill. Health and safety regulations governing workplaces require that there should be people trained in first aid, so the probability of there being someone trained in CPR is quite high in many situations. A doctor, if present, may be able to make a more precise diagnosis, and treatment more specific to the cause may also be provided (see below).

Obviously, if a reasonably precise diagnosis can be made by a doctor present appropriate specific treatment can be given, if available (see details below). Most vital of all is that someone takes charge of managing the overall situation and that every effort is made to keep everyone calm and in control.

Box 3.2 lists some of the more important causes of unconsciousness.

Box 3.2 **Important causes of unconsciousness**

- Cardiac arrest
- Head injury
- Stroke
- Alcohol intoxication
- Overdose
- Diabetes
  - hypoglycaemia
  - hyperglycaemia
- Subarachanoid haemorrhage
- Epilepsy
- Meningitis/encephalitis
- Hypothermia
- Shock – hypovolaemic
- Syncope
- Psychogenic (hysteric)

Box 3.3 **Key features of acute myocardial infarction**

- Crushing central chest pain
- Breathlessness
- Nausea (with or without vomiting)
- Sensation of 'impending doom'
- Visible distress
- Pale and sweating

Some commoner medical emergencies

Acute myocardial infarction (AMI)

See Box 3.3 for the key features. Atypical presentations – such as a feeling of indigestion – are not uncommon and what appears to be a typical picture may represent something other than myocardial infarction, such as a severe angina attack or pulmonary embolism. Definitive diagnosis will require an electrocardiograph (ECG) and a determination of cardiac enzyme levels. However, if there is enough evidence to suggest that myocardial infarction is even reasonably likely, the situation should be treated as for acute

myocardial infarction until such time as a more definitive diagnosis can be made. ECG is also useful for the detection of cardiac arrhythmias that are a common and dangerous complication of AMI. Many GPs now carry ECG machines.

In a case of suspected AMI the following steps need to be taken:

- Call an ambulance – be sure to mention that it is suspected AMI as a cardiac ambulance (if available) will have specially trained emergency medical technicians (EMTs), ECG and defibrillation equipment, and thrombolytic therapy on board.
- Administer parenteral analgesia – opiates are preferred but the risk of inducing vomiting means that they are usually given with an anti-emetic e.g. as Cyclimorph (a combination of morphine and the anti-emetic cyclizine).
- Give aspirin – usually as a chewable form. Aspirin is an anti-platelet agent that has been proven to reduce the risks of further infarction – the earlier given the better.
- Administer oxygen if available.
- Sublingual nitrate should also be given.
- Monitor pulse and blood pressure.

Early administration of a thrombolytic, e.g. streptokinase, to suitable patients is also a high priority. The shorter the interval between the onset of myocardial ischaemia and administration of a thrombolytic (called 'pain to needle time') the less myocardium is likely to be lost to infarction and the better the prognosis for the patient – 90 minutes is the target. Thrombolysis is usually carried out in hospital, although in remote areas it may be undertaken by an appropriately trained and equipped GP (see also 'Chest pain' p. 64).

Acute shock

See Box 3.4 for the key features of shock. Shock is a much-used word in the lay media that often refers to people's psychological state after a traumatic event, but it has a more specific medical meaning that refers to a physiological state

Box 3.4 **Key features of shock**

- Pallor
- Clamminess
- Weak pulse
- Altered consciousness

characterised by low blood pressure and decreased perfusion of all body tissues. Two major types of shock are recognised:

- hypovolaemic shock is typically associated with the loss of large quantities of blood
- cardiogenic shock is associated with an acute disruption of cardiac function (such as AMI, see above).

The essentials of emergency management are:

- administer oxygen
- elevate the legs above the level of the heart
- administer intravenous fluids if the cause is thought to be hypovolaemia.

Immediate hospital admission is, of course, obligatory.

Acute severe dyspnoea

Box 3.5 lists some of the possible causes of acute severe dyspnoea. Details on how to differentiate between these causes and how to manage them is beyond the scope of this book and may be found in textbooks of medicine (see Further Reading).

Left ventricular failure (pulmonary oedema)

Box 3.6 lists the key features of left ventricular failure (LVF). Acute LVF may occur in the context of a myocardial infarction, though it can also occur in patients with a variety of other cardiac conditions. It is important to try and determine a cause. General management regardless of cause includes:

- treatment with oxygen (30–60%) – commenced immediately

Box 3.5 **Some causes of acute severe dyspnoea**

- Acute asthma attack
- Pulmonary embolus
- Pneumothorax
- Pulmonary oedema (LVF)
- Pneumonia
- Adult respiratory distress syndrome
- Chronic obstructive pulmonary disease (COPD)
- Laryngeal obstruction
- Pleural effusion
- Cardiac tamponade

Box 3.6 **Key features of left ventricular failure**

- Breathlessness (dyspnoea) especially on exertion or on reclining (e.g. paroxysmal nocturnal dyspnoea)
- Tachycardia possibly with gallop rhythm
- Weak pulse
- Crackles at both lung bases (although in severe cases the crackles can be quite widespread)

- a loop diuretic e.g. furosemide – given intravenously, if possible
- intravenous morphine e.g. Cyclimorph – calms the patient and reduces sympathetic overdrive.

Nitrates, e.g. sublingual glycerine trinitrate, may be useful for vasodilatation but should ***not*** be given if the patient is hypotensive. An ECG will often identify the cause. Immediate transfer to hospital is required for further management and monitoring.

Acute asthma attack

Box 3.7 lists the key features of acute asthma (asthma attack). The mainstay of management is nebulised beta-agonist such as salbutamol accompanied by intravenous or oral corticosteroids as appropriate to the urgency and severity of the

Box 3.7 **Key features of acute asthma**

- Severe dyspnoea
- Intense respiratory distress
- Tachypnoea
- Cough and/or wheeze, or possibly 'silent chest' if very severe
- Inability to talk for any length of time
- Use of accessory muscles of respiration
- Subcostal recession (especially in children)
- Tachycardia
- Pallor or possibly central cyanosis

situation. Oxygen (60%) should also be administered if available. If peak flow returns to within 10% of normal for that patient immediately after nebulisation and there were no ominous features the patient might be followed up in general practice. If the attack is severe or the response to nebulisation is poor the patient must be transferred to hospital immediately. A silent chest is a very ominous feature, indicating a need for immediate ventilation.

Acute abdominal pain

Acute abdominal pain is a reasonably common presentation in general practice with myriad possible causes, details of which may be found in textbooks of surgery. For the general practitioner the issue is which patients can be safely managed in the community and which should be referred to hospital (Boxes 3.8 and 3.9).

In women of childbearing age complications of pregnancy, such as ectopic pregnancy, need to be considered too. Pregnancy also limits the range of possible treatments for other causes of acute abdominal pain.

Abdominal pain, where serious causes can be excluded, may be treated with simple analgesics e.g. paracetamol. Non-steroidal anti-inflammatories are best avoided because of the risk of adverse gastric effects.

Any patient with new onset of acute abdominal pain should be kept under close review as many serious causes

Box 3.8 **Indications for admission of patients with acute abdominal pain**

- Patients in severe pain
- Patients in whom a surgical treatment is likely to be required (e.g. suspected appendicitis, acute perforation)
- Patients with major constitutional upset such as low blood pressure, rapid pulse or respiration
- Patients with a rigid abdomen, rebound tenderness or absent bowel sounds
- The very young and the very old
- Patients in whom a confident diagnosis cannot be made

Box 3.9 **Patients with acute abdominal pain who might be managed in the community**

- Mild to moderate abdominal pain without other gastrointestinal symptoms or signs
- Where a clear diagnosis can be made with reasonable confidence
- Where the patient is not at risk from other diseases or age or lack of social supports, to allow management at home
- Acute gastroenteritis without dehydration
- Lower urinary tract infection (cystitis)
- Renal colic if diagnosis established, there is no pyrexia and the patient responds to analgesics administered by the GP
- Cholecystitis if diagnosis has been established and there is no pyrexia or jaundice
- Diverticulitis if diagnosis has been established and there is no pyrexia

of acute abdominal pain do not fully manifest themselves at the outset of symptoms.

Acute confusion

Box 3.10 lists some of the commoner causes of acute confusion or confusional states that might present in general practice. Every effort should be made to identify and treat the cause of confusion. Meanwhile, there are a few guidelines

Box 3.10 **Common causes of acute confusion that may present in general practice**

- Infection
- Drugs/alcohol
- Stroke
- Psychosis
- Shock/subarachnoid haemorrhage
- Severe pain of any cause e.g. acute retention
- Epilepsy
- Various metabolic and endocrine diseases, especially diabetes

for the management of all confused patients regardless of the cause of the confusion:

- Talk calmly and move slowly, avoiding any movement or posture that might be seen as threatening.
- Try and ensure that people not involved in helping the patient are kept well away.
- If there is someone known to the patient their help should generally be sought, unless the patient is threatening them due to, say, a paranoid delusion.
- Try to reassure the patient that they are not in danger of any harm and that you are trying to help them.
- Pharmacological sedation should only be a tactic of last resort.

There may be a risk of violence – this needs to be assessed but care should also be taken not to assume or overestimate this. Containing and dealing with the violent patient is a specialised area and requires special skills and training beyond the scope of this book.

Poisoning

- Try to identify the poison or poisons. In cases of deliberate overdose it is very common for people to have ingested more than one poison and/or to have taken alcohol with whatever else they may have taken.

Box 3.11 **Telephone numbers of poisons centres**

- **UK:** 0870 6006266 (the call will be directed to the relevant local poisons information centre)
- **Ireland:** 01 837 9964 or 01 809 2568 (for the national poisons centre)

- Try to assess the quantity consumed – though one should err on the side of overestimating rather than underestimating this.
- Try to determine whether the poisoning was accidental or deliberate. In deliberate self-poisoning there may be indicators such as a 'suicide note'.
- Manage the poisoning itself ***and*** any underlying mental health problem.
- Assess the state of consciousness. An attempt to rouse the patient, if not awake or alert, should help determine this. If the patient is deeply unconscious life support procedures (see above) may be required.
- Trying to induce emesis is not always appropriate and should only be done where there are no risks associated with vomiting the poison up again and where the patient is sufficiently alert and cooperative to avoid risk of inhalation. Activated charcoal is more likely to be useful and less likely to be harmful but is not always readily available in community settings. The further management of cases of poisoning is a specialised area and should be undertaken in hospital unless the GP is very confident that the nature and quantity of the poison taken do not constitute a danger. Further guidance should be sought from regional poisons centres (Box 3.11).

Identifying risk of suicide

A very important task in general practice is to try and identify and deal with potential suicides. A patient who is considering suicide may consult a doctor but will only

occasionally declare this. This is a very difficult emergency situation where the urgent nature of the patient's problem may not be immediately obvious. The key is to always be alert to the possibility. While the majority of suicides are committed by people with existing mental health problems, a significant minority do not have such an antecedent history. Furthermore, it is also said that up to half the patients presenting to GPs who are clinically depressed are not diagnosed as such by the GP. Patients with depression often present, at least initially, with physical complaints.

Assessing a patient's suicidal risk involves asking some fairly explicit questions about suicidal ideation. It used to be thought that asking people about suicidal thoughts would prompt them into such action but this is now known not to be the case. Indeed, it may be that, by being allowed to air their problems to a caring professional, the risks of completing the act may be reduced somewhat. This does not mean the questions have to be blunt such as asking if patients have thought of 'topping' themselves – a graduated approach is advised (Box 3.12).

The more concrete and active a person's suicidal plans the greater the risk. Generally speaking, active suicidal ideation is an indication for immediate hospital admission – involuntary admission if voluntary admission cannot be negotiated. Milder forms of suicidal thinking can sometimes be managed in the community as long as there is easy access for the patient to emergency follow-up. In such a situation the availability of the means of suicide should be reduced as much as possible – removing knives, medicines etc.

Box 3.12 **A graduated approach to assessment of suicidal risk**

- Ask first about thoughts about the future
- Progress to asking about any thoughts about self-harm
- Then ask specific questions about any suicidal fantasies or actual plans

Accidents in the home

In the UK approximately 10000 people die from accidental injury, 4000 of these occurring in the home. It is the leading cause of death in children. It is estimated that there are about 2.8 million accidents in homes in the UK compared with about 300000 road traffic accidents. The most vulnerable to accidents in the home are children, followed by elderly people (over 65 years) – although half the fatalities occur in adults of working age. The commonest causes of accidents in the home are falls and fires. In children, accidental poisoning and various forms of crushing or cutting injuries, burns and electrocution are also quite common.

A substantial proportion of victims of accidents will attend or be brought to accident and emergency departments. Where a GP is called to an accident in the home the situation will need to be managed according to the nature of the accident, the number of victims (or potential victims) and the nature of injuries probable or apparent. Management of the unconscious patient and acute poisoning are noted above. Mild trauma may be manageable by the GP but in any instance of major trauma or risk of undisclosed trauma, such as fractures or injuries to internal organs, referral to hospital will be required.

In the case of accidents to children GPs also have to bear in mind the possibility of non-accidental injury and follow the appropriate local procedures for dealing with actual or potential non-accidental injury. Domestic violence can also result in apparently accidental injuries to adults as well as children. Abuse of elderly persons by their carers, too, is beginning to be recognised as a problem in society. Thus it is important to take a clear history of any incident of accidental injury. Be alert to inconsistencies in the history or disproportions between injuries received and the alleged cause or other indicators of the possibility that what is presented as an accident is not one.

GPs have an important role in the reduction of accidents in the home. When visiting patients in their home we can

see aspects of the home environment that might present possible risks – loose fitting carpets, trailing electric flexes, unguarded fires etc. As house calls become a less prevalent part of general practice activity such opportunities are reducing – this makes it all the more important that the most is made of what opportunities do arise. When an elderly patient seems to be developing a history of recurrent falls or other mishaps a home visit might be worthwhile. Parents of young children are frequent visitors to GPs' surgeries and some advice on safety in the home may be provided by a proactive GP. Bodies such as the Royal Society for the Prevention of Accidents (RoSPA) publish guidelines on how to prevent accidents in the home.

Management of road traffic accidents

Urban GPs will rarely be called to road traffic accidents but for many rural GPs it is an important part of their work. Any doctor may happen to be first on the scene of an accident and will usually be expected to know what to do. Here are some guidelines:

- Reduce the risk of further accidents by setting up some kind of warning for other traffic.
- If possible, get any injured people off the road, though only if it is safe to move them (see below).
- Make a global assessment of the accident scene. How many vehicles are involved and how many potential casualties are there? Be aware of the possibility of unexpected casualties such as pedestrians or cyclists caught up in what might initially appear to be a car-only accident or of casualties flung out of cars and ending up some distance from the crash site.
- Try and prioritise casualties. Remember that the most seriously injured often make the least noise.
- Summon help as early as possible, giving as much information as possible to assist emergency services correctly identify the location. On dual carriageways and motorways you should specify the direction of

travel of the lane in which the accident has occurred. Give the numbers of casualties and some estimate of their injuries.
- Do not try and move people who might have neck injuries or, indeed, who may have major bone fractures unless a real risk of fire makes this imperative.
- Remain calm and try to exert reasonable control on the behaviour of others at the scene.

Other types of accident

Other types of accident are managed according to similar principles:

- Manage the entire accident scene and not just the casualties. The risk of further accidents or exacerbating the dangers is a common feature of accident scenes and is a constant trap for the unwary or inexperienced.
- Take care to avoid becoming a casualty, e.g. from electrocution in electrical accidents or being contaminated in toxic spills etc.
- Summon appropriate help as soon as possible. Police and ambulance are usually both required to manage the scene as well as the injured. When summoning help, the more information about location, type of accident, number and nature of casualties and so on that can be given the better. If specialist help is required the emergency services will usually summon this.
- Casualties should be dealt with in priority order according to the severity of their injuries and threat to life, as long as this is consistent with containing self-danger.

Accidents in the community, in common with all emergencies, are inherently unpredictable. Training in first aid and accident management is very valuable and should be part of the training of all doctors but you will also need to be flexible and resourceful to deal with the unanticipated aspects that are a feature of most emergencies.

Further Reading

Kumar P, Clark M 2005 Clinical medicine, 6th edn. W B Saunders, Edinburgh

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Sprigings D, Chambers J, Jeffrey A 1995 Acute medicine: a practical guide to the management of medical emergencies, 2nd edn. Blackwell Scientific, London

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