

Physiotherapy treatment to improve gross motor function of a child with spastic diplegic cerebral palsy: a case report

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ABSTRACT

Objective

This case study aimed to determine the effects of physiotherapy treatment to improve gross motor function of a child with spastic diplegic cerebral palsy.

Material and Methods

A four year old girl presented to clinic with diagnosis of spastic diplegic cerebral palsy. Gross motor function classification system (GMFM), modified ashworth scale and universal goniometer were used as assessment tool. Her range of motion was limited and has difficulty in standing, walking. She received physiotherapy session 45min/day, 4 to 5 sessions/week for four months.

Results

Physiotherapy treatment was given to child with cerebral palsy. Evaluation was done before the sessions and after four month of regular sessions. Improvements were seen in gross motor function of child. Her sitting posture was improved and she was able to stand and walk.

Conclusion

Physiotherapy is an effective treatment approach to improve function, posture, balance and gait for a child with cerebral palsy.

Keywords: Cerebral palsy, physiotherapy, case report, gross motor function, spastic diplegic cp

fetal or infant brain". The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior and by secondary musculoskeletal problem."(1) Different risk factors are associated with cerebral palsy among children like lack of oxygen during birth, infections, seizures, high grade fever, a low score on APGAR, placental problems.(2)

Cerebral palsy is considered to be the most common cause of physical disability in children. It is estimated that 2 to 3 children per 1000 live births present with cerebral palsy in developing countries.(3) Cerebral palsy has different types depending on area of brain damaged, type of injury. The brain damage leading to CP can occur before birth, during birth, after birth of child within first year while brain is in developing phase. Spastic CP is the most common among CP types. Spastic diplegic cerebral palsy child present with muscle stiffness in leg. The child has difficulty in sitting, standing and walking.(4)

The rehabilitation of cerebral palsy child is always a challenge for health professionals. Exercise strategies (5, 6) are designed with a purpose to prevent secondary impairments and to improve quality of life and make child independent in ADLs and IADLs.

History

A four years old girl with a clinical diagnosis of spastic diplegic cerebral palsy came to clinic. The child has no cognitive impairment. According to her mother, child was born a pre-term baby and her birth weight was less than 2kg. The presenting complaints of child were: not able to stand and walk independently, child used 'w' sitting for most of the time and child has abnormal gait with problems in gait and speed.

Physical examination

The presenting complaints were evaluated by performing subjective and objective assessment of child. GMFM was used to assess gross motor function. Modified Ashworth scale was used to assess the tone which was (2) before treatment. There was mild tightness in bilateral hamstring using universal goniometer. The child has slouch posture and problems weight bearing and weight shifting.

INTRODUCTION

Cerebral palsy is an umbrella term that is described as "a group of permanent disorders of the development of movement and posture, causing activity limitations, which are attributed to non-progressive disturbances that occurred in the developing

Physiotherapy treatment

Physiotherapy session was given 45min/day, 4 to 5 sessions/week for four months. Slow passive stretching was done in 1set, 10 repetitions with 20 second hold in each repetition. Passive ROM were performed to achieve normal knee extension and ankle dorsiflexion, as knee was in flexed position during standing. For balance improvement, ball throwing and catching was practiced with child. A wooden box was used as a stepper for gait training. Thirty minute standing was performed in a standing frame to improve weight bearing. During standing weight shifting was practiced. Ankle foot orthosis were also advised for child to maintain proper biomechanics of ankle and foot during standing and mobility. Parents play an important role in child prognosis. Mother was properly guided about child present condition, management through physiotherapy and prognosis of child problem

RESULTS

The child showed improvement in gait, posture, muscle tone reduction, weight bearing, balance and weight shifting. Sitting pattern has also improved. The detailed results are in table 1 below:

Variable	Before physiotherapy session	After physiotherapy sessions
GMFM	Level 3	Level 1
Muscle tone	2	1+
Knee extension	Loss 25 degrees	Loss 5 degrees
Weight bearing	poor	good
Posture	slouch	improved
Time up and go test	Cannot tested	17 sec

Table 1: Results of physiotherapy treatment

DISCUSSION

The purpose of this case study was to determine the role of physiotherapy for spastic diplegic cerebral palsy considering gross motor functions of child. The study results showed that regular physiotherapy is effective in improving gross motor functions of four year old girl. The child has improved her balance. She is able to stand and walk independently although few corrections are needed in gait pattern. Slow passive

stretching has also reduced tightness in lower limb. Literature has also revealed that intensive physiotherapy has shown improvements in improving gross motor functions of children with cerebral palsy in particular when crawling, kneeling and standing activities were observed.(7)

Physiotherapist make use of different rehabilitation techniques to enhance independence, strength and coordination among children with cerebral palsy.(8)

CONCLUSION

The case report concludes that regular physiotherapy treatment is an appropriate treatment approach in improving gross motor function of child with spastic diplegic cerebral palsy. As expected, Physiotherapy treatment was effective on improving posture, gait pattern, weight bearing and shifting and also played a role in minimizing hyper tonicity in muscles.

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