

Special Developmental Problems of Infants and Toddlers

Cerebral Palsy

According to the National Institute of Neurological Disorders and Stroke (NINDS, 2016), cerebral palsy refers to “a group of neurological disorders that appear in infancy or early childhood and permanently affect body movement and muscle coordination. Cerebral palsy (CP) is caused by damage to or abnormalities inside the developing brain that disrupt the brain’s ability to control movement and maintain posture and balance” (NINDS, 2016). Cerebral palsy affects the cerebral cortex, which is the brain’s outer layer that directs muscle movement.

There are multiple possible causes of cerebral palsy, including abnormal development of part of the brain or by damage to parts of the brain. The damage can occur before, during or shortly after birth. The majority of children have *congenital cerebral palsy*, meaning they were born with it. It is thought to be the result of some prenatal insult from illness, injury or presence of toxic substances. A small number of children have *acquired cerebral palsy*, which means it began after birth. Causes include brain damage in the early years of life, brain infections, such as bacterial meningitis or viral encephalitis, problems with blood flow to the brain or head injury from a motor vehicle accident, fall or child abuse.

Some medical conditions or events during pregnancy or delivery increase a baby’s risk of being born with cerebral palsy.

Risk-Increasing Medical Conditions or Events

- Low birthweight and premature birth
- Multiple births—twins, triplets and other multiple births
- Infections during pregnancy, including toxoplasmosis, rubella (German Measles), cytomegalovirus and herpes, can infect the womb and placenta
- Blood Type incompatibility between mother and child (Rh incompatibility)
- Exposure to toxic substances, such as Methyl mercury
- Mothers with thyroid abnormalities, intellectual disability, excess protein in the urine or seizures

- Breech presentation
- Complicated labor and delivery
- Small for gestational age
- Low Apgar score
- Jaundice
- Seizures

Mothers who have no prenatal care, or who abuse alcohol or drugs, also increase the risk of CP in their infants.

Child welfare workers must be skilled at recognizing the early warning signs of (CP) in populations of abused and neglected infants and children. This can ensure optimum early intervention.

Early Warning Signs

In baby under six months of age:

- Head lags when you pick him up while lying on his back.
- He/she feels stiff.
- He/she feels floppy.
- His/her legs get stiff and they cross or scissor when you pick him up.

In baby over six months of age:

- He/she doesn't roll over in either direction.
- He/she cannot bring hands together.
- He/she has difficulty bringing his/her hands to his/her mouth.
- He/she reaches out with one hand while keeping the other fist.

In baby over 10 months of age:

- Crawls in a lopsided manner, pushing off with one hand and leg, while dragging the opposite hand and leg (NINDS, 2016).

Early symptoms of CP are variable. In milder cases, problems may not be apparent until the child reaches school age. Generally, the more severe the condition, the earlier it can be detected.

There are many different forms of CP, and there are considerable differences in descriptive terminology in the literature. The types of CP are determined by the extent, type and location of the abnormalities. Doctors classify CP according to the type of movement disorder plus

additional symptoms, such as weakness (paresis) or paralysis (plegia). They can, however, be broadly divided into three major categories.

Major Types of CP

- **Spastic** CP is characterized by stiff, chronically-tensed muscles combined with muscle weakness. It is the most common type of the disorder.
- **Athetoid** CP is characterized by slow, writhing, involuntary and uncontrolled muscle movements, with muscle weakness. Intelligence is rarely affected in these forms of CP.
- **Ataxic** CP is characterized by motor incoordination and difficulty with balance and depth perception. They often have poor coordination and walk unsteadily with a wide-based gate.

Many persons with CP have mixed types. Ninety percent of CP is either spastic, athetoid or a combination of both.

Abnormal Muscle Tone

Infants may exhibit either *hypotonia*, a significant lack of muscle tone characterized by loose, floppy muscles; or, *hypertonia*, an excessive degree of muscle tone characterized by tightness, stiffness and constricted movement. Typical signs of hypertonia related to spastic CP might include:

- Keeping one or both hands fisted, or keeping the thumb clenched inside the fist, if the child is over four to five months
- Tightness of the hips, making it difficult to separate the infant's legs to diaper him/her
- Keeping the legs in an extended position, or crossing the legs or ankles; kicking the legs in unison, bringing the knees together up to the chest, rather than the more normal alternating leg, bicycle-style kicking
- Evidence of lack of vision, inability to focus or to track moving objects
- Tongue thrust, moving tongue in and out of the mouth, excessive drooling
- Typical signs of hypotonia or lack of muscle tone may include an inability to maintain head control and a generalized "floppiness" that will contribute to delayed motor development

Abnormal Patterns or Delayed Motor Development

Delayed motor development may exhibit itself in numerous ways:

- Failure to achieve head control, or to lift head and chest from a prone position when the child is on his stomach, in a child older than five months
- Failure to reach for objects or to transfer objects from one hand to the other, in a child older than seven months
- Collapsing forward when placed in a sitting position, or rounded back when seated, in a child older than eight months
- Inability to roll from back to front, in a child older than six months
- Inability to stand, in a child older than 10 months

Abnormal patterns of motor development refer to developmental milestones that are only partially completed, or to differences in the infant's skill in mastering motor tasks using various parts of the body. For example:

- Persistent use of only one hand when playing with a toy, including reaching across the body to retrieve an object, rather than reaching with the arm that is on the same side of midline as the object. Infants typically use both hands equally for the first 15 months of life.
- Good use of hands and arms, but drags legs. While many infants go through a stage of "G.I. Joe" crawling on their stomachs, failure to progress to more advanced use of the legs might be indicative of CP.
- Trembling or inaccurate aim when reaching for an object may indicate athetoid CP.
- Walking on tiptoes. Young infants typically stand on their toes when held in a standing position in an adult's lap. By the time the child learns to walk, heels should be flat on the floor. A persistent toe-walking reflex may indicate CP.

Treatment Recommendations

CP can't be cured, but treatment will often improve the child's capabilities.

- Early intervention can increase range of mobility and prevent unnecessary deterioration of motor abilities.
- Early intervention can help children learn and grow in spite of their physical problems. (More than 50 percent of children with CP have intellectual potential within the normal range.)
- Ongoing physical therapy, occupational therapy, recreational therapy and proper medical management are necessary.

- Developmental assessments should be performed to help determine treatment needs in all developmental areas.
- Special infant stimulation programs can greatly improve motor development as well as cognitive and social development.
- Vision and hearing should be routinely screened and monitored as the child develops. CP can affect both.
- Speech and language therapy should be provided for children whose motor ability to speak is involved. For severely involved persons, assistive devices, such as computers, computer software, voice synthesizers and picture books can improve communications skills and increase language development even though speech is absent.
- In some cases, drug treatments (botulinum toxin BT-A or intrathecal baclofen therapy) or surgery are recommended.
- Parents will need considerable support and education. Caring for a child with CP can be stressful and difficult. Special services and support for the parent can help them manage.