Shaken Baby Syndrome:
Every baby deserves a future!

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Disclaimer
I have no financial relationships with the resources sited or the treatments described in this presentation.

Objectives
- Review incidence of SBS
- Increase understanding of the biomechanics and injuries associated with SBS
- Identify risk factors for both for the infants at risk and perpetrators
- Identify clinical presentation of SBS
- Discuss diagnostic/medical management of SBS
- Discuss the prognosis of SBS
- Discuss prevention strategies.
- Increase awareness of mandatory reporting.

Shaken Baby Syndrome
AKA:
- Non-accidental head trauma (NAT)
- Stress related infant abuse
- Battered child syndrome

Definition:
Non-accidental traumatic injury resulting from repetitive violent shaking of an infant or child with or without additional injuries from blunt trauma.

Question?
WHAT IS THE PRIMARY TRIGGER FOR SHAKEN BABY?

Statistics
- Affected by
  - Underreporting
  - Misdiagnosis/under diagnosis
  - CDC – 3 to 4 children per day
  - 25 to 50% will not survive
  - 50% Neurological Sequelae
- Greatest risk
  - Babies < 1 year of age
  - Peak: 2-8 months of age
  - Up to 5 years of age

Crying!!
### Parental Risk Factors
- Young or single parents
- Lower level of education
- Unstable family situations
- Lack of support/community resources
- Financial stress
- History of abuse or neglect
- Drug/alcohol abuse
- Psychiatric illness
- Unrealistic goals/expectations of children

### Child Risk Factors
- < 3 years
- Adopted/step children
- Speech/language disorders
- Conduct/ Psychological disorders
- Learning disabilities
- Hyperactivity
- Premature/low birth weight infants
- Congenital anomalies
- MR, Handicaps
- Chronic/recurrent illnesses

80% of Perpetrators are male!
- Boyfriend, father, caregiver, mother

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**Biomechanics of Shaken Baby Syndrome**

- **Intracranial Injury**
  - Acceleration/deceleration injury
  - Direct impact

- **Chest Compression Injury**
  - Rib Fractures

- **Whiplash Injury**
  - Corner or bucket handle fx in the metaphyseal regions

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**Suspicious Clinical Features**
- Injury in non-ambulatory/totally dependent children
- Injury and history given are incompatible
- Delay in seeking medical attention
- Multiple fractures with no history of osteogenesis imperfecta
- Retinal hemorrhages
- Torn frenulum
- History of household falls resulting in fractures
  - Despite falls being come, fractures are UNCOMMON
  - Abnormal bruising patterns

**Linear Skull Fractures**

**Retinal Hemorrhages**

**Posterior Rib Fractures**
Clinical Presentation

<table>
<thead>
<tr>
<th>Symptom</th>
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</thead>
<tbody>
<tr>
<td>Irritability/lethargy</td>
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<tr>
<td>Appetite/poor feedings</td>
</tr>
<tr>
<td>Vomiting</td>
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<tr>
<td>Lack of vocalization/smiling</td>
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<tr>
<td>Instability to lift head, focus, track</td>
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<tr>
<td>Rib/long bone fractures</td>
</tr>
<tr>
<td>Bruising - head/neck/chest</td>
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<tr>
<td>Retinal hemorrhages *</td>
</tr>
<tr>
<td>Skull fractures</td>
</tr>
<tr>
<td>Subdural/subarachnoid hemorrhages</td>
</tr>
<tr>
<td>Cerebral edema</td>
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<tr>
<td>Bulging fontanel</td>
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<tr>
<td>Seizures</td>
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<tr>
<td>Altered level of consciousness</td>
</tr>
<tr>
<td>Unequal pupils</td>
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<tr>
<td>Temperature instability</td>
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<tr>
<td>Respiratory distress</td>
</tr>
<tr>
<td>Cardiopulmonary arrest</td>
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<tr>
<td>Subdural Hematoma</td>
</tr>
<tr>
<td>Acute &amp; Chronic</td>
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</tbody>
</table>

Prognosis

20% to 50% do not survive

Neurological sequelae

- Partial or total blindness
- Deafness
- Developmental delays
- Mild, moderate, or severe MR
- Cerebral palsy
- Paralysis
- Seizure disorders
- Impairment of memory or attention
- Speech & learning disabilities
- Behavioral problems

Alert yourself...

“Does the history taken provide an adequate explanation for the injury?”

- Awareness
- Detection of occult non-accidental injury
- Detection of discrepancy between history & physical exam
- Accurate documentation of suspected child abuse
- Document objective information

Diagnosis & Management

- Skeletal survey
- Skull, cervical & thoraco-lumbar spine, ribs, abdominal, humeri, forearm, hand, femoral, tibia/fibula, feet
- Ophthalmology Consultation/Evaluation
- Retinal Hemorrhages
- CT of the Head
- Intracranial injury

Don’t Forget

- Report to DCFS
- Report to local law enforcement agency
- Consult the Pediatric Resource Center
- Consult Pastoral Care
- Provision of Medical Care
- Provision of long-term interventional care
Key Points to Medical Management

- Prevent the “3 – H’s”
  - hypoxia, hypotension, hyperthermia (normothermia/hypothermia)
- Treat seizures
- Treat ICH
  - Prevention of hypercarbia
  - Mannitol/3% Saline
  - Prevent hypovolemia
  - Adequate Sedation/Analgesia
    - Paralytic Therapy vs. Drug induced coma
  - ICP monitoring – maintain CPP
  - CSF Drainage
  - HOB 20–30°
  - Quiet environment, non-restrictive c-collars, Foley
  - Minimize PEEP, IV/ETT Lidocaine w/ Suctioning

Differential Diagnosis

- Sepsis
- Meningitis
- Accidental trauma
- Birth trauma
- Bleeding Disorders
- Coagulopathies
- Infectious diseases
  - Electrolyte imbalances
  - Cerebral edema
  - Osteogenesis Imperfecta
  - Ingestions/Poisonings
  - Rare bone diseases
  - Leukemia
  - Ocular trauma/surgery

Shaken Baby Syndrome Prevention Programs

- Strive to raise awareness about SBS
- Educate parents/caregivers about the serious effects of SBS-related injuries
- Provide information about infant crying behavior and safe ways to reduce and prevent SBS injuries.

Community Prevention Strategies

- Coordinated hospital-based primary prevention programs targeting parents of newborns.
  - Period of Purple Crying
  - Dr. Harvey Karp’s “5 – S’s”
  - Home visits for new parents
  - Anticipatory guidance at well-baby visits
  - School prevention programs
    - understanding of child maltreatment issues
    - anger management techniques
    - child care skills

WHAT TO DO?!?!?

Figure out the Reason for Crying

- Diaper change
- Too hot or too cold
- Over-stimulated
- Tired
- Hungry
- Uncomfortable
- Bored

Interventions to stop crying

- Shushing – white/rhythmic noise
- Side/stomach positioning
- Sucking - Offer a pacifier
- Swaddle or un-swaddle
- Swinging - Gentle rock, sway or bounce
- Remove the stimulates/check for illness
- Change to the diaper
- Gently massage back, arms, or legs

Be patient! Calming takes time.
Stick with the activity for several minutes before trying something different.
This could be the SECRET to SUCCESS!
The word “PERIOD” means that the crying has a beginning & an END!

**THE PERIOD OF PURPLE CRYING**  
*The letters in PURPLE stand for...*

- **P**: Crying is NORMAL  
- **U**: Increases at 2 to 3 weeks of age  
- **R**: Peaks at 6 to 8 weeks of age  
- **E**: Tapers off at 3 to 4 months old  
- **L**: Reason for Crying  
  - Unknown/Unpredictable  
  - May not respond to soothing  
  - May look like they are in PAIN....  
  - Look for causes – Might not be any!!!  
  - Can last for HOURS!!!  
- **E**: Occurs more often Evening/Nighttime  
- **V**: Well baby Check  
- **E**: Evaluate coping  
- **R**: Identify parental stressors  
- **I**: Offer resources/solutions  
- **S**: Reassure .....Things will get better!!!!!  
  - They will not be sleep deprived forever!!  
  - Teach parents signs of illness, fever, unusual behavior, or discomfort  
  - Support when they call!!!

**Mandatory Reporting**  
- Mandatory reporting laws – All 50 states  
- When to Report: When you have reasonable cause to believe that abuse/neglect has occurred  
- REMEMBER – It is your role to REPORT...NOT INVESTIGATE.  
- NEVER assume that another professional reported.  
- Call the hotline number  
- Reporter identity is confidential & anonymous – It’s the LAW!  
- Failure to Report  
  - Misdemeanor (first violation)  
  - Class 4 Felony (second or more violations)  
  - Loss of licensure  
- Call a law enforcement if prompted by DCFS (criminal matters)

**Call a law enforcement if prompted by DCFS (criminal matters)**

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**Emphasize**

After attempting the typical calming interventions (carry, comfort, walk, talk).....

**Frustrated?????**

It is OKAY to walk away!!

- Ensure safety  
- Walk away & calm self,  
- Return to check on the baby.

**Never shake a baby**
Criteria for Reporting

Alleged victim < 18 years of age
Alleged perpetrator
• Individual resides in the child’s home
• Individual is responsible for their welfare
• Anyone in a position of trust
Specific incident raises suspicion that the child has been abused or neglected.
Harm has occurred or there is substantial risk of harm.

Their FUTURE is in OUR Hands!

Let help our children live to their full potential.

Report Information

- Name, address, age, and DOB of the Child suspected of abuse
- Name, address, and phone number the Parents
- Names (if known) of other children residing in the home
- Names (if known) of other adults residing in the home
- Your name, address, and professional title
  - DCFS/Policer (if involved) may need to contact you for additional information
- Reason for calling: Reports suspected abuse
- Detailed description of situation and pattern of injury
- If child is in immediate danger, request investigator ASAP and call the police if you are fearful child is in immediate danger.
- Written confirmation report form needs to be completed w/in 24 hours and sent to your local DCFS office.
- DCFS has 24 hours to start the investigation if child is not in immediate risk of injury.

References

- Contributors’ names (Last edited date). Title of resource. Retrieved from