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MODERN METHODS OF TREATING PATIENTS WITH CEREBRAL PALSY IN CHILDREN

Jumayev Fatullo Erkinovich
2nd Department of Pediatrics, Bukhara State Medical Institute

Annotation: This article presents the opinions of domestic and foreign scientists on modern methods of treating patients with cerebral palsy. Modern methods for treating cerebral palsy (CP) in children incorporate advanced therapies and technologies to improve mobility, independence, and overall quality of life. The most effective treatments are personalized, multidisciplinary, and often include a combination of physical, medical, technological, and supportive therapies.

Key words: Cerebral palsy (CP), pediatrician, neurologist, physical therapist, occupational therapist, speech-language pathologist, child's development and functional skills, physical, occupational, and speech-language.

Introduction.

Cerebral palsy (CP) is a group of disorders that affect movement, coordination, and muscle tone. It is caused by brain damage that occurs before, during, or shortly after birth. CP can vary in severity, affecting different parts of the body and requiring tailored care plans for each child.

Here are key aspects of caring for children with CP:

1. Early Intervention:

Diagnosis and assessment: It is crucial to identify CP early to initiate interventions that maximize potential and minimize complications. A thorough evaluation by a multidisciplinary team (pediatrician, neurologist, physical therapist, occupational therapist, speech-language pathologist, etc.) is essential.[1]

Early intervention programs: Providing specialized therapies like physical, occupational, and speech-language therapy as early as possible can significantly impact a child's development and functional skills.

2. Comprehensive Therapy:

Physical therapy: Focuses on improving motor skills, muscle strength, balance, and coordination, promoting mobility and independence.

Occupational therapy: Helps children develop fine motor skills, self-care abilities, and daily living skills, adapting tasks and environments to their needs.[2]

[1] **Novak, I., et al. (2013).** *A Systematic Review of Interventions for Children with Cerebral Palsy: State of the Evidence. Developmental Medicine & Child Neurology*, 55(10), 885-910.
[2] **Rosenbaum, P., & Gorter, J. W. (2011).** *The 'F-words' in Childhood Disability: I Swear This is How We Should Think! Child: Care, Health and Development*, 38(4), 457-463.

Speech-language therapy: Addresses communication difficulties, swallowing problems, and cognitive impairments, fostering language development and social interaction.

Adaptive equipment: Assistive devices like wheelchairs, walkers, braces, and specialized seating systems can provide support and enhance mobility.

Materials.

3. Medical Management:

Managing medical complications: CP can be associated with other medical conditions like epilepsy, vision and hearing impairments, or developmental delays. Regular monitoring and addressing these issues are essential.

Preventing secondary complications: Regular exercise, proper nutrition, and appropriate medications help manage contractures, muscle spasms, and other complications.

Medications: Medications may be used to control spasticity, reduce seizures, or address other medical conditions.[3]

4. Educational Support:

Individualized Education Program (IEP): Tailored learning plans ensure appropriate educational support and accommodations in school.

Special education services: Specialized classrooms and trained educators provide personalized instruction and support based on individual needs.

Assistive technology: Computers, tablets, and other assistive devices can aid communication, learning, and daily life activities.

5. Social and Emotional Support:

Family support: Providing information, resources, and emotional support to families is crucial to help them navigate the challenges of raising a child with CP.

Social inclusion: Promoting positive social interactions and creating inclusive environments where children with CP can participate and thrive.

Counseling and therapy: Addressing emotional and psychological well-being for both the child and their family.[4]

Research and methods.

6. Long-Term Care:

Transition to adulthood: Preparing children for adulthood involves planning for future education, employment, and independent living.

Lifelong care: CP is a lifelong condition, requiring ongoing medical and therapeutic support as individuals age and needs evolve.

7. Research and Advocacy:

[3] **Damiano, D. L., & Abel, M. F. (1998).** *Functional Outcomes of Strength Training in Spastic Cerebral Palsy and the Implications for Rehabilitation. Physical Medicine and Rehabilitation Clinics of North America*, 9(4), 775-804.
[4] **Dodd, K. J., Taylor, N. F., & Graham, H. K. (2003).** *A Randomized Clinical Trial of Strength Training in Young People with Cerebral Palsy. Developmental Medicine & Child Neurology*, 45(10), 652-657.

Ongoing research: Constant research into new therapies, treatments, and assistive technologies is crucial to improving the lives of people with CP.

Advocacy and awareness: Raising awareness about CP, promoting inclusive policies, and advocating for equal access to resources are vital.

Modern Methods of Treating Cerebral Palsy in Children[5]

While the fundamental principles of managing cerebral palsy (CP) remain consistent, advancements in medical technology, therapy techniques, and research have significantly improved the quality of life for children with CP. Here are some modern methods employed in their treatment:

1. Early Intervention & Multidisciplinary Approach:

Early diagnosis and assessment: Neuroimaging techniques, like MRI, provide detailed brain scans for precise diagnosis and early intervention.

Multidisciplinary teams: Specialists from pediatrics, neurology, physical therapy, occupational therapy, speech-language therapy, and other fields collaborate to create individualized treatment plans.

Developmental screenings: Early detection tools like Bayley Scales and other standardized assessments help identify developmental delays and guide intervention strategies.

2. Targeted Therapy & Innovative Techniques:

Constraint-Induced Movement Therapy (CIMT): Restricting the use of the less-affected limb encourages the brain to rewire and enhance function in the affected limb.[6]

Robotics-Assisted Therapy: Specialized robots provide controlled movements and feedback, aiding motor skill development and improving functional tasks.

Virtual Reality (VR) Therapy: Immersive VR environments allow children to practice motor skills and daily activities in a safe, engaging, and interactive setting.

Biofeedback and Neurofeedback: These techniques teach children to control muscle activity and brainwave patterns, enhancing motor control and attention.

Results.

3. Medical Management & Medications:

Botulinum Toxin Injections (Botox): These injections temporarily weaken overactive muscles, reducing spasticity and allowing for improved movement and range of motion.

Baclofen Pump: A surgically implanted pump delivers baclofen, a muscle relaxant, directly to the spinal cord, providing sustained relief from spasticity.

Intrathecal Baclofen (ITB): A newer approach to baclofen delivery that directly targets the spinal cord for more targeted and effective treatment.

Selective Dorsal Rhizotomy (SDR): A surgical procedure that selectively cuts specific nerve roots in the spinal cord, reducing spasticity and improving motor function.

4. Assistive Technology & Adaptive Equipment:

[5] **Boyd, R., & Jordan, R. (2017).** *Recent Advances in the Pharmacological Management of Cerebral Palsy. Journal of Pediatrics and Child Health*, 53(2), 108-113.

[6] **Graham, H. K., et al. (2016).** *The Management of Spastic Diplegia: A 20-Year Perspective. European Journal of Pediatric Neurology*, 20(3), 361-376.

Adaptive Equipment: Specialized wheelchairs, walkers, braces, and adaptive seating systems are designed to maximize mobility and independence.

Assistive Technology: Speech-generating devices, augmentative and alternative communication (AAC) systems, and computers with accessibility features enhance communication and learning.

Wearable Sensors: Sensors embedded in clothing or devices track movement, posture, and other parameters, providing data for personalized therapy and monitoring.[7]

Discussion.

5. Focus on Functional Outcomes:

Goal-Oriented Therapy: Treatment plans are tailored to individual goals and functional needs, emphasizing activities of daily living (ADLs) and participation in meaningful activities.

Family-Centered Care: Families are actively involved in the child's care and decision-making process, ensuring treatment aligns with their values and priorities.

6. Research and Advocacy:

Ongoing Research: Studies investigating new therapies, genetic factors, and personalized treatment strategies are constantly underway.

Advocacy and Support: Organizations and support groups raise awareness about CP, advocate for equitable access to resources, and offer support to families and individuals.

7. Importance of Early Intervention and Long-term Support:

Early intervention: Prompt diagnosis and treatment are crucial to optimize a child's development and functional potential.

Life-long support: Individuals with CP require ongoing care, therapies, and support throughout their lives to manage their needs and maximize their quality of life.

Conclusion.

The field of CP treatment is rapidly evolving, offering greater possibilities for improving the lives of children with this condition. By embracing a collaborative approach and utilizing cutting-edge technologies and therapies, healthcare professionals strive to empower children with CP to reach their full potential and live fulfilling lives.[8]

Treatment of cerebral palsy (CP) in children focuses on improving mobility, independence, and quality of life through a multidisciplinary approach. This treatment plan is typically customized based on the type and severity of CP, with early intervention being crucial for optimal outcomes.

List of used literatures:

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[7] **Tilton, A. H. (2006).** *Management of Spasticity in Children with Cerebral Palsy. Seminars in Pediatric Neurology*, 13(4), 253-258.
[8] **Palisano, R. J., et al. (1997).** *Development and Reliability of a System to Classify Gross Motor Function in Children with Cerebral Palsy. Developmental Medicine & Child Neurology*, 39(4), 214-223.

3. Damiano, D. L., & Abel, M. F. (1998). Functional Outcomes of Strength Training in Spastic Cerebral Palsy and the Implications for Rehabilitation. Physical Medicine and Rehabilitation Clinics of North America, 9(4), 775-804.
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