



Dynamic Chiropractic – November 6, 1992, Vol. 10, Issue 23

Upper Cervical Trauma and the Birth Process

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- Can the normal birth process induce upper cervical trauma?
- Is it possible that, in some cases, early problems affecting the neonate could be due to the stresses and strains of the birth process.
- Could a newborn infant who is irritable, who sleeps for only short periods or is difficult to feed, be suffering from the effects of trauma during birth?

These are all questions that have been pondered from time to time, questions which, if answered, might help us to better understand some of the early problems of the newborn infant.

This article examines some reported effects of the birth process and considers the part that the chiropractor has to play in evaluating the newborn infant.

Over 50,000 newborn deaths occur each year in the United States. In approximately 10,000 of these, the death is unexplained, with no precise cause of death being determined.

The first month of life is the period of greatest mortality in the childhood years. According to Towbin, "Life for the newborn depends on the preservation and healthy functioning of the brainstem and upper spinal cord."

During active labor, the spine is particularly exposed to injury as it is forced through the birth canal. This is especially so if the birth is a rapid one. Precipitous delivery, prematurity, breech delivery, and forceful traction applied during the birth process have been identified as the high risk factors for trauma to the

neonatal spinal cord and brainstem.

The spinal nerve roots at birth are prone to injury by the maneuver of laterally flexing the head to free the shoulders from the birth canal. This puts great stress on the brachial plexus and spinal nerve roots and is a common cause of Erb's palsy and Klumpke's paralysis.

The neonate in breech position is a particularly high risk for developing spinal cord injury. In one study, 75 percent of infants manifesting spinal cord injury had breech birth. Cervical cord injuries in breech presentation occur most often in the C8-T1 region, whereas in cephalic presentation the injury occurs most commonly cephalad to the brachial plexus. This high incidence of injury to the spinal cord may be associated with its relative inelasticity when compared with that of the spinal column. The neonatal spinal column can be stretched up to two inches before damage to the supporting soft tissue structure occurs, whereas the spinal cord has only one-half inch of stretch before damage in the form of hemorrhage or rupture occurs.

Clinical Signs

The newborn infant with cervical spinal cord injury usually has a weak cry and exhibits diaphragmatic breathing shortly after delivery. Flaccid paralysis with absent reflexes may be evident below the level of the lesion.

Where the lesion is below the brachial plexus it would not be uncommon to see active flexion of the upper extremities. Urinary retention and bladder distention may be evident and the response to a pinprick below the level of damage is usually only reflex withdrawal.

Brainstem lesions generally produce a constellation of findings which might include cranial nerve palsies, hyperreflexia, and sometimes Horner's syndrome and limb ataxia. It is important to remember, however, that any one of these signs can be produced by a separate extrinsic lesion and that indication of a brainstem lesion as the possible source of the problem usually requires the appearance of several of these signs together.

The possible existence of spinal cord and brainstem lesions in the newborn demands careful examination by any doctor attending the infant in the first weeks of life. As chiropractors are often called upon to examine newborn infants and perform initial spinal evaluations, it is imperative that careful assessment be made of signs which might indicate the possibility of spinal cord and brainstem injury.

The correct functioning of the upper cervical vertebral complex is also an important evaluation to be made by the chiropractor. If the stresses and strains placed on the head and neck of the newborn infant during the birthing process are capable of producing brainstem and spinal cord injury, then they are equally capable of disturbing the normal function of the upper cervical spinal segments.

A thorough evaluation of the newborn spine will help to detect any such problems and can therefore help to ensure that vertebral subluxation is not impeding the health, growth and development of the child.

Conclusion

There is no doubt that the traumas of the birth process can significantly effect the morbidity and mortality of the newborn infant.

Evidence from research studies indicates that birth trauma to the brainstem and upper cervical spine is a factor in over 10 percent of neonatal deaths in the United States.

It is appropriate for chiropractors who are adequately trained in evaluation of the newborn infant to perform newborn spinal and neurological examinations.

Chiropractors trained in the procedures of examining the neonatal spine are competent to determine the presence of vertebral subluxation in the first hours of life.

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