Dynamic Chiropractic – February 28, 1992, Vol. 10, Issue 05

The Newborn Infant

By Peter Fysh, DC

Neonatology is one of several pediatric subspecialties that have developed rapidly over the last 15 years; years that have been characterized by expanding technology and by a marked increase in clinical research. During this period, there has been a decided reduction in the number of neonatal deaths in all birth weight and gestational age groups. Just 15 years ago, the limits of viability, i.e., the earliest age at which a fetus could be expected to survive, was 26 weeks. An Italian medical team received international press coverage for this feat. Now newborn infants are surviving at 22 weeks, albeit with the help of advancing medical technology.

Although the ability of medical teams to keep premature infants alive has increased with technological development, the birthing process itself has changed little. Birth trauma from difficult births is still a frequent problem for health care practitioners. The incidence of births by caesarean section has increased rapidly in recent years, due in part, I suspect, to increasing litigation against our obstetric colleagues.

Chiropractors should also play an important role in evaluation of the newborn infant. It is just possible that an early chiropractic evaluation, performed during the first month of life, may have a significant effect on a child's ability to develop to its full potential -- both physically and mentally.

We are aware of the tremendous stresses which are placed on the neck and head of a neonate during the birth process. These stresses can result in a wide variety of problems, from subluxation of the upper cervical spine to significant trauma to the brainstem. One of the first tasks of a chiropractor, when examining a newborn infant, should be to check the spine for signs of trauma induced by the birth process. Subluxation of the atlas can be the cause of an infant who is irritable, who sleeps for only short periods, also of one who feeds poorly because of irritability in a particular feeding position or because of regurgitation.

Professor Abraham Towbin

In 1969, Professor Abraham Towbin, M.D., reported on the results of a study he conducted at Harvard Medical School's department of neuropathology on spinal cord and brainstem injuries in newborn infants. Professor Towbin conducted autopsies on more than 2,000 newborn infants who had died shortly after birth. In his report "Latent Spinal Cord and Brainstem Injuries in Newborn Infants," Professor Towbin summarized his findings as follows:

"Spinal cord and brainstem injuries occur often during the process of birth, but frequently escape diagnosis. Respiratory depression in the neonate is a cardinal sign of such injury. In infants who survive there may be lasting neurological defects reflecting the primary injury; in some, secondary hypoxic damage to the cerebrum may ultimately be manifested as cerebral palsy."

Anatomy of the Brainstem and Spinal Cord

Immediately above the spinal cord and the foramen magnum is the medulla oblongata. The medulla contains the respiratory center, located at the level of the inferior olivary body. It is in this rhythmicity center that the basic rhythm of respiration is established. The motor neurons to the phrenic nerve (C3,4,5) are also located in the medulla, which rests on the basilar portion of the occiput, after which the medulla exits the foramen magnum as the spinal cord.

Damage to the medulla and spinal cord has been shown experimentally to affect the rate of respiration. If the medulla is transected immediately above the rhythmicity area, but with the area still connected to the spinal cord, respiration occurs in gasps rather than in normal smooth inspirations and expirations. When the spinal cord is cut immediately below the medulla, the respiratory center becomes very weakly active. Impulses from the spinal cord therefore play an important facilitatory role in keeping the respiratory center alive and functioning.

Is it just possible that the sudden shutdown of the respiratory system, as seen in sudden infant death syndrome (SIDS), is caused by birth trauma to the brain stem and spinal cord as described by Towbin?

Ford (1960) in his text, Diseases of the Nervous System in Infancy, Childhood and Adolescence, points out that although most cases of neonatal spinal damage described clinically in the literature deal with injury of severe degree and with cases of paraplegia, the conclusion is inescapable: There must exist a large number of instances of mild injury, with minimal neurologic symptoms, going unnoticed clinically or being

relegated to the category of cerebral palsy.

The evidence presented by Drs. Towbin and Ford, together with our own knowledge and clinical experience as chiropractors, should be sufficient reason why every newborn infant should be checked early after birth for evidence of trauma to the upper cervical spine and brainstem.

In Australia, cooperative efforts between the chiropractic and medical professions have seen the development of birthing centers where chiropractors midwives, and obstetricians work side by side in the delivery room. This process surely must lead to the earliest possible detection and correction of spinal problems caused by the birthing process.

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