ORTHOPAEDICS AND TRAUMA GUIDELINES

HEAD INJURY AND CONCUSSION

Head Injury

SIGN 2009, BMJ-2014, Updated NICE Guidance on Concussion, NHS Choices information Minor Brain Injury and Concussion GP Guide from Headway & RCGP

Background:

- 1.4M people attend A and E in England and Wales every year with a head injury
- 80% of head injuries present with GCS 14 or 15. The majority of these patients will not need secondary care assessment or a CT scan.
- Only a small proportion of patients will suffer poor neurological outcome but because the absolute number of head injuries is high, head injury is the most common cause of death and disability in people aged <40yrs in the UK
- The algorithms below are designed to sieve out significant head injury, often, in those Presenting minor changes in GCS.

Assessment

- Clinicians with training in safeguarding should be involved in an initial assessment

Who should be referred to secondary care for further assessment?

Adults

- **If any of the following refer - urgent CT head within 1 hour (CT head + C-spine if GCS <15)**
- GCS <13 on initial assessment
- GCS <15 at 2 hours after injury on assessment in the emergency department (whether or not intoxication is a contributory factor)
- Suspected open or depressed skull fracture
- Any sign of basal skull fracture
- Post-traumatic seizure
- Deteriorating level of consciousness or focal neurological deficit
- More than one episode of vomiting since a head injury
- Severe and persistent headache
- Coagulopathy with LOC, amnesia or any neurological feature
- **If any of the following refer - CT scan within 8 hours of head injury**
- Age >65 with LOC or amnesia
- Skull fracture but not meeting urgent scan criteria
- Dangerous mechanism of injury ○ pedestrian or cyclist hit by motor vehicle ○ fall from a height of >1 metre or 5 stairs ○ rollover or ejection from a vehicle ○ accident involving motorised recreational vehicle ○ diving accident
- >30 minutes of retrograde amnesia
- **No indications for CT scan but refer for a period of observation**
- Significant medical problems including anticoagulant use

- Social problems/cannot be supervised by a responsible adult

All other injuries can be managed in primary care with observation and head injury advice sheet

Children

- **In addition to the adult indications for referral to secondary care, children should be referred if the following risk factors apply: (all CT scan with in 8 hours unless stated)**
- Tense fontanelle (urgent scan)
- Witnessed loss of consciousness >5minutes (urgent scan)
- Bruise, swelling or laceration of >5cm on head
- Suspicion of non-accidental injury
- Abnormal drowsiness
- 3 or more episodes of vomiting
- Anterograde or retrograde amnesia for >5mins (child over 5yrs)

Discharge and follow up for adults and children

- Give verbal and printed discharge advice to patients with any degree of head injury. Minor Head Injury discharge advice from Headway including information on a graduated return to play sports
- A responsible adult should stay with the patient for the first 24 hours
- Inform patients and carers about the possibility of persistent or delayed symptoms after head injury

Concussion in Sport

Sport and recreation alliance 2016, Sport Scotland 2018

Background

- Following the tragic death of 14-year old Ben Robinson in 2011, Scotland has become the first country to introduce national guidelines on concussion in sport. These are slowly spreading globally.
- Concussion is a brain injury (often called ‘mild traumatic brain injury’) caused by biomechanical forces, either by a direct blow to the head or by an impulsive or rotational force
- It may or may not involve loss of consciousness (most occur without)
- It causes microscopic acute neuropathological changes in the brain up to and including axonal damage
- No structural injury is seen on imaging –CT and MRI is normal
- It typically results in short-lived impairment of neurological function that resolves spontaneously, but symptoms and signs may evolve over a number of minutes to hours
- Suspect concussion in the presence of a history of head injury and any of the following
- **Symptoms**

Somatic- headache, visual change, photophobia, dizziness, nausea, drowsiness, fatigue, insomnia
Cognitive- disturbed focus, motivation, concentration and memory
Emotional- irritable and emotionally labile

Assessment

- Rapidly assess using validated 9 point SCAT (sports concussion assessment tool):
- If any of the following symptoms are present then remove from the field of play
- 'IF IN DOUBT SIT THEM OUT'
- Headache
- Confusion
- Nausea or vomiting
- Fatigue
- Pressure in head
- Sensitivity to light
- Dizziness
- Visual Problems
- Drowsiness
- **The following questions can help in assessment:**
- Where are we now?
- What time of day is it?
- How did you get here today?
- Where were you on this day last week?
- **If a more severe injury is suspected follow the head injury of neck injury guidance**

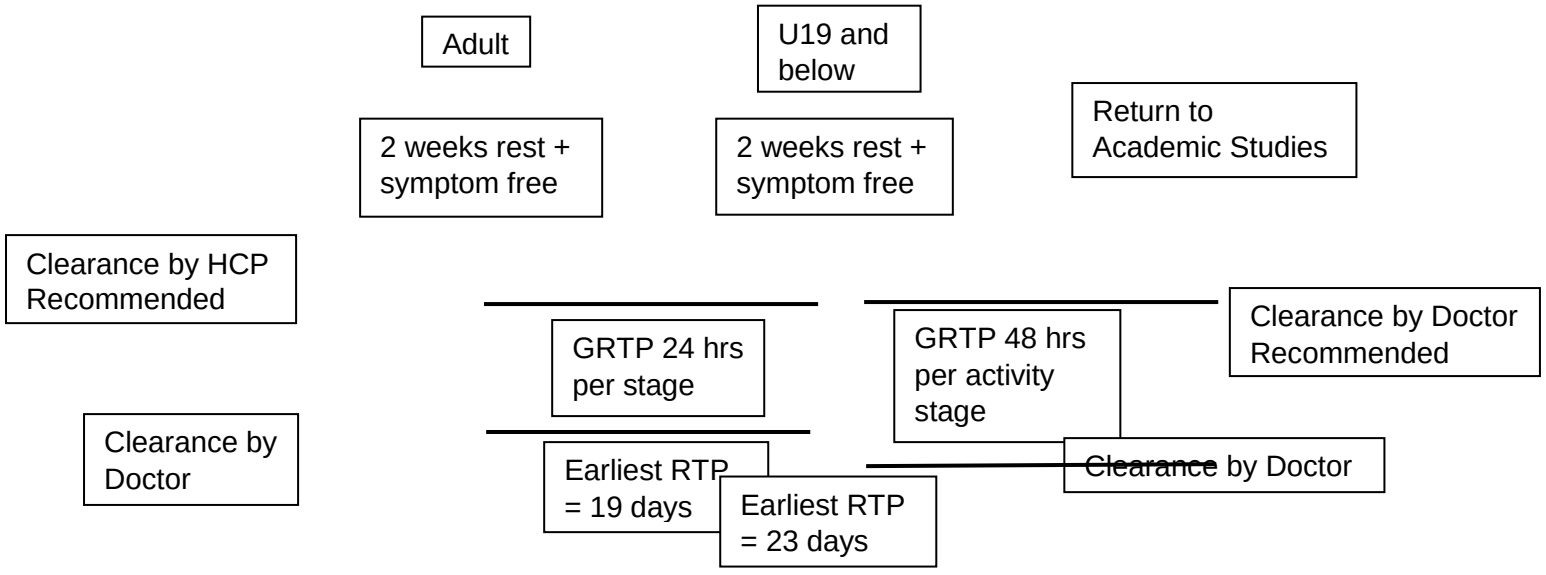
Management

- The Sport Scotland concussion guidance provides a practical recovery protocol
- Each of the home nations has adapted this guidance:
- England – Sports alliance concussion guidance
- Wales- Welsh government concussion guidance
- Northern Ireland- ConcussionNI.net
- The cornerstone of concussion management is physical and cognitive rest until the acute symptoms resolve
- Phase 1 – Relative rest period of 48 hours (no screen time!)
- Phase 2 – Return to normal life – incremental steps starting with a return to daily activities, progressing to increasing tolerance, part-time return to work/study and then full-time return to work/study
- -Minimum time period of phase 1+2:
- -Adult = 1 week
- -U19 = 2 weeks
- Phase 3 – Graduated return to Sport Protocol is a progressive exercise programme that introduce the individual back to sport in a stepwise fashion
- -Should only be started when a patient has returned to work/study and is symptom-free
- -Each stage has a different aim and increases the intensity of exercise (details below)

- -The minimum time period at each stage
- -Adult = 24 hours
- -U19= 48 hours
- -Must be symptom-free before progressing to the next level of exercise intensity
- Minimum total recovery time from injury to a full return to sport:
- Adult = 12 days (Rugby football union has adopted minimum time of 19 days)
- U19 = 23 days
- The vast majority (80% to 90%) of concussions resolve over 7-10 days, although the recovery time may be longer in children and adolescents
- Consider referral:
- Second concussion in 12 months
- History of multiple concussions
- Unusual presentations
- Prolonged recovery

Return to play guidance from RFU

Stage	Rehabilitation Stage	Exercise Allowed	Objective
1	Rest	Complete physical and cognitive rest without symptoms	Recovery
2	Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity, <70% maximum predicted heart rate. No resistance training.	Increase heart rate and assess recovery
3	Sport-specific exercise	Running drills. No head impact activities	Add movement and assess recovery
4	Non-contract training drills	Progression to more complex training drills, e.g. passing drills. May start progressive resistance training.	Add exercise + coordination, and cognitive load. Assess recovery
5	Full Contact Practice	Normal training activities	Restore confidence and assess functional skills by coaching staff. Assess recovery
6	Return to Play	Player rehabilitated	Safe return to play once fully recovered.



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