

Good Afternoon

Immediate assessment and emergency treatment of head injuries

Review of guidelines

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Head Injuries



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Aims of this talk

- Review of First Aid assessment and treatment of head injuries
- Some statistics on head injuries
- Definitions of aspects of head injuries
- A review of ERC guidelines on first aid
- A review of NICE 2014 guidelines
- An overview of concussion assessment tools

Head Injury Statistics

- Head injury leading cause of death and disability in ages 1yr-40yrs in the UK
- Each year, 1.4 million attendances to ED
- 30% – 50% aged under 15yrs
- Each year 200,000 admitted to hospital
- 20% of these have features suggestive of skull fracture or brain damage
- Incidence of death is low – 0.2% of attendees at ED

Head Injury Statistics

- 95% present with normal or slightly impaired conscious level (GCS>12)
- Majority of fatal outcomes in the groups GCS 9-12, and GCS<8

Definitions

- Head Injury
 - Defined as any trauma to the head, other than superficial injuries to the face
- Concussion
 - Mild Traumatic Brain Injury
 - A head injury with a temporary loss of brain function
 - A variety of physical, cognitive, emotional symptoms
 - May be subtle and go unnoticed
 - Headache, dizziness, nausea, vomiting, balance difficulties, lack of motor coordination, blurred vision

Definitions

- First Aid
 - Helping behaviours and initial care provided for an acute illness or injury
 - Can be initiated by anyone in any situation
- First Aid Provider
 - Trained in first aid
 - Can:
 - Recognise, assess and prioritise the need for first aid
 - Provide care using appropriate competence
 - Recognise limitations and seek additional care when needed

Definitions

- Focal neurological deficit
 - Problem restricted to one part of the body or particular activity
 - Difficulty understanding, speaking, reading, writing
 - Decreased sensation
 - Loss of balance, problems walking
 - General weakness
 - Visual changes
 - Abnormal reflexes

Definitions

- High energy injury
 - Pedestrian vs car
 - Sailor vs foil
 - Ejected from motor vehicle
 - Fall from >1m
 - Diving accident
 - Bicycles (!)

Definitions



Definitions

- Base, open or depressed skull fracture
 - Signs:
 - Clear fluid from ears or nose
 - Black eyes with no further damage around eye
 - Bleeding from both or either ear
 - Signs of penetrating injury – may be subtle
 - Visible trauma to scalp or skull

Immediate assessment and treatment

- Approach and Assess (Danger, Response)
- Airway
- Breathing
- Circulation

European Resuscitation Council Guidelines for Resuscitation 2015

- Section 9: First Aid
 - First aid for medical emergencies
 - Positioning of a breathing but unresponsive victim
 - Administration of oxygen
 - Optimal positioning for a shock victim
 - First aid for trauma emergencies
 - Recognition of concussion
 - Spinal motion restriction

European Resuscitation Council Guidelines for Resuscitation 2015

- Positioning of a breathing but unresponsive victim
 - Position individuals who are unresponsive but breathing normally into a lateral, side-lying recovery position as opposed to leaving them supine (lying on back)
 - In certain situations such as resuscitation related agonal respirations or trauma, it may not be appropriate to move the individual into a recovery position
 - Overall, there is little evidence to suggest an optimal recovery position – there are several possibilities
 - If the victim has to be kept in the recovery position for more than 30 minutes, turn him or her to the opposite side to relieve the pressure on the lower arm

European Resuscitation Council Guidelines for Resuscitation 2015

- Administration of oxygen
 - Administration of oxygen in the pre-hospital environment has traditionally been considered crucial in the care of patients with an acute illness or injury, aiming at treating or preventing hypoxaemia
 - No evidence for or against the routine administration of oxygen for first aid providers
 - There are no direct indications for the use of supplemental oxygen by first aid providers
 - If used, supplemental oxygen should only be administered by first aid providers who have been properly trained in its use and if they can monitor its effects

European Resuscitation Council Guidelines for Resuscitation 2015

- Optimal positioning for a shock victim
 - Shock is a condition in which there is failure of the peripheral circulation
 - These recommendations place an increased value on the potential, but uncertain, clinical benefit of improved vital signs and cardiac function, by positioning a victim with shock in the supine position (with or without passive leg raising - PLR), over the risk of moving the victim.
 - Place individuals with shock into the supine (lying on back) position.
 - Where there is no evidence of trauma use passive leg raising to provide a further transient (<7 min) improvement in vital signs but the clinical significance of this transient improvement is uncertain

European Resuscitation Council Guidelines for Resuscitation 2015

- Recognition of concussion
 - Minor head injuries without loss of consciousness are common in adults and children.
 - The first aid providers may find it difficult to recognise concussion (minor traumatic brain injury (TBI)) due to the complexity of the symptoms and signs, and this can lead to a delay in providing proper concussion management and post- concussion advice and treatment.
 - Although a concussion scoring system would greatly assist first aid providers in the recognition of concussion, there is no simple validated scoring system in use in current practice.
 - An individual with a suspected concussion should be evaluated by a healthcare professional.

European Resuscitation Council Guidelines for Resuscitation 2015

- Spinal motion restriction
 - Definitions:
 - Spinal immobilisation is defined as the process of immobilising the spine using a combination of devices (e.g. backboard and cervical collar) intended to restrict spinal motion.
 - Cervical spinal motion restriction is defined as the reduction or limitation of cervical spine movement using mechanical cervical devices including cervical collars and sandbags with tape.
 - Spinal stabilisation is defined as physical maintenance of the spine in a neutral position prior to applying spinal motion restriction devices.

European Resuscitation Council Guidelines for Resuscitation 2015

- Spinal motion restriction
 - In suspected cervical spine injury it has been routine to apply cervical collars to the neck, in order to avoid further injury from spinal movement.
 - However, this intervention has been based on consensus and opinion rather than on scientific evidence.
 - Furthermore, clinically significant adverse effects, such as raised intracranial pressure, have been shown to occur following the application of a cervical collar.
 - Thus, the routine application of a cervical collar by a first aid provider is not recommended.
 - In suspected cervical spine injury, manually support the head in a position limiting angular movement until experienced healthcare providers are available.

NICE Guidelines 2014

- Transfer to Hospital
 - Telephone advice services (NHS 111, emergency department helplines) should refer patients who have sustained a head injury to the **emergency ambulance services** (that is, 999) for emergency transport to the emergency department if they have experienced any of the following:
 - Unconsciousness or lack of full consciousness (for example, problems keeping eyes open).
 - Any focal neurological deficit since the injury.
 - Any suspicion of a skull fracture or penetrating head injury.
 - Any seizure ('convulsion' or 'fit') since the injury.
 - A high-energy head injury.

NICE Guidelines 2014

- Transfer to Hospital
 - Telephone advice services (NHS 111 or emergency department helplines etc) should refer patients who have sustained a head injury to a **hospital emergency department** if they have any of the following risk factors:
 - Any loss of consciousness ('knocked out') as a result of the injury, from which the person has now recovered
 - Amnesia for events before or after the injury ('problems with memory')
 - Persistent headache since the injury.
 - Any vomiting episodes since the injury.
 - Any previous brain surgery.
 - Any history of bleeding or clotting disorders.
 - Current anticoagulant therapy such as warfarin.

NICE Guidelines 2014

- Transfer to Hospital

- (Cont.)

- Current drug or alcohol intoxication.
 - There are any safeguarding concerns (for example, possible non-accidental injury or a vulnerable person is affected)
 - Irritability or altered behaviour ('easily distracted', 'not themselves', 'no concentration', 'no interest in things around them'), particularly in infants and children aged under 5 years.

Concussion Assessment Tool

- Sport Concussion Assessment Tool

- SCAT 3 (publ 2013 BJSM):

- Two stage assessment tool – pre-injury baseline and post-injury assessment
 - Adolescent and adult version, and separate version for children <13 yrs
 - For use by medical professionals only
 - Composite of GCS, Standardised Assessment of Concussion Score, Balance Assessment Score
 - Hard copy and on-line portals for automatic scoring

- Pocket Concussion Recognition Tool

- Concise version
 - Being widely adopted – from World Rugby to the Scottish Angling Society
 - from McCrory et. al, Consensus Statement on Concussion in Sport. Br J Sports Med 47 (5), 2013

Pocket CONCUSSION RECOGNITION TOOL™

To help identify concussion in children, youth and adults



FIFA®



FEI

RECOGNIZE & REMOVE

Concussion should be suspected **if one or more** of the following visible clues, signs, symptoms or errors in memory questions are present.

1. Visible clues of suspected concussion

Any one or more of the following visual clues can indicate a possible concussion:

- Loss of consciousness or responsiveness
- Lying motionless on ground/Slow to get up
- Unsteady on feet / Balance problems or falling over/Incoordination
- Grabbing/Clutching of head
- Dazed, blank or vacant look
- Confused/Not aware of plays or events

2. Signs and symptoms of suspected concussion

Presence of any one or more of the following signs & symptoms may suggest a concussion:

- Loss of consciousness
- Seizure or convulsion
- Balance problems
- Nausea or vomiting
- Drowsiness
- More emotional
- Irritability
- Sadness
- Fatigue or low energy
- Nervous or anxious
- "Don't feel right"
- Difficulty remembering
- Headache
- Dizziness
- Confusion
- Feeling slowed down
- "Pressure in head"
- Blurred vision
- Sensitivity to light
- Amnesia
- Feeling like "in a fog"
- Neck Pain
- Sensitivity to noise
- Difficulty concentrating

3. Memory function

Failure to answer any of these questions correctly may suggest a concussion.

"What venue are we at today?"

"Which half is it now?"

"Who scored last in this game?"

"What team did you play last week / game?"

"Did your team win the last game?"

Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, and should not be returned to activity until they are assessed medically. Athletes with a suspected concussion should not be left alone and should not drive a motor vehicle.

It is recommended that, in all cases of suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

RED FLAGS

If ANY of the following are reported then the player should be safely and immediately removed from the field. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:

- Athlete complains of neck pain
- Increasing confusion or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behaviour change
- Double vision

Remember:

- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to do so
- Do not remove helmet (if present) unless trained to do so.

from McCrory et. al, Consensus Statement on Concussion in Sport. Br J Sports Med 47 (5), 2013

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Summary

- First Aid providers provide First Aid
- Recognise circumstances that increase the risk of head injury
- Recognise both major and minor head injury
- The initial response is always:
 - Approach and Assess
 - Airway
 - Breathing
 - Circulation

Thank You

Questions