

COULD YOU SPOT A tonic-clonic seizure?

Jon Kyle Andersen* refreshes our knowledge on common medical emergencies.

What are the common medical emergencies?

- Anaphylaxis
- Angina pectoris
- Asthma
- Choking
- Fainting (syncope)
- Heart attack (myocardial infarction)
- Hypoglycaemia
- Seizure.

ANAPHYLAXIS

Description

A severe, life-threatening, generalised or systemic hypersensitivity reaction – the extreme end of the spectrum, occurring when the body's immune system reacts inappropriately to the presence of a substance that it wrongly perceives as a threat.

Presentation

Characterised by rapidly developing life-threatening airway and/or breathing and/or circulation problems usually associated with skin and mucosal changes:

- Life-threatening Airway: swelling of the face/throat/tongue, hoarse voice, stridor, difficulty swallowing

**Jon Anderson of ST4 Training was an ambulance service paramedic for 17 years incorporating the roles of aircrew paramedic, paramedic team leader, and operational station officer. The major part of Jon's work is teaching and facilitating courses in First Aid, Basic Life Support (BLS), defibrillation and medical emergencies to healthcare professionals and the general public. Jon is a Health and Safety Executive (HSE) approved First Aid at Work Instructor and Assessor, and holds a City and Guilds 7303 teaching qualification. He is also a CPD Registered Presenter with The CPD Certification Service. Call Jon on 07837 130700 or visit www.st4training.co.uk.*

- Life-threatening Breathing: increased respiratory rate, wheeze, cyanosis

- Life-threatening Circulation: pale skin, clammy, low blood pressure, faintness, drowsiness, collapse.

Treatment

- Phone 999 or 112 and say 'anaphylaxis'
- Adrenaline (intramuscular - IM) using a blue needle (or a green needle if the person is obese). The dose is repeated if necessary at five minute intervals according to the patient's condition (Table 1)
- Oxygen - 15 litres per minute with a non-rebreather mask and reservoir
- Patient positioning – a patient with an airway or breathing problem should sit up. However, any patient who collapses, or is shocked, or who feels faint or light-headed, must be laid flat (with legs raised) and kept in that position until his/her blood pressure has returned to normal.

ANGINA PECTORIS

Description

Angina pectoris occurs when one or more of the coronary arteries become narrowed.

Presentation

A manifestation of angina pectoris is chest pain on exertion. The signs and symptoms are similar to a heart attack:

- Pain in the chest/arm or arms/back/throat and lower jaw
- Breathlessness
- Feeling dizzy or sick
- Looking pale/grey/blue.

Treatment

- Rest – ask the patient to sit down
- GTN spray - administered under the tongue and the patient should then close his/her mouth to retain the spray. The initial dosage is 1 or 2 metered sprays (400 micrograms per dose spray) then the patient should be

reassessed after five minutes. This dosage can be repeated every 5- 10 minutes as clinically indicated

- Phone 999 or 112 if the patient's condition deteriorates or does not improve (this may now be a heart attack).

ASTHMA

Description

Asthma is characterised by a narrowing of the small airways with or without excess mucous production.

Presentation

A severe asthma attack is one that comes on very quickly and worsens very quickly. Signs of **life-threatening asthma** include any **one** of the following:

- Blue tinges at the extremities/lips/earlobes
- Exhaustion
- Confusion
- Decreased level of consciousness
- Poor respiratory effort
- Little or no response to inhaler therapy.

Treatment

- Phone 999 or 112
- Oxygen - 15 litres per minute with a non-rebreather mask and reservoir
- Salamol inhaler - Administer up to 10 doses of Salamol (using a large-volume spacer device if the patient is unable to use the inhaler effectively) and repeat every ten minutes if necessary.

CHOKING

Description

Complete airway obstruction.

Presentation

The patient:

- May put their hands up to their chest or throat
- Will panic
- Will use their accessory muscles of respiration.

Treatment

- Confirm choking by asking 'Are you choking?'
- Position the patient by leaning them forward
- Deliver: back blows – up to five, then abdominal thrusts – up to five (repeat as necessary). Use back blows and chest thrusts in babies less than one year of age
- Unconsciousness: if the patient becomes unconscious, phone 999 or 112 and start CPR.

FAINTING (SYNCOPE)

Description

Fainting is a defence mechanism employed by the brain, when the blood and oxygen supply to the brain becomes too low. A trigger causes the nervous system to temporarily malfunction, leading to a drop in heart rate and blood pressure.

Presentation

The person may:

- Feel light-headed or dizzy
- Become very pale
- Have ringing in their ears
- Yawn
- Feel weak
- Give little or no warning at all!

Treatment

- Oxygen - 15 litres per minute with a non-rebreather mask and reservoir
- Keep the person on the floor (consider the recovery position)
- If a person feels faint (but hasn't fainted) lay the person down and raise the legs
- After fainting, the person should return to normal fairly quickly
- Phone 999 or 112 if the person does not recover after a few minutes
- Repeated episodes of fainting need medical follow-up.

Check for the presence of a very slow heart rate (<40 per minute) which may drop the blood pressure. This is usually caused by a vasovagal episode. The drop in blood pressure may cause transient cerebral hypoxia and give rise to a brief seizure.

HEART ATTACK

Description

A heart attack occurs when one or more of the coronary arteries become blocked.

Presentation

- No two heart attacks are the same, and not everybody will present with all the signs and symptoms below:
- Pain in the chest/arm or arms/back/throat

Table 1 Adrenaline dose

Age	Volume	Dose
Adult	0.50 ml	500 micrograms
Child more than 12 years	0.50 ml	500 micrograms
Child 6-12 years	0.30 ml	300 micrograms
Child less than 6 years	0.15 ml	150 micrograms

Table 2 Glucagon dose

Age	Volume	Dose
Adult	1 ampoule	1 milligram
Children >8 years old or >25kg	1 ampoule	1 milligram
Children <8 years old or <25kg	0.5 ampoule	500 micrograms

Table 3 Midazolam dose

Age	Dose
Adult	10 milligrams (mg)
Above 10 years	10 milligrams (mg)
Child 5 to 10 years	7.5 milligrams (mg)
Child 1 to 5 years	5 milligrams (mg)

- and lower jaw
- Breathlessness
- Feeling dizzy or sick
- Looking pale/grey/blue
- A sense of 'impending doom.'

The **Golden Rule of Andersen** is if you have a high index of suspicion that something is clearly wrong, then phone 999 or 112 and say so!

Treatment

- Phone 999 or 112
- Aspirin - 300 milligram dispersible tablet to be chewed, or given crushed (not swallowed with water) **unless contraindicated**
- Oxygen - 15 litres per minute with a non-rebreather mask and reservoir, but only if the person is cyanosed or has a reduced level of consciousness
- GTN spray.

HYPOGLYCAEMIA

Description

Hypoglycaemia is a blood glucose <3 millimoles per litre, although some patients may show symptoms at a higher blood sugar level.

Presentation

Other signs and symptoms include:

- Shaking/trembling
- Sweating
- Headache
- Difficulty in concentration/vagueness
- Slurring of speech

'Signs of life-threatening asthma include blue tinges at the extremities/lips/earlobes...'

- Aggression and confusion/seizures
- Skin pale and clammy.

Treatment

- **GlucoGel** can be given if the patient is co-operative and has an intact gag reflex. Twist off the cap and squeeze the gel into the mouth and swallow. Alternatively, GlucoGel can be squeezed inside the cheek and the outside of the cheek then gently rubbed to aid absorption. Repeat after 10-15 minutes if necessary
- **Glucagon** is given when the patient is uncooperative/does not have an intact gag reflex/is unable to swallow safely/has an impaired level of consciousness. Administer IM into the upper arm or into the antero-lateral aspect of the thigh (**single dose only**) (Table 2). If any difficulty is experienced, or if the patient does not respond, then phone 999 or 112.

SEIZURE

Description

An epileptic seizure is the result of a sudden burst of excess electrical activity in the brain.

Presentation

Signs and symptoms of a **tonic-clonic** seizure:

- The body stiffens (tonic stage)
- If standing, the person may fall (usually backwards)
- The muscles relax and contract rhythmically, causing the convulsion (clonic stage)
- Breathing may become laboured (ie difficult or noisy) and may stop for up to 40 seconds. The person may become cyanosed.

Treatment

- Time the seizure - note the time the seizure started and stopped
- Phone 999 or 112 if:
 - The seizure lasts two minutes longer than usual for that person
 - The seizure has already lasted five minutes, and is continuing
 - The person has repeated generalised seizures without recovery in between
 - There is a slow recovery or you have any concerns
 - It is the person's first seizure
 - The person is injured.
- Oxygen - 15 litres per minute with a non-rebreather mask and reservoir (during an active convulsion)
- Buccal midazolam – for a tonic-clonic seizure that fits the criteria highlighted in red above. (Table 3.) Single dose only (even if the patient vomits) into the buccal sulcus.

VITAL READER PANEL



Shaun Howe
RDH

I have been unlucky enough to encounter two of the medical emergencies described in this article. The first was a faint, but it was an elderly lady who had taken some diazepam prior to the appointment to relax her nerves. This has the effect of depressing blood pressure and it was this that caused the faint (along with nerves). She made a recovery and was taken home by her son.

The second was more recent and much more serious. An 84-year-old patient attended the practice and had a heart attack in reception. The patient was booked in with me for treatment but I was not involved in the immediate care of the patient during the incident as he had arrived early for his appointment and I was busy with another patient. We had just a few months previously purchased an AED (defibrillator) which inevitably saved the patient's life as he went from having no signs to breathing with pulse by the time the ambulance arrived. There were many lessons learnt for the whole team but perhaps the significant one was that this gentleman had no known next of kin. We had to use our vulnerable adult protocol to get care for this gentleman and as a consequence, we now ask for emergency contact details on our bi-annual medical history forms.



Steph Horner,
Dental Nurse/Decon Lead

Many moons ago when dental treatment under sedation and GA was still acceptably practised outside of the hospital environment, I worked at an oral surgery clinic alongside anaesthetists. Many patients with a variety of medical histories would be referred to us for possible treatment. However, anyone with an extensive or complex MH was returned to their GDP for referral onto the hospital instead. So, I never had to attend to anything more serious than a vasovagal syncope, but I did see my fair share of those over the years.

Obviously some affected the patients directly but more common would be the parents of the children we saw. Nil by mouth overnight is required for patients being seen early on the clinics list, so most parents would forgo their breakfast. If their child wasn't allowed to eat then they wouldn't either. Once treatment was finished and the child happily and fully recovered, many a parent would simply faint. This was generally caused by a combination of low blood sugar levels due to fasting and an external trigger, for example the sudden intense period of stress and emotional upset that they had endured. I can sympathise totally why they wanted to refrain from eating but it sometimes had this detrimental effect. Whilst the doctor would be wholly responsible for treating the now embarrassed mum or dad, I would always be ready with soothing reassurance, a comforting hand to hold and a glucose drink.



Rhiannon Pounds,
Dental Nurse/Treatment Coordinator

I have been the first responder for a syncope episode (fainting) in the practice, a member of staff. Instinct took over; whenever we do medical emergency and CPR training I always think I would never be able to react quickly enough. The incident occurred in the staff room at the practice; I was on my own with her in the staff room and suddenly she felt dizzy and collapsed on the floor. It was clear she was still breathing and when I was talking to her she was making noises trying to respond. I raised her legs on to a chair so they were above her head and continued to talk to her. While staying with her I called for help and a dentist came with the emergency drugs kit and oxygen while a receptionist called an ambulance. The dentist administered the oxygen and soon after the paramedics arrived, she was monitored and then taken to hospital and later that day was discharged.

I was very fortunate that there were members of staff close by in the reception area and the previous week we had our annual staff CPR and medical emergencies training.

I am myself epileptic. Fortunately I have never had a seizure while at work but I know that I would be in safe hands.