

Pediatric Medical Emergencies

Mercyhealth Prehospital and Emergency Services Center

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Fever

- Not a disease, it's a sign of disease
- Severity is not indication of severity of underlying disease
- Usually good

Fever

Treat child, not thermometer

- How do you know he has a fever?
- How sick does he look?
- How long has he been listless, weak?
- Will he tolerate being held on mom's shoulder?
- Does he cry even when consoled?

Fever

Emergency if:

- >104°F in any child
- >101°F in infant < 3months old

Septic Shock

- Peripheral hypoperfusion due to septicemia (blood infection)
- Most common in young infants, debilitated children

Septic Shock

Pathophysiology

- Severe peripheral vasodilation
- Fluid loss from vessels to interstitial space

Septic Shock

Signs/Symptoms

- “Warm” shock
 - Tachycardia, full pulses
 - Slow capillary refill
 - Fever
 - Flushed skin

Septic Shock

Signs/Symptoms

- “Cold” shock
 - Tachycardia, weak pulses
 - Slow capillary refill
 - Cool, pale, mottled skin

“Cold” shock has 90% mortality

Septic Shock

Management

- 100% oxygen
- NS 20ml/kg up to 3 times, for max of 60ml/kg
 - Fill dilated vascular space
 - Prevent onset of “cold” shock
- If refractory to IVF bolus:
 - **Push Dose 1:100,000 Epinephrine** titrated to maintain a SBP > 90 mmHg

Meningitis

Inflammation of meninges

- Increased CSF production
- Cerebral /meningeal edema
- Increased intracranial pressure

Meningitis

Signs/Symptoms: Older Children

- Fever
- Headache
- Stiff neck (can't touch chin to chest)
- Decreased LOC
- Seizures

Meningitis

Signs/Symptoms: Infants

- Difficulty feeding
- Irritability
- High-pitched cry
- Bulging fontanelle
- Classic meningeal signs possibly absent

Meningitis

Meningococccemia

- Petechial rash
- Septic shock
- DIC

Reyes' Syndrome

- Non-communicable
- Affects ages 2 -19
- Mostly toddlers, pre-schoolers

Reyes' Syndrome

Pathophysiology

- Dysfunction of hepatic urea cycle enzymes
- Increased protein breakdown leading to rise in blood ammonia levels
- Diffuse cerebral edema

Reyes' Syndrome

History

- Previously healthy child
- Recovering from viral illness
- Frequently chicken pox or influenza
- Frequently received aspirin during illness

Reyes' Syndrome

Signs/Symptoms

- Prolonged, violent vomiting
- Varying degrees of personality change
- Unusual behavior
- Irritability, drowsiness

Reyes' Syndrome

Management

- Avoid overstimulation
- IV @ TKO

Seizures

- Second most common pediatric complaint after fever
- Can result from same causes as adult seizures

Seizures

Pediatric seizures can also result from fever

- Most common from 6 months to 3 years
- Caused by rapid rise in body temperature
- Short-lived
- Does not recur during that illness

Seizures

Potential dangers

- Aspiration
- Trauma
- Missed diagnosis

Seizures

- “Febrile seizure” diagnosis risky in field
- The patient should be transported to the ED for evaluation

Seizures

History

- Previous seizures?
- Previous febrile seizures?
- Number of seizures this episode?
- What did seizure look like?

Seizures

History

- Remote, recent head trauma?
- Diabetes?
- Headache, stiff neck?
- Petechial rash?

Seizures

History

- Possible ingestion?
- Medications?

Seizures

Physical exam

- ABC's
- Neurological exam
- Signs of injury?
- Signs of dehydration?
- Rash, stiff neck?
- Bulging, depressed anterior fontanelle?

Seizures

Management--if actively seizing:

- Place on floor away from furniture
- Position on side
- Prevent injury
- Do not restrain
- Do not force anything between teeth

Seizures

Management--following seizure

- Check ABC's, suction prn
- Assure good oxygenation, ventilation
- Vascular access
- Check blood glucose, if < 70 , administer dextrose 10%, 5ml/kg to maximum of 25 grams
- If febrile, remove excess clothing, sponge with water to cool patient.

Status Epilepticus

*If the patient is still seizing, give **Versed** 0.1mg/kg IV/IO/IN (max 5mg bolus) or 0.2mg/kg IM (max 10mg bolus)

- If seizures persist, repeat dose of Versed in 5 min

- Contact medical control if the patient is still seizing after the repeat dosing

Hypoglycemia

- More common than in adults, especially in newborns
- Signs/symptoms may mimic hypoxia

Hypoglycemia

Check blood glucose in any child with:

- Seizures
- Decreased LOC
- Severe dehydration
- Known hypoglycemia or diabetes
- Pallor, sweating, tachycardia, tremors

Hypoglycemia

Management

- Oral sugar if tolerated
- Administer dextrose 10%, 5ml/kg to maximum of 25 grams.
- When no IV access is available, an initial dose of glucagon may be given. The pediatric dose is 0.5mg IM.
- Reassess blood sugar every 20 - 30 minutes

Diabetes Mellitus

- Typically insulin-dependent
- Complications
 - Hypoglycemia
 - Hyperglycemia, DKA

Diabetes Mellitus

Management:

If blood glucose > 180mg/dl initiate IV 0.9% NS and run wide open, verify clear lung sounds after each 500ml bolus, up to 2L

Coma

Disturbance in consciousness; patient unresponsive to stimuli

Causes

- Metabolic
- Structural

Coma

Metabolic causes:

Anoxia

Hypoglycemia

DKA

Infections

Increased ICP (Edema)

Drug Toxicity

Epilepsy

Reyes' Syndrome

Coma

Structural causes:

- Trauma
- Tumor
- CVA

Coma

Airway/Breathing

****Manage Primary Survey before focusing on cause**

- All patients with decreased LOC receive oxygen
- Evaluate for ineffective breathing patterns

Coma

Circulation

- Control bleeding
- Give fluid boluses for hypovolemia

Disability

- AVPU, pupils
- Check blood glucose

Coma

Management

- Support ABC's
- D10 if blood sugar < 70 mg%
- Narcan 0.1 mg/kg IV/IO/IN
- Rapid transport
- Reassess, Reassess, Reassess

Poisoning

Incidence

- Accidental: 75% children < 5 years old
- Overdose: School-age, adolescents

Poisoning

Assessment

- Remove to safe environment
- Control airway
- Support breathing: 100% O₂
- Circulation - vasodilation, decreasing myocardial tone, hypoxia
- Blood glucose

Poisoning

History

- What?
- When?
- How much?
- Vomiting? Coughing? Seizures? Altered LOC?

Poisoning

Management

- Support ABC's
- Consider D10, Narcan if indicated
- Transport samples
- Consult poison control
- Treat patient, not poison!!

Rockford Region

- There are currently extremely limited resources in the Rockford Region for pediatric tertiary care
- Consider HEMS transport from the scene for patients that require critical pediatric medical, surgical, and trauma services



Questions?

