Mild TBI/Concussion

Case

47y.o male with no significant PMH who presents with vertigo for the last 3 weeks after he hit his head on a beam. There was no LOC, but he reports symptoms immediately following the injury of HA and confusion with some dizziness, those resolved after the first 24hr. He did not seek medical attention, however his vertigo has persisted. He says it is mostly when he tries rolling over in bed but not while standing or walking. He denies fever, chills, nausea or vomiting, hearing loss, changes in vision etc.
PMH, SH, FH and social hx all non-contributory
Meds: ambien PRN 12.5mg for sleep
PE: vitals stable, neuro exam: no gait abnormalities, normal cerebellar testing, strength 5/5 reflexes in tact, - Romberg/pronator, -dix-hallpike but it did bring on his symptoms
A/P – ddx: concussion, subdural bleed, BPPV, Meniere's, tumor
Ordered head CT which was normal, d/c home with some meclizine for symptoms with F/U with PCP.

- *Definition* - head injury due to contact and/or acceleration/ deceleration forces without overt hemorrhage or lesion, GCS of 14 to 15, measured ~30 minutes after the injury. 1.74million people sustain TBI in U.S, 75-95% are mild
  - The term concussion is often used as a synonym for mild TBI, trauma-induced alteration in mental status that may or may not involve LOC

- *Clinical Features* - confusion, amnesia with or without LOC, symptoms may manifest immediately or gradually over minutes to hours
  - Early symptoms of concussion: HA, dizziness (vertigo or imbalance), lack of awareness of surroundings, nausea or vomiting,
  - Late: mood/cognitive disturbances, light/sound sensitivity and sleep disturbances usually later manifestations

- *Acute Evaluation + Management*
  - Cognitive Assessment – there are various tools can be used mini-cog or the quick confusion scale, there is also the sports concussion assessment tool
  - Imaging – acute CT, persistent consider MRI. To CT or not CT?

New Orleans

1. HA
2. Vomiting
3. >60yrs
4. Drugs or EtOH
5. Persistent anterograde amnesia
6. Visible trauma above clavicle
7. Seizure

Canadian CT Head

1. GCS<15 2Hr after event
2. Suspected open/depressed skull fx
3. Sign of basilar fx
4. 2 or > episodes of vomiting
5. >65yrs
6. Amnesia of >30min prior to event
7. Dangerous mechanism

- ED study showed both had 100% sensitivity for detecting neurosurgical and clinically significant injury however Canadian CT was more specific (88% vs 52%) likely due to inclusion of the intoxication criteria.

- Observation for at least 24hours after mild TBI is generally recommended

Sequelaes - post traumatic HA (in 25-78%), post traumatic epilepsy – twofold increase in risk for first 5 year post injury, usually occurs within 1st year, second impact syndrome, rare but dangerous diffuse cerebral swelling after a second concussion

- Post-concussion syndrome – can occur in up to 50% of those experiencing TBI, HA, dizziness, vertigo, neuropsychiatric symptoms and cognitive impairment, usually resolves within 3 months

- Post-traumatic vertigo – can be due to direct injury to cochlear/vestibular structures, injury to labyrinth, BBPV due to shearing of the otoliths, peri-lymphatic fistula.
- Work-up - most patients present acutely and have had imaging, in this case he didn't so they recommend CT or MRI
- tx: symptomatic, reassurance, expect resolution within 3 months
  - Return to Activity – only at complete resolution of symptoms, if multiple concussions there is risk of chronic traumatic encephalopathy consider complete retirement from activity.

Acute Evaluation and Disposition of Patient with Mild TBI