CURRENT TRENDS IN CEREBRAL PALSY REHABILITATION

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1. ABSTRACT

Cerebral Paralysis(CP) is one of the most frequent causes of motor disability in children. 3 In every 1000 babies suffer from CP. The frequency is advanced in premature birth. CP is a collection of interminable disorders that affect the growth of movement and posture and result in activity limitations. These disorders are thought to be the result of non-progressive disturbances that occurred in the developing fetal or infant brain. The threat factors for CP can be divided into pre-conception, antenatal, perinatal, and postnatal bones. The bracket of CP can be grounded on
The type of movement complaint, level of damage, and Area of involvement. There
are other medical conditions that are generally associated with CP, like epilepsy, internal deceleration, malnutrition, speech problems, osteoporosis, dysphagia, respiratory problems, vision problems, and sleep diseases. There's no cure for the complaint yet, but the symptoms
can be managed through colorful approaches. Physiotherapy plays a veritably big part in treating the musculoskeletal symptoms of CP. Muscle training, flexibility, balance, mobility, and gait training are the core aspects of the physiotherapeutic approach. Recent advancements in the recuperation of CP help to avoid expensive hospitalization, reduce sanitarium length of stay, and allow patients to remain independent at home, minimizing the need for fiscal or
caregiver support. Other ways of managing CP include medications, surgeries, and other forms of curative therapy. There are also certain challenges that patients and their caretakers might come across during the battle to fight the complaint, which should be taken into consideration while designing the protocol for recuperation. Thorough assessment, personalized treatment plans, and regular evaluation are required to address the specific requirements and challenges faced by these cases.

2. INTRODUCTION

The problem is aetiologically and clinically verifiably diverse, according to the evolving description of CP. The majority of the time, CP coexists with other illnesses like epilepsy, particularly drug-resistant epilepsy, internal deceleration, visual and auditory impairment, as well as feeding and behavioral disorders. Motor issues can range in severity from mild to undeniably severe, leaving the child entirely dependent on caregivers. Ingram and Hagberg's traditional classifications of CP have been replaced by the Surveillance of Cerebral Palsy in Europe bracket, which categorizes CP into three orders: spastic, dyskinetic, and ataxic forms. CP is divided into forms depending on the type of motor diseases that predominate the clinical donation. The classification system for magnetic resonance imaging allows the results of magnetic resonance imaging in children with cerebral paralysis to be divided into five groups, despite the fact that cerebral paralysis is a clinical opinion. This is made possible by the information provided by ultramodern individual imaging. Treatment is a very complex issue because of the differences between the clinical characteristics and the risk factors for CP. (1) .

2.1. RISK FACTORS

The central nervous system (CNS) may suffer damage at a young age due to a variety of factors. Preconception, which refers to the mother's astronomically defined health and living circumstances prior to conception, antenatal, which are connected to the course of gestation, perinatal, as well as threat factors in the neonatal and infant period, are some of the categories into which the threat factors fall. (1) Prematurity is one of the main CP threat factors. Because gestational length and the frequency and severity of neurodevelopmental diseases are correlated, the shorter the gestation, the more severe the diseases. Another risk factor for premature babies is low birth weight. (1).

2.2. CLASSIFICATION

As damage to the developing brain can have numerous causes, manifest in a variety of clinical manifestations, and vary in severity, it has been described in colorful headlines based on

1. The nature of the motion complaint
   CP is divided into the categories of spastic, dyskinetic, and ataxic based on the type of movement complaint.
2. Damage severity and
3. Involvement area, Quadriplegic, hemiplegic, diplegic, and monoplegic are the four types of paralysis that can be stated in this division diplegic being the most common. Hemiplegic (20–30) and quadriplegic (10–15) are the next most common types. Each of the four branches is impacted in quadriplegic CP. Due to perinatal acute hypoxic asphyxia, excessive cystic brain degeneration, and experimental abnormalities resembling polymicrogyria and schizencephaly, the hands in quadriplegia are more severely affected than the legs. All of the extremities' voluntary movements are limited, there are pseudobulbar signs, food gets into the airways accidentally, swallowing is

difficult, there is optical atrophy, there are seizures, and there are severe intellectual abnormalities. The hand's ability to move is significantly compromised in hemiplegia. The lower branch has severe impairments in both dorsiflexion and eversion of the bottom. Only one side of the body is affected by a high tone in the flexor muscles and sensory loss; other symptoms include seizures, abnormal sensory perception, and visual impairment. In addition, hand function is significantly worse than leg function. Dorsiflexion and eversion are impacted at the bottom. Children who were born prematurely or at full term are both at risk for hemiplegic CP. The most frequent neurological condition seen in premature infants with diplegia is CP cystic periventricular leukomalacia(5).

2.3. OTHER MEDICAL CONDITIONS ASSOCIATED WITH CP

2.3.1. Epilepsy in Children with Cerebral Palsy

In children with CP, epilepsy is a distinct clinical issue that is undeniably significant. According to some authors, up to 90-94% of children and adults with CP may have it; its prevalence ranges from 15 to 55–60%. (1) The majority of an epilepsy diagnosis in a child with cerebral palsy occurs in the first 4-5 years of life, usually in the first year. (1) The prevalence of epilepsy varies depending on the type of cerebral palsy. Tetraplegia (50-94% of the time) is the most common form of epilepsy to be seen, followed by hemiplegia (33-50% of the time), diplegia (16-27% of the time), and the ataxic form of cerebral palsy (50% of the time). (1) .

2.3.2. Mental Retardation

A significant and frequently occurring accompanying impairment in CP is intellectual disability, which has the potential to further impact diurnal conditioning, the cost of care, quality of life, the efficacy of interventions, and general quality of life. An intelligence quotient of 70 or less at an older age and significant detention in two or more developmental disciplines are the two criteria for intellectual developmental disability or mental retardation, respectively (1, 2).

2.3.3. Malnutrition and Gastrointestinal Complications

Most kids with cerebral paralysis have trouble eating and digestive issues like oropharyngeal dysfunction, gastroesophageal complaints, and constipation. 10) Eating by mouth is a difficult process that calls for a developed ability to swallow and a particularly developed combination of sucking with breathing and swallowing. (14) Swallowing is a common problem for kids with cerebral paralysis. For a child to eat during the first six months of life, nutritional sucking is a highly organized process. Early indications of an underdeveloped central nervous system may include an infant's inability to perform a safe and effective sucking action for oral feeding. (5) A pilot study demonstrates the correlation between nutritional sucking habits and the microstructural integrity of sensory-motor tracts in infants with brain injury using diffusion imaging. (1) (16)

2.3.4. Speech Problems

More than 50% of kids with CP show signs of speech impairment. [2] [17]
Any of these functions may be impaired in CP. Speech production involves breathing in addition to laryngeal, velopharyngeal, and articulatory movements. [2] Dysarthria or anarthria, as well as dyspraxia or apraxia of speech, are motor disorders that affect speech. The speech musculature moves slowly, weakly, imprecisely, and/or uncoordinatedly in dysarthria. [3] A disruption in the motor planning and programming of speech movements is the defining feature of apraxia, also known as dyspraxia. [3]
The type of CP, gross motor function, the presence of mental retardation, and the location of brain maldevelopment and lesions are all associated with speech ability.

Andersen et al. reported in the Norwegian study that there was a relationship between the type of CP and speech ability. Speech was normal or accessible in 90% of the children with unilateral discontinuous CP, but oppressively impaired or nonexistent in 97% of the children with dyskinetic CP. (1) .

2.3.5. Osteoporosis

Osteoporosis results in brittle bones. With genuinely little stress or a light impact fall, it causes the bone to break easily. Due to poor nutrition, decreased weight bearing, and the use of specific drugs that cause bone decay, it is present in cases of CP. (10) It is recommended that older patients have their bone mass checked before starting treatment using the Q fracture tool or the fracture threat assessment tool, as well as dual-energy X-ray absorptiometry. The management of osteoporosis can benefit from the use of supplements such as calcium, vitamin D supplements, and bisphosphonates(10). Exercises that involve lifting weights are designed to reduce the bone mineral viscosity in children with cerebral palsy, so they must be used to improve bone conditions (6, 7).

2.3.6. Dysphasia

Children with CP frequently develop swallowing disorders as a result of neurological involvement. Oral hygiene, careful feeding techniques, food variety, and stimulation of the oral musculature are the mainstays of its treatment. (1) Children with CP who have weak facial and neck muscles also exhibit drooling. Neck posture control, tongue control, behavioral therapies, intraoral appliances, and certain specifics like anticholinergic medications that are helpful for this condition can all help manage it. (10), The salivary glands may be surgically removed, and ducts may be tied.

2.3.7. Respiratory Problems

Children with CP frequently exhibit respiratory issues, which are also the leading cause of death in CP-afflicted adults. When food patches are accidentally introduced into the respiratory system due to factors like muscle weakness, poor posture, and poor postural control, bacterial growth can occasionally result, leading to respiratory failures. (10) Life variations, including changes in posture, dietary preferences, and weight loss, are included in the operation of similar conditions. Enhancement of motor

functions and respiratory hygiene includes perfecting lung functions, perfecting lung expansion, and aerobic fitness, along with airway concurrence and producing an effective cough (1). For the management of feeding and swallowing issues, oromotor techniques like sensitive awareness training, neck control exercises, general postural adjustments, specific medications, and surgical interventions like duct transposition and duct ligation are crucial. (4) .

2.3.8. Vision Problems

Cerebral visual impairment (CVI), also known as cortical blindness, is caused by abnormal brain development or brain damage and manifests as visual deficits and perceptual flaws. The functional restrictions brought on by cerebral visual impairment are diagnosed using the CVI force and assessment(9). The frequency of CVI can be decreased by treating hypoxic-ischemic encephalopathy, and other treatment modalities like visual stimulation and stem cell therapies need to be further studied(6). A significant side effect of brain damage may be vision impairment, particularly in premature babies. These children may benefit from family support and involvement in the healing process, as well as from a variety of government welfare programs like educational allowances, special books, scholarships, permission to use assistive bias, large print question paper, a scribe to write the exam, extra time in the exam, and the use of visual questions(1).

2.3.9. Sleep disorders

Children with CP frequently experience sleep problems, which places a heavy psychological burden on their families. Function is also decreased as a result of sleep disorders. Sleep disorders have a cascading effect on behavior, which in turn causes functional issues with the body's structure and lowers the patient's and their family's quality of life. In order to gather data on sleep disorders in CP children under the age of two, a methodical review was carried out in 2021, and the results confirmed polysomnography as a useful assessment tool for CP kids. (1) Surgical procedures, sensory system stimulation, and cannabis are all used as treatments. (1)

3. PHYSIOTHERAPEUTIC MANAGEMENT OF CEREBRAL PALSY

Strength, flexibility, balance, motor development, and mobility in children can all be improved through muscle development and exercise. The safe supervision of a child's daily needs at home, such as feeding and bathing, should be taught to parents. In between therapy sessions, a therapist can offer advice on how to continue exercising and building muscle at home. Physical and occupational therapists focus on issues like head and neck control, rolling, and grasping for the first one to two years following birth. Later, wheelchair evaluations involve both varieties of therapists.

The field of cerebral paralysis has seen significant advancements thanks to physiotherapy. It aids in perfecting the muscle structure and function and common range of motion while reducing contractures; some methods used to do this include muscle stretching, common range of motion exercises, low-resistance repetitive exercises, progressive resistance training, functional strength training, balance

training, plyometrics, and selective muscle activation in a manner similar to constraint-induced movement remedies.

Along with the upper extremities and trunk, hippotherapy is an emergency treatment that has improved neck control and sitting posture control. The stimulation of balance responses leads to an improvement in posture overall, which benefits balance and spasticity. Children with CP benefit from 30-45 minute sessions held twice daily for eight to twelve weeks on their gross motor function(8).

Two methods to improve muscle strength and function are deep brain stimulation in the case of dyskinetic CP and electrical stimulation using TENS and NMES in the case of discontinuous CP(8).

For the child to help with function, such as better walking and stretching stiff muscles, braces, slivers, or other probative bias may be advised. By placing a cast on the injured area, a technique called periodic casting is used to loosen up tight muscles and improve range of motion(10).

3.1. GAIT TRAINING

Children with both side impairments can improve their gross motor skills with the help of robot-assisted gait training. All of the measures of gross motor function improved following this intervention. Additionally, it enhanced the children's ability to move around on their own(9). Standing erect with a dropped load on the lower extremity joint is made easier with functional gait training, which entails practicing walking on a routine with little support from the body. Most beneficial in GMFCS grades IV and V, this aids in gait training. Additionally, it promotes control and good posture. It can be performed on or off a treadmill.
It is possible to incorporate biofeedback and virtual reality; both have beneficial effects (2, 3). A popular technique for recovery is biofeedback, which can be used to represent any natural parameter and its changes. Visual, aural, and haptic responses are just a few of the numerous ways to pick up on the changes. By connecting efficient motor performance to motor learning, it is successful in improving motor function (7).
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3.2. NEURODEVELOPMENTAL THERAPY

According to a study on the effects of neurodevelopmental therapy in children with cerebral palsy, the intervention technique led to improved function in the children's various conditionings. Children with CP who underwent NDT also experienced a decrease in spasticity and an improvement in overall function, but there was little improvement in their ability to run, jump, or walk(7).
Neurodevelopmental therapy(NDT; Brunnstrom and Bobath system) and proprioceptive neuromuscular facilitation approaches have been shown to enhance the functional situations of individuals with CP. (8)
The results show that the Neurodevelopmental Bobath Treatment system was applied in the two cases' rehabilitation regimes in order to reduce motor-sensory impairments and enhance the experience of regular movement and functional independence.

The crucial element of the remedy program was trunk control exercises, since they were pivotal for establishing dynamic stabilization in several body regions and reducing irregularities in other body parts. (10)
Joint mobilization, pelvic mobilization, and deep friction massage were used to reduce the intensity of sensory input. The recuperation curriculum included exercises for weight transfer and functional reaching in both sitting and standing positions. (10)

4. RECENT ADVANCES IN CP REHABILITATION

4.1. Robot- assisted Devices

A new method called robotics uses a computerized control system and aids in motor learning and cortical reorganization to improve function in the upper and lower extremities. It has been discovered that gait rehabilitation has a more favorable effect on lower limb function because functional movements are more effective than typical movement patterns. Robot-assisted gait training has replaced conventional gait rehabilitation thanks to advancements in technology.

Due to its increased duration, repetition, constant speed, and pattern, RAGT is beneficial. Robotic exoskeletons for the lower limbs are intended to improve the quality of life for children with cerebral palsy.

Lokomat, Innowalk, Robogait, and Waltbox-K are the most prominent robotic systems in the literature, but their effectiveness is still up for debate due to a dearth of research.

Ankle-foot orthoses have been found to be the most helpful for children with CP's lower extremities, but electronic variants with a similar design are hard to come by. Although there have been many clinical trials, there have not been many review studies. In-depth research is required for upper-extremity robotic support.

Social robots are an additional branch of artificial intelligence that, in addition to stimulating rehabilitation, must improve communication and participation among CP children.

4.2. Virtual Reality

With the help of a recent advancement in neurorehabilitation known as virtual reality, patients are now able to perform functional tasks in environments that are similar to their actual ones. In some psychiatric circumstances, it is used as a diagnostic tool. It was developed in the 1960s. Numerous clinical trials on VR With patients suffering from COPD, stroke, and most recently, obstetric and gynecological conditions, numerous clinical trials on VR are currently being conducted. Functional outgrowth studies are uncommon in this population when used as a pain management technique in CP cases (6).

4.3. Augmentative and Indispensable Communication devices

Children with CP are found to have communication issues in 25% of cases, and the majority of this population also has oromotor issues. Children with speech impairments can communicate more effectively with the aid of essential and supplemental devices. (6)

Between the CP child and various community members, it aids in the development of a communication pattern. This strategy makes use of some manual boards that can be used as numbers, number symbols, etc. AAC devices that help expose the child's thinking are used in conjunction with speech and language disorders. The results of all studies using AAC are positive, but the number of studies on children with CP is noticeably lower. (9)

4.4. Mobile Applications for Cerebral Palsy Children

The way that healthcare is delivered has been dramatically altered by the use of mobile operations. These apps are trustworthy and reliable, have become incredibly popular and convenient, and are helpful in sharing information, creating analyses, monitoring, and treating. There are numerous other mobile operations that can be significant in addition to the 23 mobile operations used specifically for CP kids. These apps offer a variety of services, such as correcting the foot deformities of children with cerebral palsy by producing an auditory signal during altered biomechanics in foot placement and risk assessment of hip dysplasia in children with cerebral palsy by medical professionals. (5)

4.5. Metaverse

The metaverse is a new emerging technology that gives a deeper, more persistent, and immersive 3D experience by combining multiple different virtual approaches in a full continuum of physical and digital interaction spaces. Despite numerous of the characteristics being analogous to virtual reality(VR) and augmented reality (AR), the metaverse has a service-oriented, solid model with an emphasis on social and content dimensions. Metaverse can provide multidimensional recuperation for CP thanks to a well-tested and customized rehabilitation protocol. (15)

5. OTHER WAYS OF MANAGING OF CP

Botulinum toxin therapy and surgical procedures like rhizotomy are both used today to treat spasticity. (1)

5.1. MEDICATIONS

To increase functional abilities, treat pain, and manage complications associated with spasticity or other CP symptoms, medications that can reduce muscle stiffness may be used..

5.1.1. Muscle or nerve injections

Doctors may suggest injections of botulinum toxin A (Botox) or another substance to treat tightening of a particular muscle. Approximately every three months, the injections must be repeated.
Pain at the injection site and mild flu-like symptoms are possible side effects. Breathing and swallowing issues are some of the more severe side effects. (7)

5.1.2. Oral muscle relaxants

Muscle relaxation medications like baclofen, tizanidine (Zanaflex), diazepam (Valium), or dantrolene (Dantrium) are frequently used.
Baclofen may occasionally be injected directly into the spinal cord using a tube (intrathecal baclofen). Under the abdominal skin, the pump is surgically inserted.

5.1.3. Specifics to reduce drooling

The salivary glands are injected with Botox.

5.2. OCCUPATIONAL THERAPY

The goal of occupational therapy is to assist the child in becoming independent in daily tasks and routines at home, school, and in the community. The recommended adaptive equipment for the child may include walkers, canes with wide bases, standing and seating aids, or electric wheelchairs.

5.3. SPEECH AND LANGUAGE THERAPY

A child's ability to speak clearly or use sign language can be helped by speech-language pathologists. If communication is a problem, they can also learn how to use tools like voice synthesizers and computers that are similar to those. People who have difficulty swallowing or eating can benefit from speech therapy.

5.4. RECREATIONAL THERAPY

Regular or adaptive competitive sports or leisure activities, like therapeutic horseback riding or skiing, can be beneficial for some kids. The child's motor abilities, speech, and emotional health can all be improved with this kind of treatment. Regular physical activity and exercise are good for general health and fitness in both adults and children.

5.5. SURGICAL PROCEDURES

To relieve muscle tension or fix bone abnormalities brought on by spasticity, surgery may be necessary. These remedies consist of:

5.5.1. Orthopedic surgery

For children with severe contractures or scars, surgery on the bones or joints may be required to realign their arms, spines, hips, or legs. Along with lengthened muscles, contracture-shortened tendons can also be stretched or realigned surgically.
Less pain and greater mobility are possible with these adjustments. The procedures may also make it easier to use a walker, braces, or crutches.

5.5.2. Cutting nerve fibers (selective dorsal rhizotomy)

Selective dorsal rhizotomy, a procedure that involves cutting the nerves supplying a group of spastic muscles, may be used by surgeons in some severe cases when other treatments have failed. This eases pain by relaxing the muscles in the legs, but it may also result in numbness.

6. BARRIERS TO TREATMENT

People with CP face various walls and obstacles that have little to do with their physical or cognitive capacities. External factors like inaccessible structures and transportation, societal attitudes, and rejection from educational and employment opportunities are the root cause of these barriers.

6.1. Incapacity of patients to recognize their needs

Until the first couple months and sometimes even years of life, the symptoms can go undiagnosed, which can lead to delays in the treatment process. The prognosis is improved with early treatment initiation.

6.2. Cost of Rehabilitation

Indeed, while this may feel daunting(especially if you have health problems), it's cheering to know that you have a plan in place to control healthcare charges. (9)

6.3. Poor understanding of the benefits and significance of physical activity

Some individuals reported that they associate physical exertion with pain, discomfort, and monotony(13, 14). Other individuals reported that they suspect the significance of PA and are uncertain about its benefits (13).

6.4. Negative self-conscious studies

Individuals may feel A comprehensive assessment of CP cases is vital for understanding their medical history, past and present treatments, and implicit complications. This information helps in developing personalized treatment plans and setting realistic expectations.
At appearing physically unfit in front of other people (14), and uncomfortable if the physical exertion highlights their body as dysfunctional (13), individuals also reported feeling shamed towards their caregivers when asking for help during a physical activity. (12)

7. CONCLUSION

The description, classification, and management of cerebral paralysis are complicated issues. Children who are at risk of developing CP due to common threat factors, like prematurity, should receive extra attention and should begin watching for experimental support in advance. It is important to diagnose and monitor CP comorbidities, especially epilepsy and malnutrition, as their proper management may improve a child's CP-related developmental outcomes. The main focus of recuperation for CP is known to be activity, although other medical, surgical, and remedial approaches have also been shown to relieve symptoms. Recent advancements in the recuperation of CP can yield brisk, cheaper, and easier results. Further study is needed to comprehend the function of recuperation for those with CP.

In addition to perfecting functional capacities during the complaint, recuperation interventions should also be concentrated on enhancing the patient's quality of life, symptom relief, avoiding complications, mobility, and daily conditioning.

8. SUMMARY

This paper discusses current trends in the recovery of cerebral paralysis, threat factors, classification, and other medical conditions associated with it. It emphasizes on the physiotherapeutic operation, recent advancements in the field, and further discusses other operation approaches. Incipiently, barriers to treatment and recuperation are discussed. CP is a group of endless diseases that affect the development of movement and posture, causing activity limitations that are attributed to non-progressive disturbances that pass through the developing fetal or infant brain. The comprehensive assessment of CP cases is pivotal for understanding their medical history, past and present treatments, and implicit complications. This information helps in developing individualized treatment plans and setting realistic expectations. The threat factors for CP can be divided into pre-conception, antenatal, perinatal, and postnatal. The shorter the gestation,

the more severe the diseases. The classification of CP can be grounded on
The type of movement complaint (spastic, dyskinetic, and ataxic), Level of damage, and Area of involvement. There are other medical conditions that are generally associated with CP, like epilepsy, internal deceleration, malnutrition, speech problems, osteoporosis, dysphagia, respiratory problems, vision problems, and sleep diseases. In order to manage the symptoms of CP, these comorbidities also need to be assessed and addressed accordingly. There's no cure for the complaint yet, but the symptoms can be managed through colorful approaches. Physiotherapy plays a veritably big part in treating the musculoskeletal symptoms of CP. Muscle training, flexibility, balance, mobility, and gait training are the core aspects of the physiotherapeutic approach. Breathing exercises and pulmonary training are also needed to deal with and help with respiratory problems. Evidence-based activity interventions for managing symptoms and perfecting the quality of life of CP cases highlight the role of exercise programs in maintaining gait pattern, muscular strength, and function. Physical exertion has been shown to effectively address spasticity in CP cases. Neurodevelopmental remedy is an area of activity that reveals better function and conditioning of diurnal living, reduces spasticity, and enhances locomotor conditioning.

Recent advancements in the recuperation of CP help to avoid expensive hospitalization, reduce length of stay, and allow patients to remain independent at home, minimizing the need for fiscal or caregiver support. The ways may include Robot-assisted devices, virtual reality, augmentative and alternative communication devices, the metaverse, and mobile operations for cerebral paralysis. Other ways of managing CP include medicines(like botulinum toxin or muscle relaxants), surgeries like rhizotomy and muscle stretching, and other forms of curatives like occupational therapy, speech therapy, and recreational therapy. There are also certain walls, like the cost of Rehabilitation, poor patient education, and negative self-conscious thoughts that patients and their caretakers might come across during the battle of fighting the complaint, that should be taken into consideration while designing the protocol for recuperation. Thorough assessment, personalized treatment plans, and regular evaluation are required to address the specific requirements and challenges faced by these cases.

Overall, the significance of a multidisciplinary approach and evidence-based activity interventions in the recuperation of cases with cerebral paralysis is bandied about. It emphasizes the need for comprehensive assessment, personalized treatment plans, and regular evaluation to address the specific requirements and challenges faced by these cases.

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Rocchi1,2 ●Fabrizio Taffoni 4●Anne Hansen3●P Ellen Grant2●Christos Papadelis1,2,5Received: 1 March 2019 / Revised: 14 June 2019 / Accepted: 20 July 2019 / Published online: 28 August 2019

17. Cerebral Palsy: Current Opinions on Definition, Epidemiology, Risk Factors, Classification and Treatment Options
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