



OPZ250 Mesleki Yabancı Dil I

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Prosthetic Terminology

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Cerebral Palsy: Gross Motor
Function Classification System I–III

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Cerebral Palsy: Gross Motor Function Classification System I–III

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Description

Cerebral Palsy (CP) is a group of disorders affecting the development of movement and posture. They affect the developing fetal or infant brain and are generally nonprogressive. Gross Motor Function Classification (GMFCS) I–III individuals have more motor function than those who are IV–V, and can ambulate.

Etiology/Types

- GMFCS I—Walking mildly delayed, eventually moves around independently in environment without assistive devices
- GMFCS II—More difficulty with stairs, outdoors; high level gross motor skills but can still walk without assistive device
- GMFCS III—Walk with walker or other assistive device. May use wheelchair.
- Topology: Most children in this group are hemiplegic or diplegic, rarely quadriplegic
- Tone disorder: Spasticity is most common (>90%), often combined with some dystonia

Pathogenesis

- _White matter damage (periventricular leukomalacia) most common

Risk Factors

- _Prematurity
- _Multiple pregnancy
- _Intrauterine infection
- _Other prenatal problems (thyroid deficiency and coagulopathy)
- _Postbirth trauma, such as stroke or traumatic brain injury in first few years of life can technically be called CP

Clinical Features

- _Developmental delay
- _Can be floppy at birth
- _Motor impairment—spasticity, dystonia, weakness, truncal hypotonia, and lack of selective motor control
- _Sensory impairment—proprioception, stereognosis, 2-point discrimination
- _Cognitive impairment—less common than in GMFCS IV–V

Natural History

- _Nonprogressive (although some question about “early aging”)
- _Growth is associated with contracture and joint dislocation, leading to increased functional deficit if not treated

Diagnosis

Differential diagnosis

- _Brain tumor
- _Dopamine dependent dystonia
- _Familial spastic paraparesis
- _Muscular dystrophies
- _Brachial plexus palsy

History

- _Premature birth with complications
- _Maternal infection
- _Delay in gross motor and fine motor skills
- _Learning deficits, cognitive impairment common 10

- _Asymmetric hand or leg use
- _Tight muscles in arms and legs
- _Urinary incontinence may be seen

Exam

- _Asymmetry of use, tone, and/or growth of limbs (by side or legs vs arms)
- _Spasticity—spastic catch + velocity dependent increased resistance to stretch, seen particularly in:
 - Upper extremity: shoulder internal rotators, elbow and wrist flexors
 - Lower extremity: hip flexors, hamstrings, gastrocnemius soleus, posterior tibialis

- _Gait pattern—excessive hip and knee flexion; and may see scissoring

Pitfalls

- _MRI is overused—repeat studies rarely indicated, though often requested

Red Flags

- _Changing neurologic picture—NOT CP

Treatment

Medical

- _Antispasticity medications such as baclofen, dantrolene, zanaflex, and diazepam
- _Medications for attention and concentration
- _Seizure medications

Exercises

- _Constraint induced therapy or bilateral training therapy for upper extremity function
- _Range of motion
- _Strengthening
- _Gait training
- _Developmental stimulation
- _Speech and language therapy for communication and cognition
- _Swallowing therapy

Orthotic

- _Ankle-foot orthoses and other orthoses
- _Hippotherapy, aquatherapy, and massage are all popular but unproven
- _Complementary and alternative medicine chosen by more than 50% of families, though unproven benefit

Injection

- _Botulinum toxin or phenol to reduce spasticity

Surgical

- _Orthopedic muscle releases, tendon transfers
- _Bony reconstruction of hip joint and ankle fusions
- _Selective dorsal rhizotomy decreases tone, improves gait—indicated for GMFCS I–III more so than IV–V
- _Intrathecal baclofen pump allows adjustable tone treatment