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Cerebral Palsy: A Case Study of a Young Adult with Motor, Speech and Functional Impairment

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ABSTRACT

Background: Cerebral palsy (CP) is a group of permanent neurological disorders resulting from injury or abnormal development of the developing brain. It primarily affects movement, posture, muscle tone and coordination and may be associated with speech, feeding, sensory and functional difficulties.

Case presentation: A 20-year-old male diagnosed with cerebral palsy was admitted to the emergency ward of Indira Gandhi Medical College (IGMC), Shimla. The patient presented with shortness of breath, chest pain and fatigue for two days, cough for one month, stiffness of both lower limbs, speech difficulty and delayed developmental milestones. His past history revealed premature birth at 32 weeks, low birth weight and neonatal jaundice. On examination, he was conscious and oriented, with a weight of 50 kg and height of 5 feet 1 inch. Laboratory investigations showed a mildly decreased arterial pH and oxygen tension. The patient received prescribed pharmacological treatment and supportive nursing care. Nursing interventions focused on maintaining breathing, reducing pain, improving mobility, supporting communication, preventing physical complications and providing health education.

Conclusion: Cerebral palsy is a lifelong neurological condition requiring comprehensive and multidisciplinary management. In this case, individualized nursing interventions, mobility support, medication administration, communication support and patient-family education contributed to improvement in mobility, symptom management and knowledge. Continuous rehabilitation and family involvement are important for promoting independence and quality of life.

Keywords: Cerebral palsy, motor impairment, spasticity, physical mobility, speech difficulty, rehabilitation, nursing care.

INTRODUCTION

Cerebral palsy (CP) is a group of permanent, non-progressive neurological disorders affecting movement, posture and coordination due to abnormal development or injury to the developing brain. Although the primary brain injury does not progressively worsen, the clinical manifestations may change throughout the individual's life. Cerebral palsy commonly affects muscle tone, reflexes, balance, posture and functional mobility.

The causes of cerebral palsy may occur during the prenatal, perinatal or early postnatal period. Important risk factors include prematurity, low birth weight, neonatal jaundice, maternal complications, birth asphyxia, infections and early childhood brain injury.

Cerebral palsy may be associated with spasticity, abnormal movements, impaired coordination, delayed motor milestones, walking difficulties, speech impairment, seizures, feeding problems and musculoskeletal deformities. Management is directed toward maximizing functional ability and independence rather than curing the underlying neurological injury. Physical therapy, occupational therapy, speech therapy, medications, orthopaedic management and supportive nursing care may be required.

The present case describes a 20-year-old male with cerebral palsy presenting with lower-limb stiffness, impaired mobility, speech difficulty and delayed developmental milestones, along with acute respiratory and chest-related complaints.

Present Medical History

A 20-year-old male was admitted to the emergency ward of IGMC, Shimla, with complaints of shortness of breath and chest pain for two days, fatigue for two days and cough for one month. He also had stiffness in both lower limbs, speech difficulty and delayed developmental milestones.

Present Surgical History

No surgical intervention was planned at the time of the case assessment

Past Medical History

The patient was born prematurely at 32 weeks of gestation and had a history of low birth weight and neonatal jaundice.

Past Surgical History

There was no significant past surgical history reported in the case record.

Family History

The family history documented that the patient's family members were healthy, with no reported history of genetic or hereditary disorders.

General Examination

The patient was conscious and oriented to time, place and person and was cooperative with the treatment plan. He appeared thin and had a

weight of 50 kg and a **height** of 5 feet 1 inch.

Vital Signs

During the first three days of assessment, the patient's temperature, pulse, respiration and blood pressure remained relatively stable.

On Day 1, **Temperature** was 98.2°F, **pulse** 81 beats/minute, **respiratory rate** 18 breaths/minute and **blood pressure** 102/82 mmHg.

On Day 2, **pulse** was 78 beats/minute, **respiratory rate** 20 breaths/minute and **blood pressure** 112/78 mmHg.

On Day 3, pulse was 90 beats/minute, **respiratory rate** 20 breaths/minute and 118/76 mmHg. **blood pressure**

Special Investigations

Laboratory investigations included complete blood count, random blood sugar, serum electrolytes, renal function tests and arterial blood gas analysis.

The recorded **hemoglobin** was 13.8 g/dL

Random blood sugar was 100 mg/dL,

serum creatinine was 1.06 mg/dL and

urea was 38 mg/dL.

Arterial blood gas analysis showed **pH** 7.34, **pO_2** 60 mmHg and **pCO_2** 44 mmHg. The recorded pH and pO_2 were below the reference ranges documented in the case study.

MRI, CT brain, EEG, medical history and physical examination were documented as part of the diagnostic evaluation. Muscle tone and movement assessment was also included, while cranial ultrasound was documented as not done.

Treatment

DRUG	DOSE	ROUTE	FREQUENCY
Vitamin D + Calcium|	60,000 IU	Oral	OD
Ibuprofen	400 mg|	Oral	TID after food
Multivitamin + Omega-3	Not specified|	Oral	OD
Pantoprazole	40mg	Oral	OD
Valproate	10–15 mg/kg	Oral	OD
Paracetamol	650 mg	Oral	TDS

Physical and Systemic Examination

The patient had stiffness and impaired range of motion of the extremities. Respiratory examination documented a respiratory rate of 18 breaths/minute, rapid and shallow breathing, abnormal rhythm and adventitious breath sounds. Cardiovascular examination documented chest pain and tenderness. The central nervous system examination showed that the patient was conscious and oriented.

Musculoskeletal assessment revealed impaired gait, weakness and fatigue. The patient had difficulty with mobility, while speech difficulty was also documented as one of his presenting problems.

Surgical Intervention

No surgical intervention was planned for the patient during the period of the case study.

Nursing Care Plans

The major nursing diagnoses identified in the case were:

1. Acute pain related to chest discomfort and shortness of breath.

2. Impaired physical mobility related to neuromuscular impairment as evidenced by difficulty in walking and restricted range of motion.

3. Impaired verbal communication related to impaired motor control affecting speech.

4. Impaired social interaction related to communication barriers and motor dysfunction.

5. Knowledge deficit related to the disease condition and its management.

Outcome

The patient demonstrated improvement following nursing interventions. Pain management, comfortable positioning, mobility assistance, exercise education and patient-family education were provided. Improvement in physical mobility and knowledge regarding the condition was documented. The overall nursing goals focused on maintaining breathing, improving nutritional and functional status, reducing anxiety, maintaining sleep and supporting rehabilitation.

3. DISCUSSION

Cerebral palsy is a lifelong neurological condition caused by injury or abnormal development of the immature brain. The clinical presentation varies according to the site and extent of neurological involvement. Common manifestations include abnormal muscle tone, delayed motor milestones, impaired coordination, abnormal reflexes, difficulty walking, speech impairment and musculoskeletal complications.

4. CONCLUSION

Cerebral palsy is a permanent neurological condition that can significantly affect movement, muscle tone, posture, communication and functional independence. The present case highlights the importance of recognizing risk factors such as prematurity, low birth weight and neonatal complications and assessing their long-term functional consequences.

Comprehensive nursing care plays an important role in managing the physical, psychological and functional needs of individuals with cerebral palsy. In this case, nursing interventions including pain management, mobility assistance, range-of-motion exercises, communication support, medication administration and patient-family education contributed to improvement in the patient's functional status and knowledge.

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