The early management of head injuries

Information for the public
Published: 1 January 2014
www.nice.org.uk

About this information

NICE guidelines provide advice on the care and support that should be offered to people who use health and care services.

This information explains the advice about head injury that is set out in NICE guideline 176.

This is an update of advice on head injury that NICE produced in 2007.

Does this information apply to me?

This information applies to children, young people and adults who have a head injury. It does not apply to superficial injuries to the eye or face.

This information may also be useful for family members and carers of someone with a head injury.

For the purposes of the NICE guideline, children are defined as those aged under 16 years old.
Head injuries

Head injuries are common and can happen in a variety of ways, for example through falls, road traffic accidents, sports injuries and assaults. A head injury can cause a range of symptoms depending on whether the brain has been injured, and how severely. Most head injuries are minor but in some cases they can cause severe brain damage.

Minor brain injury: concussion

Concussion is the most common type of minor injury to the brain. Many people who go to the emergency department (A&E) of a hospital with a head injury will have concussion. Some people may have lost consciousness (they were 'knocked out') for a short time and afterwards appeared to be back to normal. People with concussion might not remember what happened just before or after the incident. Tests such as CT scans may not show up any problems, but there can still be tiny areas of damage. These can cause symptoms in the weeks or months after the injury, for example headaches, dizziness and problems with concentration and memory.

Severe brain injury

When a head injury causes a severe injury to the brain it is known as 'traumatic brain injury'. Signs of a traumatic brain injury usually appear in the first few hours after injury and may lead to serious complications that need immediate treatment. The main complications are:

- bleeding inside the skull – called 'intracranial haemorrhage' or an 'extradural or subdural haematoma' – which puts pressure on the brain and needs to be treated quickly, sometimes through an operation

- general bruising and swelling in the brain, which may need treatment in intensive care.

The Glasgow coma scale

There are many levels of consciousness, ranging from normal consciousness to a deep coma. A person is in a coma if they are unconscious and unaware of what is going on around them and they do not open their eyes even in response to pain. Doctors, nurses, ambulance crews and others looking after people with head injuries use the Glasgow Coma Scale (GCS) to assess a person's level of consciousness after a head injury. The scale measures 3 aspects of consciousness: eye-opening, verbal response (for example, speaking) and the responsiveness of the body (for example, the response to pain). The person's score in each area is added up to give a maximum score of 15 (normal consciousness) and a lowest level of 3 (severe coma). A special scale is used for babies and...
children. If a person has a condition such as dementia or a learning disability that may affect their GCS score, the professionals assessing the person should take this into account.

Looking after people with head injuries

People with head injuries may be cared for by a range of professionals who specialise in different areas of treatment or support. These could include ambulance crews, GPs, hospital doctors, therapists (such as speech and language therapists), nurses and psychologists. All of these professionals will be trained and experienced in providing particular treatments or support.

Working with people with head injuries

The injured person's care team should talk to them (or their family or carers, if appropriate) about their head injury. They should explain any tests, treatments or support that should be offered so that the person can decide together with their team what is best. Families and carers can be involved in helping to make decisions, if the person agrees. Parents or carers may be involved in helping children and young people to make decisions depending on their age. There is a list of suggested questions to help people talk to their care team.

Patients and carers may also like to read NICE’s information for the public on patient experience in adult NHS services. This sets out what adults should be able to expect when they use the NHS. We also have more information on the NICE website about using health and social care services, including advice that healthcare professionals need to follow if a person is unable to make decisions for themselves and information on parental consent for treatment in children.

What to do if someone has a head injury

If you have concerns about a head injury or about another person who has had a head injury, seek medical advice immediately.

When to go to hospital

Someone with a head injury needs to go to the hospital's emergency department (A&E) as soon as possible if anything in the box below applies. This should be by ambulance if needed.
• Unconsciousness or lack of full consciousness, even if the person has now recovered.
• Any clear fluid running from the ears or nose.
• Bleeding from one or both ears.
• Bruising behind one or both ears.
• Any signs of skull damage or a penetrating head injury.
• The injury was caused by a forceful blow to the head at speed (for example, a pedestrian hit by a car, a car or bicycle crash, a diving accident, a fall of 1 metre or more, or a fall down more than 5 stairs).
• The person has had previous brain surgery.
• The person has had previous problems with uncontrollable bleeding or a blood clotting disorder, or is taking a drug that may cause bleeding problems (for example, an anticoagulant).
• The person is intoxicated by drugs or alcohol.
• There are safeguarding concerns, for example about possible non-accidental injury or because a vulnerable person is affected.

The person also needs to go to hospital as soon as possible if they have developed any of the following since the injury happened:

• Problems understanding, speaking, reading or writing.
• Loss of feeling in part of the body or problems with balancing or walking.
• General weakness.
• Changes in eyesight.
• A seizure (also known as a convulsion or fit).
• Problems with memory of events before or after the injury.
• A headache that won't go away.
- Any vomiting.
- Irritability or altered behaviour such as being easily distracted, not themselves, no concentration, or no interest in things around them. This is particularly important in babies and children under 5.

**GP referral**

People who have visited their GP about their head injury should be assessed using the lists above and referred to the emergency department if needed (this may be by ambulance).

The person’s GP may also decide to send them to the emergency department if the person (or their family or carer) is worried about the injury or if there is no one at home to look after them. The injured person should be accompanied by a competent adult.

If the GP decides that the injured person can go home, they should give the person (or their family or carer) some discharge advice about what to do and what symptoms to watch out for over the next few days (see [leaving the hospital](#)).

**At the hospital**

When someone with a head injury arrives in the emergency department (A&E), staff should check that their airway is clear, their breathing is stable and whether there is any bleeding that needs to be controlled. A trained member of staff should also check the person’s level of consciousness.

Everyone with a head injury should be seen within 15 minutes of arriving in the emergency department by a member of staff who is trained in assessing whether someone may have a significant injury and needs urgent treatment.

If emergency department staff believe the person may have a significant injury to their brain or spine, they should perform a full examination to see if scans or X-rays are needed urgently. A person who is believed to be at low risk of having a significant injury should be examined again within 1 hour of their first assessment.

While the person is in the emergency department, staff should offer reassurance and try to make them more comfortable (for example, by putting a splint on a broken arm or leg and providing a catheter for a full bladder). If the person is in pain, they should be offered appropriate pain relief.
Emergency department staff may need to put a neck collar on the person if they do not already have one on. This may be because of neck pain or tenderness, abnormal sensation in the arms or legs, problems with balance and walking or general weakness. The neck collar should stay on until a full assessment shows it is safe to remove it.

Based on their assessment and examination, the person may either need to go for tests or may be discharged home. A person should only be discharged if they can be taken home safely and there is someone to look after them at home. See leaving the hospital for more information.

**Safeguarding**

Everyone who visits the emergency department with a head injury should be assessed by a healthcare professional who has been trained in safeguarding children and vulnerable adults from non-accidental injury. This means identifying and protecting children and vulnerable adults from abuse or neglect. If the professional has any concerns about the injured person and believes them to be at risk, they need to follow local procedures that are appropriate for the person's age.

**Scans and X-rays to check for injuries**

**Injuries to the brain**

**Types of scan**

A CT scan of the head is the test usually offered if a brain injury is suspected. A CT scan uses X-rays to create detailed images of the inside of the body. Occasionally, a different scan called magnetic resonance imaging (MRI) is needed. MRI scanning does not involve X-rays but uses a powerful magnetic field to produce detailed pictures of the brain, which in some situations can provide more information than a CT scan.

**Deciding whether a CT scan is needed**

Based on the results of their assessment, emergency department staff will decide whether the person needs a CT head scan and, if so, whether it needs to be performed urgently (within 1 hour of the assessment) or whether it should be performed within 8 hours of the injury.
For a child with a head injury, if a CT scan is not needed urgently the child may need to be monitored for any further symptoms. If monitoring is needed, it should be for at least 4 hours from the time of the injury.

**People having anticoagulant treatment**

Someone with a head injury who is currently taking an anticoagulant should always be offered a CT head scan within 8 hours of their injury. This is because anticoagulants prevent the blood from clotting normally and therefore there is an increased risk of bleeding problems.

**Injuries to the spine and bones in the neck**

CT scans or X-rays may be needed to check for damage to the bones in the person's neck. Sometimes an MRI scan of the neck is also used, for example, if there is a risk that the spinal cord or nerves in the neck may be damaged.

**What happens after the tests?**

Depending on the results of their tests and assessments, the person may be able to go home or they may need to be admitted to a ward (also see who needs to be admitted to hospital?). If tests show a problem, the doctors looking after the injured person may need to consult a neurosurgeon, a doctor who specialises in brain surgery.

If the neurosurgeon believes that the injured person needs specialised care, the person may be transferred to a neuroscience unit. This may be in the same hospital but will often be in another hospital with a specialist unit, which might be some distance away.

**Transfer to another hospital**

Some people with a head injury need to be taken to another hospital for specialised care and treatment. Hospital transfer is done with great care to make sure that no further harm is done. Normally, the person will be taken by ambulance, but a helicopter may be used for long distances.

The injured person may be given artificial breathing support through a tube during the journey if there is a chance of breathing problems. People who get this type of breathing support should also be given anaesthetic and pain-relieving drugs.

During the journey, the person should always be accompanied by suitably trained hospital staff.
Children who are being transferred should be accompanied by staff with experience of moving critically injured children between hospitals.

If possible, families and carers should be given the chance to discuss with a member of the person's healthcare team the reason for the transfer, and how this will happen. They should be able to be as close to the person as is practical during the journey.

**Who needs to be admitted to hospital?**

Sometimes people with a head injury need to be admitted to a ward for observation. This may be because their scans or X-rays have shown a problem, but some people are admitted even if their results are normal. This is often because there is no one at home to look after them. It may also be because they are under the influence of alcohol or drugs, or they have other injuries (such as broken bones) or health problems. Other reasons for admitting a person are:

- Their Glasgow coma scale (GCS) (see the [Glasgow coma scale](#)) score has not returned to 15.
- They need a CT scan but it has not yet been done (either because a scanner was not available or the person was not cooperative enough to allow a scan).
- There are continuing signs of a possible neurological problem (involving the nervous system).
- General anaesthesia was used during the CT scan and the person has to recover from this.

**Observation in hospital**

Action needs to be taken quickly if a person with a head injury develops complications, so staff on the ward should make regular checks of the person during the day and night. These checks should include assessing the person's conscious level and checking the light reflex in their eyes. This may involve waking the person up.

Most people under observation are allowed home within a day or 2 of admission. If the person's condition does not improve as expected or their symptoms worsen, further assessment and tests may be carried out and staff may consult a neurosurgeon.

**Support for families and carers**

For the injured person's family or carers, suddenly finding themselves in a hospital and dealing with
different members of staff can be overwhelming and can cause additional stress. Hospital staff caring for the injured person should introduce themselves to family members or carers and briefly explain what they are doing.

The presence of familiar friends and relatives at the early stage following admission can be very helpful. The person recovering consciousness can easily be confused by strange faces and being in a strange environment. Talking and making physical contact, such as holding hands, can help the recovery process.

Such contact should be encouraged by hospital staff, although it is important that relatives and friends do not feel they have to spend many hours at the bedside – they also need to have a break and sleep from time to time.

It can be a difficult experience for children visiting a brother, sister or parent with a head injury. Hospital staff should recognise this and explain the current situation and possible long-term changes in their parent or sibling in a way that is suitable for the child's age. Information designed for children is available from patient support groups (see sources of advice and support) and can also be useful.

Information sheets detailing the nature of head injury and any investigations likely to be used should be available in the emergency department. There should also be a board or area displaying leaflets or contact details for patient support organisations. Support groups can speak from experience about the real-life impact of head injury and can offer support following discharge from hospital (also see sources of advice and support).

Leaving the hospital

A person will be able to go home when the doctors think it is safe. No one should be discharged until they have normal levels of consciousness, all other problems (such as other injuries) have received attention and there is someone to care for them at home.

A member of the hospital staff should talk to the injured person and their family or carer before they leave hospital about what to do and what symptoms to look out for in the first few weeks at home. This discharge advice should also be provided in written form (such as a leaflet) that is suitable for the patient's age and should include information about the following.

- The type of injury the person has and how serious it is.
• The recovery process after a head injury, including how some people can appear to have made a fast recovery but may experience symptoms or complications later.

• The importance of having a responsible adult to be with the patient for the first 24 hours after their injury.

• Signs or symptoms that mean the person needs to come back to hospital to be reassessed (see the list of symptoms that can develop in when to go to hospital), and details of someone to contact if this happens.

• When it is safe to return to everyday activities such as school, work, sports and driving.

• Details of support organisations for people after a head injury (see sources of advice and support).

If the person's head injury happened when they were under the influence of alcohol or drugs they should also be offered information and advice about alcohol or drug misuse when they are ready to be discharged.

### Telling the person's GP about their head injury

When a person has been to the emergency department because of a head injury, the hospital should inform the person's GP by letter or email within 2 days of their discharge. In the case of a child, the letter should be sent to their GP and their school nurse or health visitor, depending on the child's age.

### Problems after leaving hospital

If a person has needed a CT scan or been admitted to a ward because of a head injury and continues to have problems after leaving hospital, their GP should be able to arrange an outpatient appointment with someone trained in assessing and managing the after effects of brain injury, for example, a clinical psychologist, rehabilitation specialist or neurosurgeon.

If the person develops any of the symptoms described in when to go to hospital, they should go straight to their nearest hospital emergency department. Anyone who returns to the emergency department within 48 hours of discharge because of problems caused by their head injury should be seen by a senior doctor who is experienced in head injury.
Questions to ask about head injuries

These questions may help people discuss their head injury or the tests they have been offered with their healthcare team.

About head injuries

- Can you tell me more about my head injury?
- What are the most likely effects of my head injury?
- Can you provide any information for my family/carers?
- How do I know whether I need to go to hospital?

Having tests after a head injury

- Can you tell me more about the tests you’ve offered me and why I need them?
- What do these tests involve?
- How long will I have to wait until I have these tests?
- How long will it take to get the results of these tests?
- Will I need to have an operation?

Being discharged after a head injury

- Why is it okay to be discharged now?
- What should I look out for in the next 24–48 hours?
- What should I do if I have any problems?
- Are there likely to be any lasting problems?
- Are there any support organisations in my local area?

For family members, friends or carers

- What can I/we do to help and support the person with a head injury?
• Can you provide some written information about head injury?

• Is there any additional support that I/we as carers might benefit from or are entitled to?

Sources of advice and support

• Brain and Spine Foundation, 0808 808 1000

• Child Brain Injury Trust, 0303 303 2248

• Headway – the brain injury association, 0808 800 2244

You can also go to the NHS website for more information.

NICE is not responsible for the quality or accuracy of any information or advice provided by these organisations.

Update information

September 2019: The advice on having a CT scan when taking warfarin was updated to cover all anticoagulants.

ISBN: 978-1-4731-0406-8