

Review Article

Shaken Baby Syndrome

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Abstract

Shaken baby syndrome is highly common cause of death or severe neurological injury ensuring from child abuse. Shaken baby syndrome is a name given to a group of physical determination that are suppose to result from the forceful shaking of a child, with or without direct strike to the head. After the brain injury, shaken baby syndrome is performing a major impact to the baby. A history of injury was incomplete and still the cause of shaken baby syndrome still undiscovered. In that time, there was a insignificant attention about the child abuse. Children are mostly shaken in response to prolonged crying. In a fit of insanity the child may also be thrown down. Some people accepted that shaking is a technique for suspension the child crying. Alike individuals are most commonly male and baby sitters. Shaken baby syndrome is mainly happening as a result of deficiency of educational background.

Key words: Neurological impact, Shaken baby syndrome, Child abuse.

1 Introduction

Shaken baby syndrome also termed as abusive head trauma, shaken impact syndrome, inflicted head injury or whiplash shake syndrome. SBS is a dangerous brain injury that can happen because of strongly shaking an infant or toddler. Shaken baby syndrome is a type of child abuse that can influence in enduring brain impairment or death. Shaken baby syndrome broke a child's brain cells and block his or her brain from accept adequate oxygen. Shaken baby syndrome is preventable. Help is appropriate for parents who are at risk of harming a child. Parents also can educate other caregivers, parents about the risk of shaken baby syndrome. One third of child dies from shaken baby syndrome [2].

2 Definition

Shaken baby syndrome is a condition marked as cranial injury, retinal hemorrhage, etc. seen in infants who have been thrown down or shaken by parents, caregiver etc. Shaken baby syndrome is a framing of child abuse that can result in enduring brain impairment or death [3].

3 Causes

Shaken baby syndrome is caused by rough shaking, with or without abrupt trauma, resulting in head trauma. It's also known as inflicted traumatic brain injury, abusive head trauma, or abusive head injury. Shaken baby syndrome generally occurs when a parent or caregiver, nurse and doctors extremely shakes a baby or toddler due to

frustration or anger often considering the child won't end of crying. It isn't usually caused by vigorous a child on your knee, minor falls or even rough play. Shaken baby syndrome is happen in infants from birth to age 1 year but the maximum risk of injury of shaking, mostly occur in age 2-4 month. Infants are notably suffered from this head injury because they have powerless neck muscles and ligaments. The victims are usually under one year and hence they are helpless to defend themselves. Infants and children are attackable to violent shaking because of their relatively large head and powerless cervical anatomy. Perpetrators of SBS are generally male with the step-father and step-mother being the most common abusers. Totally, the perpetrator was male in 72% of cases [4].

There are some causes of shaken baby syndrome like:

Babies have powerless neck muscles and it is difficult to support their heavy heads. If a baby is strongly shaken, the neck of the baby does not go back because of shattering of the bone. This causes bruising, swelling and bleeding.

- Shaken baby syndrome is induced by when someone shake the baby widely.
- Unreal prediction of babies.
- Young and single parenthood.
- Alcohol and substance abused.
- Changeable family conditions
- Stress and frustration
- Domestic violence.
- A history of harm of a child.
- Parents in Depression.
- Inferior educational history.

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4 Pathophysiology

Due to etiological factor like- widely shaking of the baby, domestic violence, young and single parentage, using alcohol and drugs, stress and frustration, history of ill-treatment of the child, parents in depression [5]

Fast movement of the brain within the subdural space causes rupture the veins of which is lain out from the cortex to the Dural venous sinus and form a clot into the brain and skull (subdural and arachnoids' space)

↓
Neuroaxis damage

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Due to destruction of the vessels, the oxygen does not arrive to the brain tissues, which triggers the respiratory system, nervous system

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And induce Apnea & hypoxia

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Elevate intracranial pressure

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Due to increased the intracranial pressure, it decrease the perfusion pressure

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Decrease oxygen into the blood

↓
Ischemia

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Brain death

5 Clinical Symptoms

Shaken baby syndrome, sign and symptoms are given as [5]:

- Excessive fussiness or irritability
- Trouble staying awake
- Breathing problems
- Poor eating
- Vomiting
- Pale or bluish skin
- Seizures
- Paralysis
- Coma
- Retinal hemorrhage
- Metaphyseal fracture

6 Diagnostic Evaluation

- **History collection:** take history for evaluate the behavior of the parents to the child [6].
- **Physical examination:** do the physical examination for investigate the physical movement like Rang of Motion of the child.
- **MRI (Magnetic resonance imaging):** scan can help any spinal or neck injury of the child. It can look brain damage, bleeding and signs

of reduction of oxygen. It is commonly occur in two to three days after the injury.

- **CT (Computerized tomography) scan:** is also perform for impose the child's injury. A CT scan of the brain can assist to detect injuries that insist immediately [7].
- **Skeletal survey:** few X-rays of the bones. it cover the arms, hands, legs, feet, spine, ribs and skull — may be known to check whether fractures are accidental or consciously. This testing can also assist to discover any earlier fractures.
- **Eye examination:** An eye exam can show bleeding and other eye injuries.
- **Blood tests:** Few metabolic and genetic disorders as well as bleeding and clotting disorders can leads to symptoms like to shaken baby syndrome [6].

7 Complications

Even brief shaking of an infant's causes permanent brain damage. Most of the children are pretended by shaking baby syndrome.

Survivors of shaken baby syndrome may need enduring medical care for conditions such as:

- Baby may be late development, learning problems or behavior problems
- Seizure disorders may be take place
- Cerebral palsy may be occur
- Baby may be partial or total blindness
- Baby may be intellectual or mental disable

8 Management

Symptomatic treatment

- **Anti-convulsing drugs:** For instance, Phenobarbitone, Phenytoin & Primidone and anti-convulsing drugs can treat seizure [8].
- **Aminophyllin & doxapram:** to consider for the apnea.
- **Antithrombotic & thrombolytic therapy-** for treating ischemia [9].
- **ORT (oral rehydration therapy)** - for reduce the vomiting and inhibit from dehydration of the baby.
- **Estrogen & Raloxifene-** improve Metaphyseal fracture.

Nurse's responsibility

- Provide secure environment, stable and foster relationship[10].
- Educate or counsel the parents to prove attachment and fondness to the baby.

- Try to engage the child in various actions.
- Try to educate the parents that how they control his/her anger.
- To yield the instructions about the symptoms and diagnostic method for shaken baby syndrome.
- To give right treatment and care to the baby.
- Follow-up care should be given for evaluating monitor for long-term side effect of head trauma.
- To boost the health of the baby.

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9 Conclusion

The arrangement of events in shaken baby syndrome is proposed by violently shaking of the baby. Cervical hyperextension causes expand injury to the neuraxis. This produces breathing difficulty or apnea. The ensuing hypoxia and shock cause hypoxic ischaemic cerebral injury. More brain damage takes place as a result of cerebral edema, intracranial hypertension, and decrease in cerebral perfusion pressure. In correlation with traumatic injury in infancy, inflicted injury has an abundant substandard prognosis. MRI is the quick method of the recognition of the shaking injury. Where possible this should be begun in conjunction with the initial computed tomogram. Parents counseling is important to decrease the chance to cause shaken baby syndrome. Right treatment can heal the shaken injury to the baby [11].

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