1 **Pediatric Sports Emergencies**

2 **Asthma**

- Two underlying factors:
  - Inflammation
    - Chronic
    - Leads to structural changes
      - Increase in airway smooth muscle
      - Airway narrowing
  - Bronchoconstriction
    - From above changes
    - Reversible
-

3 **Asthma**

4 **Detecting an Exacerbation: Symptoms**

- Coughing, persistent
- Wheezing
- Chest tightness
- Shortness of breath
- Decreased performance
- Increased respiratory rate
- Retractions

-

5 **Focused History**

- Cause
- Time of onset
- Meds
- Use of beta agonists, recency
- Risk factors for severe, uncontrolled dz
  - ER visits, hospitalizations, intubation hx, rapid progression of sx

6 **Focused Examination**

- Vitals and pulse ox
- Level of consciousness, anxiety, agitation
- Assess for breathlessness, wheezing, retractions, air entry

7 **Initial Treatment**

- Short-acting beta agonist
  - 2-4 puffs of albuterol, 1.25-2.5 mg
  - Administer each puff separately
  - May used MDI, with spacer, or nebulizer
  - Make sure med is not expired or inhaler empty
  - Reassess in 10-20 mins

8 **Initial Response**

- Good

- If symptoms resolve (for 4 hours) and peak flow improves, continue watching and with current treatment
- Oral steroids not generally recommended
- Remove stimulus, if possible
- Consider quadrupling dose of inhaled steroid, if on one

9 **Initial Response**

- Incomplete
  - Initiate oral steroids (early)
  - Continue short-acting beta agonists
    - Up to every 2 hours for 6-8 hours after initiating oral steroids
  - Remove stimulus, if possible

10 **Initial Response**

- Poor response
  - Immediate referral to ED
    - Severe symptoms
    - High risk for severe/fatal attacks
  - Continue administering short-acting beta agonists
  - Initiate oral/IV steroids asap

11

12 **Asthma Pearls**

- Know who has asthma
- Know the severity of your athlete's asthma
- Know their triggers
- Know how to use an inhaler correctly and how to teach someone to use it
- Make sure they carry their meds with them (and their peak flow meter if possible)
- Have a copy of the action plan (if they have one)
- Best treatment plan for exacerbation is Prevention!
-

13 **Cervical Spine Injuries**

14 **Cervical Spine Injuries**

- Cause of trauma by age:
  - Birth-vaginal deliveries in breech
  - Birth to 8 yo-MVCs and falls
  - 8 yo and up-MVCs and sports
    - Football, hockey, wrestling
- Mechanism of Injury:
  - Hyperflexion: most common
  - Hyperextension
  - Axial loading
  - Rotation
  - Chin trauma
  -

15 **Symptoms**

- Pain

- Muscle spasm
- Decreased ROM
- Weakness
- Paresthesia
- Asymptomatic or cannot voice/explain their sx

16 **Physical Exam**

- Vital Signs
- Neck exam
  - TTP (location), deformities, spasm
- Neuro exam
  - Tone
  - Strength: wrist dorsiflexion (C6), elbow extension (C7), knee extension (L2-4), great toe dorsiflexion (L5)
  - Sensation-isolated deficit most common finding with cervical spine injury
  - Reflexes-areflexia indicates spinal cord injury

17 **C-spine Immobilization**

- Head and neck in neutral position
  - Do NOT reduce obvious deformities
  - Apply rigid cervical collar
    - Appropriate size
    - Should not interfere with airway
- Special considerations
  - Large head size
  - Prominent occiput in younger children
    - Special backboards to accommodate

18

19 **C-spine Immobilization**

1 • Log Roll-prone

•

2 • Lift and slide-supine

20 **C-spine Immobilization**

- Do NOT remove the helmet
  - Football, ice hockey, lacrosse
  - Unless remove helmet and shoulder pads together
  - Remove face mask only
- Minimize head motion during transport
  - Towels, foam rollers/pads, tape
  -

21

22 **Blunt Abdominal Trauma**

- Children at greater risk
  - Compact torsos
  - Smaller anterior-posterior diameter
  - Larger viscera, less fat, and weaker musculature

- Low risk in sports; higher from MVCs, falls
-

23 **Blunt Abdominal Trauma**
- Must have high degree of suspicion
  - Pay close attention to hx and PE
- ABCs first
- Abdomen: secondary survey
  - Pain, distention, bruising, abrasions, referred pain, rigidity, masses

24 **Splenic Blunt Trauma**
- Anatomy
  - Lateral and posterior to the stomach

25 **Splenic Injuries**
- Types of injuries
  - Contusion
  - Hematoma
  - Laceration
    - (grades I-V)
  - Rupture-Mono!

26 **Splenic Injuries**
- Signs and symptoms
  - Left flank/upper quadrant pain
  - Referred pain to left shoulder with palpation and/or inspiration
  - Increased HR and diastolic BP
  - Rebound and/or guarding on abdominal palpation

27 **Splenic Injuries**
- Treatment
  - Send to ED
  - Labs, imaging
  - Definitive tx depends on grade of injury/hemodynamic stability

28 **Hepatic Abdominal Trauma**
- Anatomy

29 **Hepatic Injuries**

1 - Types of injuries
  - Contusion
  - Hematoma
  - Laceration
- Signs/sx
  - Referred pain to right shoulder, RUQ pain
  - Rebound and/or guarding
  - Increased HR, decreased BP

2 Grading System

30 **Hepatic Injuries**
- Treatment

- Send to ED
- Labs, imaging
- Definitive tx depends on grade of injury/hemodynamic stability

31 **Renal Abdominal Trauma**

- Anatomy

32 **Renal Injuries**

1 • Types of Injuries
- Contusion
- Hematoma
- Laceration

- Signs/Sx
- Flank pain
- Hematuria
- Rebound/guarding
- Increased HR, decreased BP

2 • Grading system

33 **Renal Injuries**

- Treatment
- Send to ED
- Labs, imaging
- Definitive tx depends on grade of injury/hemodynamic stability