Cerebral Palsy with Gross Developmental Delay with Lower Respiratory Infection with Hypoxia- A Case Report

Sagar Alwadkar1*, Mayur B. Wanjari1, Pratibha Wankhede1 and Deeplata Mendhe1

1Department of Community Health Nursing, Smt. Radhikabai Meghe Memorial College of Nursing, Datta Meghe Institute of Medical Sciences, Sawangi (M) Wardha, Maharashtra, India.

Authors’ contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2021/v33i44B32666

Editor(s):
(1) Dr. Paola Angelini, University of Perugia, Italy.

Reviewers:
(1) Mihaela-Claudia Spataru, University of Life Sciences, Romania.
(2) Lucky Norah Katende-Kyenda, Walter Sisulu University, South Africa.

Complete Peer review History: https://www.sdiarticle4.com/review-history/73649

Received 21 June 2021
Accepted 01 September 2021
Published 22 September 2021

ABSTRACT

Introduction: Cerebral palsy is a term used to describe a range of diseases caused by non-progressive brain injury that occurs before, during, or after birth. There are numerous causes. Although the brain damage does not change and cannot be cured, the symptoms may change over time.

Case Presentation: Here we discuss a 10-year-old female child with a complaint of involuntary movement of hand legs from the morning with another complaint of cough, cold, fever from 4 days. After undergone a thorough investigation and physical examination made the final diagnosis was Cerebral Palsy with Gross Developmental Delay with Lower Respiratory Infection with Hypoxia (80%). The case report aims to help diagnose such type of case and help to get early treatment with management.

Conclusion: In this case report, we mainly focus on patient signs and symptoms. According to that deliver medical and nursing management. After being given medical and nursing management patient’s condition was improving.

*Corresponding author: E-mail: Wanjari605@gmail.com;
Keywords: Cerebral palsy; gross developmental delay; lower respiratory infection; hypoxia.

1. INTRODUCTION

Cerebral palsy (CP) is the leading cause of childhood disability affecting function and development. The incidence of the condition has not changed in more than 4 decades, despite significant advances in the medical care of neonates. It is not a single disease but a symptom complex of a wide variety of static neuromotor impairment syndromes occurring secondary to a lesion in the developing brain [1,2,3].

Children with cerebral palsy are more likely to experience developmental delays due to brain injury sustained during or shortly after birth. Failure to meet development within an acceptable time frame is frequently the cause of cerebral palsy evaluation and diagnosis [4].

Post-impairment syndrome is common in adults with CP. This is often difficult to diagnose as its symptoms mimic other conditions related to CP including fatigue, weakness, and repetitive strain injuries. Musculoskeletal impairments are very common in young adults with CP, with hip pain being the most frequently reported. Hip pain may be a result of poor hip morphology at skeletal maturity. Musculoskeletal impairments and pain may present secondary to changes in gait. Many adults with CP experience a decline in walking ability and function despite that 70-80% walk independently or with gait aids. Maintenance of walking ability is important for independence, quality of life and participation in social activities [5].

2. EPIDEMIOLOGY

The prevalence estimates of CP range from 1.5 to more than 4 per 1,000 live births or children of a defined age range. About 1 in 323 children has been identified with CP according to estimates from CDC’s Autism and Developmental Disabilities Monitoring (ADDM) Network [6].

2.1 Patient Information

2.1.1 Present medical history

A 10-year-old female child was brought to Acharya Vinobha Bhave Rural Hospital with a complaint of involuntary movement of hand legs from the morning with another complaint of cough, cold, fever since from 4 days.

As the narrated child was apparently alright 4 days back when she observed, the baby is having a wet cough, sputum was yellow. Cough was associated with cold.

Later after 2 days, she had a fever that was high grade, sudden in onset, insidious in nature not associated with chill and rigors. The present-day patient had a fever which was associated with involuntary movement of hands, legs and up rolling of eyes with no history of unconsciousness and trauma. She had hypoxia with 80% of saturation. The patient was administered an oxygen mask. After going through all investigations and doctor’s physical examinations made final diagnosis is Cerebral Palsy with Gross Developmental Delay with Lower Respiratory Infection with Hypoxia (80%).

2.1.2 Birth history

She was born with a weight of 1.2 kg, maternal child health to a G2A1 mother at 28 weeks of gestation with normal delivery. The baby did not cry immediately after birth and she was shifted to the neonatal intensive care unit. Pulmonary veno-occlusive birth asphyxia and pre-term delivery because of that she was intubated for 11 days.

2.1.3 Clinical findings

On physical examination, the patient was conscious. tone, power and reflex are moderate and plantar reflex was an abnormal extensor, which means that has an underlying nervous system or brain condition that’s causing reflexes to react abnormally. Clonus reflex was positive in the right lower limb.

2.1.4 Diagnostic assessment

Patient undergone through electroencephalogram (EEG) recorded with international (10-20) electrode placement. The patient was asleep during the recording; the background record shows rhythmic synchronous theta 4-5 Hz activity hemisphere. There is no evidence of ictogenic discharges during the recording. The provocative procedure did not elicit ictal activities.

The blood investigation of the patient is normal. Heart rate was 122/min, respiration 28/min and saturation with 5 liter O2 is 98%.
2.1.5 Therapeutic intervention

A variety of therapies play an important role in treating cerebral palsy:

Medication-

- Inj. Phenytoin 90Mg in 20Ml Intravenous over 20 Min (Every 12 Hourly).
- Inj. Valparin 130Mg in 20Ml Intravenous over 30Min (Every 6 Hourly) (30 Mg/Kg/Day)
- Inj. Sodium chloride 3% Intravenous 1.7Ml/Hr (0.1 Ml/Kg/Day)
- Inj. Ceftriaxone 850Mg Intravenous (12 Hourly) (100 Mg/Kg/Day)
- Nebulization with Duolin 8 Hourly.

Physiotherapy-

Walking and standing without assistance are examples of mobility-enhancing exercises. Stretching muscles to prevent stiffness and lengthen tight muscles.

3. DISCUSSION

Cerebral palsies are a group of conditions caused by non-progressive brain damage before, during, or after birth. Although the brain damage itself does not change nor is it curable, the symptoms may change with time. The brain and nervous system are maturing in the presence of the damage and this cannot take place in a vacuum. The way the baby is handled and the attitudes that surround the baby influence how the maturation expresses itself in the subsequent child’s and adult’s ultimate function [7].

Although motor delay and dysfunctions are the main problems in cerebral palsies there is the possibility of other handicaps. The brain damage itself can be diffuse enough to affect speech and hearing, vision, perceptual function, mental ability and general behavior. Epilepsy may occur. There may also be other associated handicaps that are due to a lack of motor experiences in physically disabled children. Lack of motor exploration affects the development of sensations, perceptions, mental abilities and speech. Emotional and social skills are also hampered. Patient-child interaction is not always easy and may create emotional problems [8].

Early therapy is advisable to minimize the degree of motor handicap and secondary development handicaps [9]. In cerebral palsy pharmaceutical management is the most preferable scenario. The medical and nursing management was improving the patient condition rapidly. By being given physiotherapy, the patient’s neurological and physical condition well stabilize.

There is a gap in the research regarding rehabilitation and exercise training for adults living with CP and little guidance regarding specific protocols for management. Previous studies have shown that incorporating exercise and gait training into rehabilitation can help to prevent chronic pain and physical deterioration. In addition, exercise will increase independence and help to maintain activity and participation in these individuals [10,11]. In current case report also, physiotherapy help patient to improve their physical health.

Epilepsy occurs in 47% of patients with CP and is most common in spastic quadriplegia. All medications, particularly those for convulsions and spasticity, should be continued in the perioperative period to avoid problems with acute withdrawal and worsening of seizure control [12].

4. CONCLUSION

The key to the successful management of CP is the knowledge of disease and associated problems therein, nursing care and preventive measures. Thus, the multidisciplinary approaches during the patient hospitalization period can change the outcome inpatient.

CONSENT

While preparing case reports for publication patient’s informed consent has been taken from parents.

ETHICAL APPROVAL

As per international standard or university standard written ethical approval has been collected and preserved by the author(s).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Arneson CL, Durkin MS, Benedict RE, Kirby RS, Yeargin-Allsopp M, Braun KV,
Doernberg NS. Prevalence of cerebral palsy: autism and developmental disabilities monitoring network, three sites, United States, 2004. Disability and health journal. 2009;2(1):45-8.

2. Bhasin TK, Brocksen S, Avchen RN, Van Naarden Braun K. Prevalence of four developmental disabilities among children aged 8 years; Metropolitan Atlanta Developmental Disabilities Surveillance Program, 1996 and 2000.

3. Paneth N, Hong T, Korzeniewski S. The descriptive epidemiology of cerebral palsy. Clinics in perinatology. 2006;33(2):251-67.

4. Cerebral Palsy and Developmental Delays [Internet]. Cerebral Palsy Guidance. [cited 2021 Aug 21]. Available:https://www.cerebralpalsyguidance.com/cerebral-palsy/associated-disorders/cerebral-palsy-developmental-delay/

5. Cerebral Palsy- Young Adult Case Study [Internet]. Physiopedia. [cited 2021 Aug 22]. Available:https://www.physio-pedia.com/Cerebral_Palsy-_Young_Adult_Case_Study

6. CDC. Data and Statistics for Cerebral Palsy | CDC [Internet]. Centers for Disease Control and Prevention. 2020 [Cited 2021 Aug 21]. Available:https://www.cdc.gov/ncbddd/cp/data.html

7. Khan NZ, Ingstad B. Best resource use for disabled children. In World health forum 1998;19 (1): 47-52.

8. Khan NZ, Muslima H, Parveen M, Bhattacharya M, Begum N, Chowdhury S, Jahan M, Darmstadt GL. Neurodevelopmental outcomes of preterm infants in Bangladesh. Pediatrics. 2006;118(1):280-9.

9. Bobath K. A neurophysiological basis for the treatment of cerebral palsy. Cambridge University Press; 1991.

10. Jeglinsky I, Surakka J, Carlberg EB, Autti-Rämö I. Evidence on physiotherapeutic interventions for adults with cerebral palsy is sparse. A systematic review. Clinical Rehabilitation. 2010;24(9):771-88.

11. Booth AT, Buizer AI, Meyns P, Oude Lansink IL, Steenbrink F, van der Krogt MM. The efficacy of functional gait training in children and young adults with cerebral palsy: a systematic review and meta-analysis. Developmental Medicine & Child Neurology. 2018;60(9):866-83.

12. Gururaj AK, Sztriha L, Bener A, Dawodu A, Eapen V. Epilepsy in children with cerebral palsy. Seizure. 2003;12(2):110-4.