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Cerebral Palsy

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Cerebral Palsy

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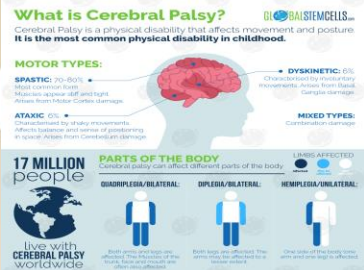
Introduction

Topic

Cerebral Palsy (CP) is a neuromuscular disorder that affects a person's ability to move and maintain balance and posture. The word Cerebral means brain and the word Palsy means weakness or difficulty using muscles. CP is a disability that is caused by abnormalities or damage to the brain. The brain helps to control and coordinate muscle movements. Symptoms vary from person to person and range from mild to severe.

Symptoms include:

- Difficulty with motor movements including walking
 - Changes in the spine or joints
 - Intellectual disabilities
 - Difficulty with speech or hearing,
 - Seizures
- (CDC, 2020)



Retrieved from <https://globalstemcells.com/cerebral-palsy-lais-28-brazil/>

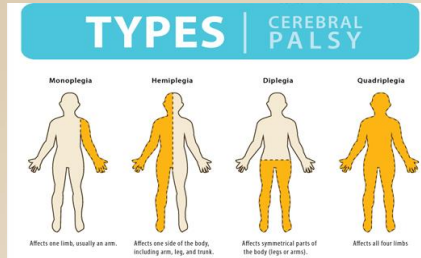
Relevance of Topic

As a nurse working in a pediatric hospital, on the inpatient Rehabilitation unit, a variety of patients are treated for various conditions. One of the most common neurological disorders treated is Cerebral Palsy.

The average length of stay for patients with Cerebral Palsy recovering post operatively is two weeks (Nationwide Children's Hospital, 2020)

I chose Cerebral Palsy as my topic of interest to further explore the etiology, pathophysiology, and treatment that accompanies this condition and gain knowledge to better care for these patients.

Types of Cerebral Palsy



Retrieved from <https://arhealth.com.au/2018/05/14/cerebral-palsy-and-ageing/>

Cerebral Palsy is classified by the main type of movement disorder involved. The type of movement disorder depends on the area of the brain that is damaged. Movement disorders include:

- Spasticity (Stiffening of the muscles)
- Dyskinesia (Uncontrollable movements)
- Ataxia (Poor balance and coordination)

Therefore, there are four main types of Cerebral Palsy:

1. Spastic, (Accounts for 80% of cases, associated with increased muscle tone)
2. Dyskinetic
3. Ataxic
4. Mixed

(Bar-on et al. 2015) (CDC, 2020)

Risk Factors

There are several possible risk factors that contribute to abnormal development or damage to the brain. Risk factors can be related to birth also known as congenital or they can occur after birth also known as acquired.

Congenital risk factors:

- Low birth weight
- Premature birth
- Multiple births (twins, triplets)
- Infection during pregnancy
- Birth Complications

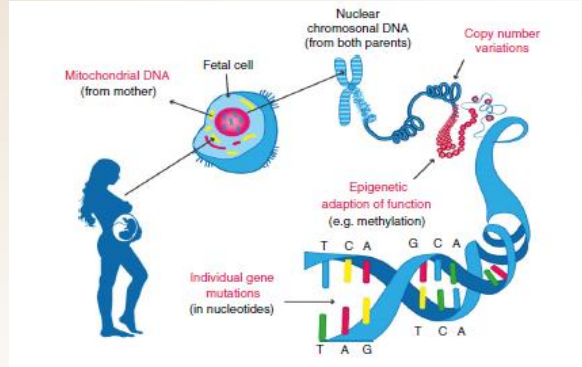
Acquired risk factors:

- Injuries to the brain
- Infections of the brain

(CDC, 2020)

Underlying Pathophysiology

CP is a heterogeneous condition with various types, causes, and patterns of neuropathology that all result in a disorder of posture and movement control (MacLennan et al., 2015). There are several pathologies related to the presence and development of Cerebral Palsy. Prematurity and hypoxic-ischemic injury are considered traditional contributors to the pathogenesis of CP. However, there is still as many as one-third of person's with CP that lack the traditional risk factors. For these individuals, a genetic basis to their diagnosis is suspected. Research now includes recent findings related to genetic factors and the pathogenesis of CP (Fahey et al., 2017). For example, a single mutation found on a gene may be enough to cause the disease. In other cases, a genetic mutation may increase the risk for disease but require another genetic or environmental factor to lead to the disease. (Fahey et al., 2017). Depending on the neuropathology and severity of neurological impairment, the person may express mild to severe symptoms of the disease.



(Fahey et al., 2017)

Significance of Pathophysiology

It is estimated that between 8,000 to 10,000 babies will be born with CP each year (Nationwide Children's Hospital, 2020). Understanding the pathophysiology of CP is crucial in early diagnosis and treatment. Determining and diagnosing the correct type of CP is also important in understanding the various signs and symptoms and how to best manage them. In CP, spasticity is known to be the most common motor impairment. Spasticity results in excessive muscle activation which can contribute to muscle hypertonia and stiffening resulting in a decreased range of motion (Bar-on et al., 2015). This affects a person's ability to move and maintain proper balance and posture and ultimately interferes with activities of daily living and quality of life.

Nursing Implications

With there being so many varying types of CP, every person expresses the disease differently. Patients with CP should have an individualized treatment plan that focuses on their needs and physical challenges. Nurses should collaborate with other members of the healthcare team to utilize a holistic approach when caring for these patients.

Nurses should provide thorough assessments to ensure developmental milestones are being achieved. Nurses should make referrals for developmental screenings tests to be performed if concerns about a patient's development (CDC, 2020).

Goals of treatment for these patients include symptom management and improvement of function. The use of medications such as valium, baclofen, and Botox should be assessed frequently for the management of spasticity. Therapies such as occupational therapy, physical therapy, and speech therapy should be encouraged as needed. If bracing is recommended or used, frequent skin assessments should be performed to decrease the risk of injury or breakdown (Nationwide Children's Hospital, 2020).

Treatment

While there is no cure for Cerebral Palsy, there are several interventions that can help improve a person's mobility and function.

Interventions include:

- Medications to manage pain and muscle spasms
- Surgery
- Bracing and other assistive devices
- Therapies (Occupational therapy, Physical therapy, and Speech therapy)

(CDC, 2020)

(Nationwide Children's Hospital, 2020)

Conclusion

Understanding the related pathophysiologies for CP is important for symptom management and high-quality patient care. There are a variety of debilitating symptoms associated with CP that have the potential to interrupt a person's activities of daily living. Therefore, having knowledge about the various types of CP, causes, risk factors, and associated manifestations healthcare providers can create an individualized treatment plan in order to help a person with CP achieve and maintain their optimal level of function.

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