Quadrant II - Notes

Paper Code: EDU-11/BSBAEDU09

Module Name: Locomotor Disabilities - Cerebral Palsy & Muscular Dystrophy

Module No: 11

Locomotor Disability

- Locomotor Disability refers to a person's inability to execute distinctive activities associated with movement of self and manipulation of objects resulting from affliction of musculoskeletal and/or nervous system. It could be the result of a disease, injury or malformation of bones, joints, muscles, nerves, spinal cord and brain. This may be Congenital or acquired. Causes of locomotor disability can be infections, trauma, vascular, metabolic and genetic factors .
- The major types of locomotor disabilities are musculoskeletal, congenital malformation, accidents and other chronic disabilities such as polio, rickets, deformities of spine, muscular dystrophy , cerebral palsy and amputation.

Cerebral Palsy

- **"Cerebral palsy** is the neuro-motor component of the 'brain damage' syndrome. "The characteristics of the cerebral palsied child are paralysis, weakness, in-coordination, on any other aberration of motor function due to malfunction of the motor centers of the brain. It is frequently a combination of both motor and sensory involvement.
- Difficulty in moving and coordinating the body parts can be caused by damage to the brain by birth or during infancy.
- In some cases the problem will be mild that the child appears bit clumsy and in other cases it will be severe enough that voluntary movements is practically impossible.
- **Spasticity** (Over tight or tense muscles, characteristics of some forms of cerebral palsy) is a common form of cerebral palsy. Most of the children with cerebral palsy will be having secondary handicaps.

CLASSIFICATION OF CEREBRAL PALSY

Physiological classification is based on the type of movement issues.

Topographical classification is based on the part of body which is affected.

Etiological classification is based on when cerebral palsy is developed by birth, during birth or after birth.

Physiological Classification (MOTOR)

1) SPASTIC- It is the most common type of Cerebral Palsy, making up 70 to 80 percent of cases .Its often experienced by **exaggerated or jerky movements.**

2) ATHETOTIC (non-spastic CP**)** -About 10 percent of children with cerebral palsy are diagnosed with athetoid CP, or "non-spastic CP". The main trait of athetotic cerebral palsy **is involuntary movement in the face, torso and limbs**.

3) ATAXIC- Ataxia is a type of Cerebral Palsy that causes problems **with balance and coordination.**

4) MIXED- Sometimes if the damage to the developing brain isn't confined to one location. In those circumstances, it is possible for a child to develop **cerebral palsy that is characteristic of multiple brain injuries**.

Topographical classification

Based on involvement of limbs, Cerebral Palsy can further be categorized as **hemiplegia,** if one half of the body is affected; **diplegia,** if involvement of the whole body but the lower half are more affected and **quadriplegia,** if all the four limbs and body are equally affected.

Etiological Classification

A. Prenatal (Developed before birth)

Hereditary-Genetically transmitted and may involve racial or familial predilections and often sex-linked.

B. Natal (Developed During Birth/ Delivery)

Due to Anoxia , Mechanical respiratory obstruction, Narcotism (due to drugs) etc.

C. Postnatal (Developed After Birth)

Trauma, skull fractures, wounds and contusions of the brain, Infections.

Muscular dystrophy

- Muscular dystrophy is the name for a group of conditions which have in common the breakdown of muscle fibers that leads to weak and wasted muscles. The dystrophies are usually inherited but the patterns of inheritance and the muscles affected differ with each type.
- The most common childhood dystrophy is called **Duchenne muscular dystrophy (often abbreviated to DMD) which, with very rare exceptions, affects only boys.** Duchenne muscular dystrophy is a progressive, life-limiting condition in which significant change in a child's physical abilities is usually seen during the **primary school years**. Duchenne muscular dystrophy is characterized by problems in physical functioning. Dystrophin is the longest gene known on the DNA level. These problems are caused by muscle weakness resulting from a genetic defect in the gene that code for dystrophin.
- Muscle weakness manifests itself in DMD boys between the age of 18 months and 3 years. The early common sign known as **'Gower's Sign'** is generally seen in children with muscular

dystrophy when they try to get up from the ground from sitting to a standing position by grasping and pulling on body parts from knees to hips, walk up their thighs with hands (Werner, 1987) until they are in erect position.The weakened muscle tissue will be replaced by connective tissue. The muscles look stronger from the outside, but in actual fact this is a sign of weakness .The first sign of muscle weakness is that the boys do not have such a strong impetus to move around. Big muscles such as the leg muscles deteriorate at an earlier stage than small muscles like those in the fingers. For this reason DMD boys are perfectly able to use computers and so on, which are important appliances in school, for leisure activities and independence, until a much later age.

Educational Challenges for children with locomotor disability and strategies for helping them.

Children with locomotor disability may have following difficulties which restrict their bodily movement as the way other children do:

1. The impaired strength, speed, endurance, coordination and manual dexterity make the children with locomotor disability in need of medical and therapeutic interventions .**Special attention and support** is required due to less physical accessibility to the environment around including academic tasks such as reading, writing, note taking, test taking and computing and physical participation in group project and activities.

2. **Continuous physical therapy and occupational therapy exercises and planned intervention** is required due to impaired range of motion and control of limbs for optimum performance in academic tasks and class room activities.

3. Impaired mobility may result in use of aids such as wheelchair, walker, crutches, splints and communication devices. The use of these aids should be facilitated for improving the accessibility to the classroom the environments.

Interventions programmes include medical management and corrective surgery, Physical therapy, Occupational therapy, Prosthesis and orthotics, Speech and language therapy etc