

### Brain Tumours

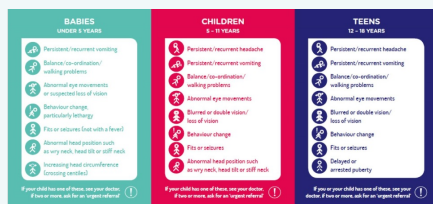
#### Triad Other S&S

Headache	Nausea
Vomiting	Worse first thing in the morning
Convulsions	Valsalva movements make it worse
	new onset/change in HA
	Seizures
	Confusion
	Dysphagia
	Motor Weakness
	Personality Changes
	Memory Loss

#### Triad in children

Dizziness
Headache
Vomiting

### HEADSMART



### Temporal Arteritis

#### S&S

- Persistent unilateral throbbing over temporal region + scalp tenderness
- Associated with PMR - look for bilateral inflammatory signs over shoulder/hip area
- >50y
- Severe burning - worse in morning & constant
- Malaise, vague aches, pains, weight loss
- ESR/CRP elevated

### Management

Urgent referral (same day) to GP - risk of blindness

### Mild Traumatic Brain Injury

Common in teens and young adults  
Athletes more at risk - football, boxing, hockey, soccer, MMA, military personnel, victims of domestic abuse, motor accidents

### Concussion

- One type of brain injury
- Subconcussive injury = traumatic impact to the head that does not result in immediate clinical symptoms
- Simple concussion = progressively resolves after 7-10 days without complications
- Complex concussion = persistent symptoms and Hx of loss of consciousness >1 minute, recurrence/exacerbation on exertion, prolonged impairment of cognitive function, seizure
- Mechanical insult - complex cascade of biochemical dysfunction - mitochondrial dysfunction - disrupts brain's neuronal homeostasis

### Presentation

- Headache
- Confusion, light-headedness/dizziness, visual disturbances, tinnitus, lethargy, insomnia, photophobia, irritability, mood changes, cognitive difficulties
- Impaired memory & learning, reduced planning, inability to switch mental tasks, attention deficits, slower information processing, slowed reaction times
- Symptoms worse with physical exertion/stress

On field assessment of injured athlete = ruling out emergent situations

Palpation of head, neck, face, nose and TMJ for f#/#injuries  
Move fingers and toes - upper and lower sensation, strength and function

### Red flags

- GCS <15
- Deteriorating mental status
- Potential spinal injury
- Progressive neurological signs/symptoms
- Persistent vomiting
- Suspected skull f#
- Seizures
- Coagulopathy
- Prior neurosurgery
- Multiple injuries

### Glasgow Coma Scale (GCS)

Glasgow coma scale		
Eye opening	spontaneously	Score
	to speech	4
	to pain	3
	none	2
Verbal response	orientated	5
	confused	4
	inappropriate	3
	incomprehensible	2
Motor response	obeys commands	6
	localises to pain	5
	withdraws from pain	4
	flexion to pain	3
	extension to pain	2
	none	1
Maximum score		15

- 15 point scale

### Questions (Maddocks)

What ground/field/rink are we playing at?

What team are we playing today

What half/quarter/period is it?

How far into the game is it?

Which side scored last?

What team did we play last game?

Did we win last game?

- Sideline for evaluation if suspected concussion (motor, sensory, reflex tests, CN evaluation, coordination and balance assessment)
- Difficulty with these questions = out and not allowed to play
- SCAT3
- Ask about concussion S&S

### What to do next

Once concussed patient is out of the game, an attendant should stay with them for 24 hours post concussion

Attendant should observe patient every 4 hours

Should be alert for: worsening ha, irritability, persistent nausea/vomiting, difficulting speaking, swallowing, tinnitus, SOB, light headiness, numbness, confusion, memory loss, clear CSF discharge from nose/ears, unequal pupils, fever, visual disturbances, seizures, LOC, easily aroused

Drink only clear fluids for 8-12 hours

No alcohol

Diet should begin light and progress to normal over 24 hours

Sedatives, sleeping pills, aspirin and ibuprofen should be avoided

Avoid physical and mental activity for first 24 hours - school, work, texting, video games, driving, operation of dangerous tools or heavy equipment

Should sleep with head elevated for 24 hours

Follow up assessment - did you hit your head? Lose consciousness? experience amnesia, loss of memory, disorientation/confusion?

Dizziness or unsteadiness? Memory problems/forgetfulness?

Concentration/attention problems?

### Imaging

May be used to rule out Cx injury

Canadian CT head rule - witnessed loss of consciousness, amnesia/disorientation

MRI for: GCS <15 at 2 hours post injury

>2 episodes of vomiting

>65 or older

Suspected skull f# (haemotympanum, raccoon eyes, CSF otorrhoea/rhinorrhoea, battles sign (bruising over mastoid))

Pre injury amnesia >30 mins

Dangerous mechanism of injury - struck by motor vehicle, MVA ejection, fall from >3 feet

### Management

- Recovery period = 100 days
- Some patients have post concussion syndrome within 1-2 weeks up to 3 months
- Delayed recovery factors = >4 symptoms
  - HA >60 hours
  - Pre-injury HA
  - Self reported fatigue/fogginess
  - prior mTBI
  - Hx of PTSD, ADHD, learning disability
  - advancing age
  - no and proximity of concussions
  - Duration of concussion (>10 days)
  - prolonged loss of consciousness (>1 minute)
  - amnesia
  - convulsions
  - co-morbidities
  - Medication
- Allowed to play when:
  - Complete clearing of symptoms at rest - no pain meds
  - No symptoms after provocative testing - cycling, running, cardio exercises
  - Full return of cognitive ability, memory and concentration
- Can do light aerobic activity after symptoms resolve if it does not exacerbate symptoms then progressive more demanding activity should be considered (70%)
- Multiple concussed patients increased risk of Alzheimers, ALS, Suicide, Parkinsons and Dementia
- Assess Paraspinals - suboccipitals
- Patients who worsen/do not show improvement after 3-5 days should be referred to a specialist
- EPA/DHA/Magnesium

### Thunderclap HA (cont)

Ischaemic Stroke

### Meningitis

#### S&S

- Severe Headache
- Neck Stiffness
- High Fever
- Altered Mental State
- Photo/Phonophobia

### Management

**Refer immediately to hospital - dial 999**

CRP, FBC, blood cultures, Ix puncture

### Serious Signs of HA in Children

- Present in the morning
- Wakes Child at night
- No PMHx
- No Family Hx
- Associated Poor health
- Associated Neuro symptoms
- Presents unilaterally

### Thunderclap HA

S&S	Causes	Management
Sudden, abrupt Headache - Reaches peak @ 1 hour	SAH	REFER IMMEDIATELY TO HOSPITAL
"Worse Headache of their life"	Intracranial haematoma	DON'T LET THEM DRIVE
"Feels as though they are being hit on the back of the head"	Cerebral venous sinus thrombosis	
Very Different type of Headache	Cervical Artery dissection	

