Transient loss of consciousness 1: causes and impact of misdiagnosis

This article outlines the various causes of blackouts and examines the consequences of misdiagnosis.

CAUSES OF BLACKOUTS

Up to 50% of the general population will experience a blackout – or ‘transient loss of consciousness’ (T-LoC) – at some point during their lifetime (Fitzpatrick and Cooper, 2006; Petkar et al, 2005). These incidents account for approximately 1% of hospital admissions (Brignole et al, 2006).

There are a number of possible causes for a T-LoC. These can be broadly grouped into cardiac, which may be caused by structural heart disease or cardiac arrhythmias, and non-cardiac (Fitzpatrick and Cooper, 2006; Petkar et al, 2005).

Non-cardiac causes involve a range of systems:
- Non-cardiac syncope, for example:
  - Vasovagal syncope – the common faint (a reflex cause);
  - Orthostatic hypotension (a postural cause);
  - Cough syncope (a situational reflex cause);
  - Neurological conditions such as epilepsy;
  - Psychological factors such as anxiety;
  - Unexplained causes of T-LoC.

As the possible causes of T-LoC span a number of specialties, diagnosis presents a particular challenge for healthcare professionals. A standard patient pathway should therefore be followed to ensure that diagnosis is quick, efficient and accurate, and that distress to patients and their families is minimised.

Depending on the underlying causes of syncope, misdiagnosis or delayed diagnosis can be fatal and may cause immense distress and disruption to patients’ and carers’ lives. This is in addition to the distress caused by the condition itself. Misdiagnosis is also costly, placing an unnecessary burden on the NHS (Stokes et al, 2004).

Nurses working in A&E, primary care and specialist cardiology and epilepsy units can help in the diagnostic process through improved recognition of and distinction between the two conditions.

SYNCOPE

Syncope, or ‘anoxic seizure’, can be defined as ‘a sudden and brief loss of consciousness associated with a loss of postural tone, from which recovery is spontaneous’, and is caused by a sudden transient loss of blood flow to the brain (Kapoor, 2000).

This is usually due to a drop in blood pressure and/or a change in heart rhythm, causing a drop in the cardiac output and, ultimately, the amount of oxygenated blood reaching the brain (Brignole et al, 2004; Shaffer et al, 2001).

When blood pressure falls, several warning symptoms usually precede the loss of consciousness, such as light-headedness/dizziness, nausea, feeling hot and sweaty, fading vision and buzzing in the ears. However, if the heart stops pumping completely for a couple of seconds (bradycardia), blood flow stops more abruptly and there is often little, if any, warning before loss of consciousness (Syncope Trust And Reflex anoxic Seizures, 2007a). On occasion, jerking limb movements can develop. There may be urinary incontinence (Fitzpatrick, 2008) and, rarely, biting of the inside of the mouth or side of the tongue.

Vasovagal syncope (also known as the ‘common faint’) is a reflex mechanism activated in response to a trigger such as the sight of blood or standing still for a long
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Nursing practice

It does not pose any long-term health risks itself, but could lead to high-risk situations, for example fainting while driving (Shaffer, 2001).

A more serious type of syncope can occur in children, although it is rare – reflex anoxic seizures or reflex asystolic syncope (RAS), also referred to as infantile vasovagal syncope (Brignole et al, 2004) – which is triggered by unexpected stimuli such as pain or fright. During an attack, the heart and breathing stop, the eyes roll into the head, skin may turn pale/grey, sometimes blue under the eyes and around the mouth. The body will stiffen and the arms and legs may jerk. After an attack, which will typically last for about 30 seconds, patients may remain unconscious for over an hour. On recovery they can be emotional and sleep for several hours (STARS, 2007b).

Other underlying causes of syncope can be more serious, such as the presence of structural heart disease or certain types of serious arrhythmia which can lead to sudden cardiac death (Kapoor, 2000).

Examples of these are ventricular tachycardia or complete atrioventricular block (Fig 1), which is also known as complete heart block (Kapoor, 2000). These conditions need immediate treatment, so timely diagnosis is crucial. For different types of syncope and their prevalence, see Box 1.

Epilepsy

Epilepsy seizures occur as the result of a sudden burst of excess electrical activity in the brain. Their frequency varies from multiple seizures a day to one every few years and they can affect people of all ages.

There are many different types of seizures depending on which part of the brain is affected, including brief ‘absent moments’ (a temporary loss of awareness or change in behaviour and emotions), partial or total loss of consciousness and convulsions. Body stiffness, tongue biting, loss of urinary and/or faecal continence, prolonged confusion and slow recovery after the event may also occur (Epilepsy Action, 2008).

T-LoC is most likely to occur during a ‘generalised seizure’, where the abnormal electrical activity affects all or most of the brain (Epilepsy Action, 2008).

Impact of misdiagnosis

The similarity between a syncope ‘attack’ and epilepsy ‘seizure’ provides a diagnostic challenge even for specialists if trying to distinguish a case of syncope from one of epilepsy using visual cues alone.

UK research shows that approximately 150,000 people – around 30% of adults and 39% of children – diagnosed with epilepsy do not actually have the condition (Uldall et al, 2006). Many of these people will be unnecessarily treated with anticonvulsant medication, sometimes for decades. This is associated with side-effects that can have a negative impact on quality of life, for example affecting ability to work (Fitzpatrick, 2008; Zaidi et al, 2000).

 Needless – and often expensive – diagnostic tests such as brain MRI or CT scanning can be stressful for patients and waste NHS resources.

Misdiagnosis also carries an economic cost. The All-Party Parliamentary Group on
Cardiologist and a neurologist. This kind of multidisciplinary teams, led jointly by a and treatment centres, and are run by access T-LoC clinics, or rapid assessment.

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When there is doubt about the cause of an unexplained blackout, one solution is referral to specialist T-LoC clinics, which provide rapid access to the full range of neurological and cardiological diagnostic procedures. These are sometimes referred to as rapid access T-LoC clinics, or rapid assessment and treatment centres, and are run by multidisciplinary teams, led jointly by a cardiologist and a neurologist. This kind of service is the optimal setting in which to make the correct assessment and ensure appropriate specialist management for individual patients (Fitzpatrick, 2008).

Nurses can play an important role in referral to T-LoC clinics:

- A&E nurses can help to ensure that patients admitted due to an unexplained T-LoC or fall are referred on to a T-LoC clinic;
- Specialist nurses working in a T-LoC clinic can help carry out patient assessments, using the clinic’s assessment questionnaire, and discuss cases with the cardiologist and neurologist.

The NSF on coronary heart disease (DH, 2005) encouraged the creation of rapid access blackout/T-LoC clinics but, when it was published in 2005, no additional funding was made available. The framework refers to the ‘development of rapid access multidisciplinary arrhythmia and/or T-LoC clinics’ as part of its recommendation for service improvements.

As well as providing an invaluable single-entry clinical evaluation and shifting the judgement to a specialist multidisciplinary team, such clinics provide the potential to increase the number of specialist T-LoC nurses, ultimately improving patient services.

The cost to the NHS of establishing a T-LoC clinic service is relatively low, as many team members will be engaged in parallel activities. It offers a cost-effective means of delivering targeted diagnostic and therapeutic interventions. Tilt testing (a method of simulating/duplicating non-cardiac syncope) can cost up to the equivalent of £3,000 per diagnosis (Krahn et al, 2003), and implantable loop recorders (ILRs) (devices that can record ongoing ECG heart rhythm data) about £2,000, including both implantation and follow-up (Fitzpatrick and Cooper, 2006).

Speedy and accurate diagnosis prevents inappropriate NHS expenditure on ambulance journeys, A&E attendances and inpatient care, including unnecessary brain scanning and electroencephalograms. In most cases, these would cost far more than a dedicated T-LoC clinic (Brignole et al, 2004). Thus, once established, there is no doubt that such clinics would result in substantial cost savings for the NHS.

Ideally, a T-LoC clinic should exist in every district general hospital and tertiary centre. It is important that these clinics should be referred to as T-LoC or blackout clinics, as opposed to syncope clinics, to ensure that patients are not assumed to have syncope before a full assessment is carried out.

Part 2 of this unit, to be published next week, explores the assessment and treatment of transient loss of consciousness.

REFERENCES


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