

Cerebral palsy

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Cerebral palsy

Definition

Cerebral palsy is defined as a non progressive disorder of cerebral function involving posture and movement, dating to events in the prenatal, natal, or neonatal period. It is often associated with epilepsy and abnormalities of speech, vision and intellect resulting from a lesion or defect of the developing brain.

The incidence of cerebral palsy is 4/1000 population.

Causes of cerebral palsy

1- Antenatal causes

- a) Intra-uterine infections: TORCH.
- b) Fetal anoxia, maternal hemorrhage, placental insufficiency.
- c) Maternal irradiations of the pelvis.
- d) Congenital malformations of brain or vascular occlusion.

2- Intranatal causes

- a) Birth injury: intracranial hemorrhage, cerebral trauma.
- b) Cerebral anoxia.
- c) Marked low birth weight infants and prematurity.

3- Postnatal causes

- a) Intra-cranial infections: meningitis, encephalitis, brain abscess.
- b) Neonatal asphyxia.
- c) Kernicterus.
- d) Hypoglycemia.

Signs and symptoms

- Variations in muscle tone, such as being either too stiff or too floppy
- Stiff muscles and exaggerated reflexes (spasticity)
- Stiff muscles with normal reflexes (rigidity)
- Lack of muscle coordination
- Tremors or involuntary movements
- Slow movements
- Delays in reaching motor skills milestones, such as pushing up on arms, sitting up alone or crawling
- Favoring one side of the body, such as reaching with only one hand or dragging a leg while crawling
- Difficulty walking, such as walking on toes, a scissors-like gait with knees crossing or a wide gait
- Problems with swallowing
- Difficulty with sucking or eating
- Delays in speech development or difficulty speaking
- Difficulty with precise motions, such as picking up a crayon or spoon

Other neurological problems

- Difficulty with vision and hearing
- Intellectual disabilities
- Seizures
- Abnormal touch or pain perceptions
- Oral diseases
- Mental health (psychiatric) conditions
- Urinary incontinence

Types of cerebral palsy

1- Spastic cerebral palsy: is the most common type.

a- Spastic hemiplegia: manifestations of upper motor neuron lesion are present. The arm is often more involved than the leg. Walking is delayed

b- Spastic diplegia: refers to affection of the 4 limbs but lower limbs are more affected than the upper with bilateral spasticity

c- Spastic quadriplegia: is the most severe form of cerebral palsy because of marked motor impairment of all extremities and high association with mental retardation and seizures. Speech and visual abnormalities are common.

d- Spastic monoplegia and paraplegia: may also occur.

2- Extrapramidal cerebral palsy: it is relatively rare especially after improved prevention of kernicterus. These infants are characteristically hypotonic with poor head control.

3- Ataxic cerebral palsy: it is due to perinatal asphyxia affecting the cerebellum. It is characterized by hypotonia, intention tremors and ataxic gait.

4- Mixed types

Diagnosis

Thorough history and physical examination should be performed to eliminate progressive disorders of the CNS.

- The diagnosis depends on the severity and the nature of the neurologic abnormalities.

- A baseline electroencephalogram (EEG) and CT scan may be indicated to determine the location and extent of the structural lesion or associated congenital anomalies.
- Tests of hearing and visual function should be performed.

Prevention

Prevention of cerebral palsy is the ideal approach of this problem and is accomplished through:

1. Prevention of maternal irradiation and unnecessary drug intake.
2. Antenatal monitoring to prevent intrapartum asphyxia.
3. Prevention of birth trauma and perinatal asphyxia.
4. Prevention of hypoglycemia.
5. Prevention of low birth weight and its complications.
6. Proper management of neonatal jaundice.

Early diagnosis is necessary in order to try to prevent secondary positional deformities.

Treatment

- Physiotherapy: prevents gross contractures. Serial plastering and splinting are required to treat positional deformity.
- Reducing abnormal muscle tone: small regular doses of benzodiazepine may be useful in reducing the severity of spasticity.
- Surgical procedures: to improve the mobility.
- Speech therapy and hearing aids may be useful if there is deafness.

Nursing Care for Cerebral Palsy:

Impaired Physical Mobility related to decreased muscle strength

- Plan activities to use fine motor skills like hand activities.
- Perform range of motion exercises every 4 hours.
- Sitting, balancing, crawling, and walking are encouraged.

- Employ aids such as parallel bars and crutches.

Imbalanced nutrition: Less than body requirements related to motor problems

- High expenditure of calories with the intense movements and feeding difficulty leads to a calorie deficit.
- High caloric, high roughage diet is advised.
- Teach family techniques to promote calorie and nutrient intake.
- Position the child upright for feeding.
- Place foods far back in the mouth to overcome tongue thrust.
- Use soft foods in small amounts.
- Allow extra time for chewing and swallowing.
- Assist with jaw control during feeding or facilitate eating.

Risk for Injury

- Provide safe physical environment.
- Use padded furniture for protection; Do not use pillows because it may cause suffocation.
- Use side rail on bed to prevent falls.
- Use sturdy furniture that does not slip.
- Ensure that the toys are safe.
- Apply seat belts.

Impaired verbal communication related to hearing loss

- Speech therapist.
- Talk to child slowly, give eye contact, non verbal communication through pictures, flashcards, and talking boards.