Overview of Cerebral Palsy

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Challenging videos
“Making sense” of them

https://youtu.be/7y2zi3bHT9
https://youtu.be/HoPAQ0G5mY
https://youtu.be/6wyp_y3p0zE

Objectives of Presentation
Overview of Cerebral Palsy

• Present overview and types of cerebral palsy
• Discuss impairments of cerebral palsy
• Highlight principles of managing and treating cerebral palsy
## Topics of Presentation

*Overview of Cerebral Palsy*

- Definition and description
- Pathophysiology
- Spectrum of condition
- Causes
- Diagnosis
- Types
- Types of spastic cerebral palsy
- Dystonic and ataxic types
- Associated issues and conditions
- Management
- Therapy and support care and services

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## Definition and Description

**Cerebral Palsy**

Cerebral Palsy is a neurological disorder caused by a non-progressive brain injury or malformation, that occurs in a child’s developing brain, that primarily affects the child’s body movement and muscle coordination.
Essential Components
*Cerebral Palsy*

- Not-progressive (organ level)
- Motor disturbances
- Developing brain

Misconceptions of Cerebral Palsy

- Progressive
- Worsens-as-age

Pathophysiology
Movement Areas

- Cerebrum
- Basal ganglia
- Cerebellum

Cerebrum

*Motor Strip*
Basal Ganglia

Cerebellum

Movement Areas

• Initiate
• Coordinate
• Refine
• Posture
• Balance
Spectrum of Condition

Severity Spectrum
*Cerebral Palsy*

Gross Motor Functional Classification Scale
Causes of Cerebral Palsy

Damage of movement areas

• Prenatal ... During pregnancy
• Perinatal ... Around delivery
• Postnatal ... First years-of-life

Causes of Damage

Movement Areas
Causes of Cerebral Palsy

- 80% ... Pre + perinatal
- 20% ... Postnatal

Diagnosis

Neurodevelopmental Examination
Clinical Presentation

**Early Signs of Cerebral Palsy**

- Risks/parental concern
- Docility/fussiness
- Poor feeding
- Abnormal tone and reflexes
- Asymmetric patterns and movement

Clinical Presentation

**Later Signs of Cerebral Palsy**

**Motor milestone delays**

- Gross motor
- Fine motor
- Cognition/communication

Types
Reflex Arc

Clinical Presentation
*Spastic Cerebral Palsy*

*Cerebrum*
- Increased DTRs
- Clonus
- Hypertonicity
- Upward plantars
- Scissoring
- Weakness

Clinical Presentation
*Dyskinetic Cerebral Palsy*

*Basal Ganglia*
- Dystonia
- Uncontrolled movements

*Exacerbated with stress/no sleep*
### Clinical Presentation

**Ataxic Cerebral Palsy**

- Intension tremor
- Decreased coordination
- Balance disturbance
- Wide-based gait

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### Clinical Presentation

**Mixed Cerebral Palsy**

**Motor Areas**

- Spasticity
- Dyskinesia
- Ataxia

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### Types of Spastic CP
Clinical Types
Spastic Cerebral Palsy

• Hemiplegia ... Unilateral face, trunk and unilateral arm and leg
• Diplegia ... Bilateral legs; partial arms
• Quadriplegia ... Face, trunk and bilateral arms and legs
Pathophysiology

Hemiplegic Spastic Cerebral Palsy

Pathophysiology

Diplegic Spastic Cerebral Palsy

Pathophysiology

Diplegic Spastic Cerebral Palsy

https://youtu.be/HsRW1Q5dSmY
Clinical Types
Quadriplegic Spastic
Cerebral Palsy

Dystonic and Ataxic Types

Clinical Presentation
Dyskinetic Cerebral Palsy

https://youtu.be/IyrN2U62nHs
Pathophysiology
Ataxic Cerebral Palsy

https://youtu.be/GwIp_ppTpQo

Associated Conditions and Issues

Associated Conditions/Issues
Cerebral Palsy

- Intellectual disability (50%)
- Speech/language disorders (90%)
- Epilepsy (30%)
- Visual impairment
- Dysphagia/reflux
- Bladder problems (50%)
- Constipation/diarrhea
- Hip displacement/scoliosis
- Contractures/malposition
- Sleep disorders (20%)
- Hearing impairments
- Behavioral issues
Management

Multidisciplinary Management

- Child and family
- Primary provider
- Rehabilitation medicine
- Subspecialists
- Nursing
- Dietary
- Speech therapy
- Physical therapy
- Occupational therapy
- Case management
- Social work
- School

Multifaceted Management

- Medications
- Surgeries
- Therapies
- Bracing
- DME
- Environments
- Transportation
- Instruction
- Education
- Respite
- Support, finances, estate planning
Management of Spastic CP

- Neuro-management
- Orthopedic procedures
- Therapy care and services
Related Neuroanatomy

Neuro-Management of Spastic CP
Local Injections

Neuro-Management of Spastic CP
Systemic-Enteric-Medications
Neuro-Management of Spastic CP
Surgical Procedures

Musculo-Management of Spastic CP
• Hips
• Pelvis/back
• Extremities

Management of Dystonic and Ataxic CP

Dystonic CP
• Medications
• Deep brain stimulation
• Therapies
• Bracing and DME

Ataxic CP
• No real effective medications
• Therapies
• Bracing and DME
Therapy and Support

Care and Services

• Assessment, indications, goals
• Therapy
• Education and instruction
• Bracing and DME
• Environmental modifications
• Financial and other support services
• Monitoring and reassessing
Summary

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