



Case Report

Four Years Follow Up of Dyskinetic Cerebral Palsy (Choreoathetoid) - A Single Case Study

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ABSTRACT

Introduction: In India, cerebral palsy is 3 per 1000 live births. Usually choreoathetoid (dyskinetic cerebral palsy) is shown to be poor prognosis in terms of motor disabilities and having lower percentage as compared to other cerebral palsies.

Material and method: A child 'V' who was diagnosed as choreoathetoid cerebral palsy was evaluated on PDMS-2 scales and intervened as individualized treatment protocol.

Results: Descriptively child improves in age equivalents and quotients on PDMS-2.

Conclusion: This single case study shows individualized integrated protocol is helpful and large number of population with cerebral palsy may be evaluated and PDMS-2 can be used as evaluation and outcome measure tool.

Key words: Choreoathetoid cerebral palsy, PDMS-2

INTRODUCTION

Cerebral palsy is disorder of movement and posture that results from nonprogressive lesion/ injury of immature brain. The definition includes heterogeneous spectrum of clinical syndromes characterized by alteration in muscle tone, deep tendon reflexes, primitive reflexes and postural reactions. These neurological abnormalities often produce characteristic abnormal patterns of movements that are recognized as hallmark of CP.^[1]

It is permanent but non unchanging neurodevelopmental disorder caused by nonprogressive defect/ lesion in immature

brain. The defect or lesion can occur in utero or during or shortly after birth and produces motor impairments and possible sensory deficits that are usually evident in early infancy.^[2]

The motor disorders of cerebral palsy are often accompanied by disturbances of sensation, perception, cognition, communication, and behavior, by epilepsy, and by secondary musculoskeletal problems.

The prevalence and incidence of cerebral palsy in one of the study in California showed that, black infants were 29% more likely to have cerebral palsy than white infants.^[3] where as in India;

prevalence is estimated over 25 lakh individuals with cerebral palsy. The incidence of Cerebral Palsy in India is up to 3 cases per 1000 live births.^[4]

In China, literature about dyskinetic cerebral palsy was reviewed in 2006, showing Dyskinesia accounts for approximately 20 percent in all types of cerebral palsy.^[5] where as in India, study conducted on cerebral palsy in Jaipur, showed 28 children (5.8%) were athetoid cerebral palsy.^[6]

When we see the classification of cerebral palsy, there are various ways of classification as, Physiological, topographical, etiological classification, neuropathologic classification, supplementary and associated condition, functional and therapeutic classification, now a days most widely used is GMFCS for epidemiologic surveillance.^[7] Choreoathetoid CP is under physiological classification which is represented as – Lack of posture, axial and trunk coactivation, excess peripheral movements of limb without central activation,^[8] Slow, writhing movements of the face and extremities, particularly affecting the distal musculature,^[9] Irregular, jerky motions most commonly seen in the face and extremities,^[9] Speech defects were observed in athetoid type (50%).^[6]

When we see the prognosis of dyskinetic cerebral palsy, and when we evaluated child according to Gross Motor Function Classification System, the handicap involves the voluntary movements of shifting, hand function, language, and skills of social communication.

Prognosis depends upon concentration on early physical and occupational recovery, as well as early correction of mouth movement, eating skills, and speech and language functions. Reorganization of

1. Primary impairments of muscle tone/movement patterns, distribution of

involvement, balance, and sensory impairment;

2. Secondary impairments of range of motion/joint alignment, force production, health, and endurance;

3. Personality characteristics or motivation; and

4. Family factors including support to children, family expectations, and support to the family. And also most importantly, posture control keeping the head, neck, and trunk, extremities in a centralized and stable position in any time is helpful to carry out relaxation therapy and avoid any stimulation aggravating the symptoms, for instance, changing posture frequently, resistant motion, and clapping with strong pressure.^[5]

Few studies focused on the prognosis of dyskinesia, Nordmark et al studied 167 patients with cerebral palsy who were born in the period of 1990-1993. They found that independent ambulation occurred in 21% of patients with dyskinesia, where as independent ambulation in 86% of patients with hemiplegias, 63% of patients with pure ataxia, 61% of patients with diplegia. This finding suggested the poor prognosis in patients with dyskinesia. But those with pure athetosis of mild disabilities may show a good prognosis.^[5]

Case Study 'V':

We had case, which is represented here as 'V', with choreoathetoid movements with diagnosis of cerebral palsy having basal ganglia lesion with history of child of consanguineous parents with normal delivery with vertex presentation, immediate cry was present and history of neonatal intensive care stay for 15 days secondary to jaundice. Child came to us at 18 months having head holding and rolling as milestones developed. He was not having good sitting balance as well as standing that are pull to stand. The chief complaints were

not able to come to sitting independently and walking independently.

PDMS-2 as evaluation tool is used which is composed of six subsets that measure interrelated motor abilities that develop early in life. It was designed to assess the motor skills in children from birth through 5 years of age, and reliability and validity have been determined empirically. [10] PDMS-2 consist of subsets as: Reflexes: Include 8 item reflexes subtest, Stationary: Include 30 item stationary subtests, Locomotion: Include 89 item locomotion subtests, Object manipulation: Include 24 item object manipulation subtests, Grasping: Include 26 item grasping subtests, Visual-motor integration: Include 72 item visual-motor integration subtests. [10]

A study done on Reliability, Sensitivity to change, and Responsiveness of Peabody Developmental Motor Scales-second edition for children with Cerebral Palsy states that the psychometric properties of PDMS-2, a revised motor test to assess both gross motor and fine motor composites in children with cerebral palsy(CP),are largely unknown, so study was done to examine the test-retest reliability and the responsiveness of the PDMS-2 for children with CP The results provide strong evidence that the 3 composites of PDMS-2 had high test-retest reliability and acceptable responsiveness. The PDMS-2 can be used as

an evaluative motor measure for children with CP. [14]

We designed Individualized treatment protocol. The intervention at 20th month assessment was as follows which were based on PDMS-2 evaluation.

1. Static quadripod and reach outs.
2. Sit to stand (facilitation)
3. Weighted jackets (weight distributed equally in pockets which is tolerable.)
4. Lower limb strengthening in physiological range of the case.

RESULTS

We evaluated him after consult of parents and treatment protocol was derived which was individualized base, the impairments listed and treated with guidance of motor activities programmed guidance-PDMS-2. This evaluation at 20th, 26th and 60th month was as follows-

Table: 1- showing chronological age and age equivalent and quotients.

Chronological age: age calculated from date of birth to date of examination.

Age equivalents: graded from raw scores which are converted using examiner's manual.

Quotients: standard scores which are converted using examiner's manual.

Table: 1- Showing chronological age and age equivalent and quotients.

Chronological age	Age equivalent					Quotients		
	ST	L	OM	G	VM	GMQ	FMQ	TMQ
20	11	10	12	6	11	64	55	55
26	14	14	18	8	9	68	45	59
60	18	18	29	40	18	70	64	60

The visuomotor was not much concentrated as par patients complain was more on gross function, since visuomotor activities were carried out as home programme therapy session.

The number of session which included duration of 45-50 min. which were 30 session in 6 months, as child started going to school and later home programme was advised and followed up at every 3rd week which was as per the parents and

patients convenience as usually seen phenomena is when child started walking the follow up rate decreases.

The child was on therapy from 26th to 60th month total 50 sessions given 45-50 min each. Where latest evaluation was carried out, in this live period, impairments were listed and treatment with session goal carried out, child showed improvement in fine motor more than gross motor. As descriptive analysis in age equivalent cause seen in all in which grasping had gain of 5 times more than previous one as well visuomotor had twice.

DISCUSSION

'V' represented with dyskinetic component that is choreoathetoid cerebral palsy diagnosed by pediatric neurologist. We planned treatment protocol as per impairments which are planned in therapeutic strategy depending upon posture and movement analysis.^[11] And those showed satisfactory improvement as per parent satisfaction when asked subjectively.

The changes observed are more in one area as compared to other that is attributed towards the parents concern oriented plan and of therapy was included as per motor activity programme.^[12]

This single case study shows that PDMS-2 can identify the motor developmental delay and also can shows changes as the intervention done.

CONCLUSION

PDMS-2 can be used for assessment to know the areas of motor developmental delay, and motor activity programme also can be used as therapeutic strategy. Studies on large group of cerebral palsy children needed to assess the questioned regarding cultural sensitivity.^[13] The individualized integrated approach seems to be more useful as we saw in this case. Large population with other outcomes measures may be

incorporated with large and other types of cerebral palsy.

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