Non-Accidental Trauma 2

PEM PEARLS

ED Goals of Care

Treat
Treat serious/life threatening injuries, and stabilize the patient

Record
Thoroughly document the pertinent history of physical exam findings

Report
Mandatory reporting to investigate suspected non-accidental trauma

Consider
If the other siblings and family members in the household are safe

NAT Workup

Consider NAT in any child presenting with:

- **Vomiting, seizure, apnea, altered mental status,** or **ALTE** can indicate **head trauma**
- **Swelling, and refusal to weight bear or use an extremity** can indicate a **fracture**
- **Abdo pain, shock** or **vomiting** can indicate **abdominal trauma**
- Be **suspicious of any injuries** that are **inconsistent with the history**

Have thorough documentation

Developmental History - assess if the child meeting milestones

Social history - include any financial, domestic, or substance issues. Ask about other children in the home

Use a **body outline** to precisely document injuries

Detailed physical exam with plotted growth parameters

Charting Tips
Document all findings, use quotations for quotes, and avoid charting specific dates/times

Investigations

Coag / Metabolic Panel
- Should be included in **all workups**, especially if **signs of hemorrhage present**
- Consider adding **tox** and **STI screening** based on clinical suspicion

Skeletal Survey
- Indicated if **age <24 months** and suspected abuse
- **Reasonable** in children **<60 months**

AST, ALT, UA, Lipase
- Indicated if suspicious for an **abdominal injury** - **abdominal pain, vomiting, guarding**

Optho Referral
- Indicated if suspicious for **head injuries**
- Best performed by **pediatric opthalmology**

Imaging

The goal of **imaging** is to identify both **medically treatable** and **forensically significant injuries**

Practical Tip
Skeletal surveys are read by **pediatric radiologists**: coordinate with them for timely reading

Skeletal Survey

- Will **identify additional fractures in 10-25%** of cases
- Classic metaphyseal lesions **(bucket handle)** fractures are **specific for abuse**
- **Complex skull** fractures, **posterior rib** fractures, fractures in various healing stages for a **single injury**, and **long bone** fractures in **non-ambulating** children are also related to abuse

Neuroimaging

- Head trauma is the **leading cause** of **morbidity** and **mortality: Always image if a head injury is suspected**
- **CT if symptomatic**; or **asymptomatic with age <6 months, facial bruising, rib fractures,** or **multiple fractures**
- **Multifocal traumas** and **subdural hematomas** are suspicious for abuse
- **Skull x-rays** have poor NAT sensitivity and high radiation

Retinal Imaging

- The presence of **retinal hemorrhages strongly suggests abuse**
- Numerous, multilayered and peripheral hemorrhages associated with severe TBI
- May be absent in 15% of TBI's, **do not use as a screening test**

Abdominal Imaging

- **50%** of abusive abdominal injuries **have bruising, tenderness,** or **distension**
- **If AST or ALT is >80 IU/L, use a CT Abdomen with contrast** to further investigate
- **Ultrasound** may help identify injuries, but it **lacks sensitivity** to rule out

Management

Children with **abusive head trauma** tend to have **higher mortality**, and **worse outcomes** than nonabusive

- **Non-convulsive seizures** can occur in greater than **30% of abusive head traumas**. **EEG monitoring** may be considered
- Management of **other abusive traumatic injuries** is **similar to** management of **nonabusive injuries**

Emergency physicians are **required** to report **all reasonable concerns of abuse** to **CPS agencies**

- Reporting can provide **secondary prevention, protect other children in the environment,** and **provide social resources** for the family.
- Submitting a report **will not automatically remove a child** from their home. Instead, it **allows for CPS to properly investigate**

Children with concerns for abuse may be discharged if all of the following are met

- Injuries have been **treated and stabilized**
- Concerns for child abuse have been **reported to proper agencies**
- The child has a **safe environment** to return to

REFERENCES:
Rosen's Emergency Medicine: Concepts and Clinical Practice - 9th ed. 2017: Chapter 177 Child Abuse

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