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Functional Abilities in Dyskinetic Cerebral Palsy Children between Age 5-12 Years

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Author`s Contribution

[1&2]Conception and design, Collection and assembly of data, Analysis and interpretation of the data, [2&3]Critical revision of the article for important intellectual content, Statistical expertise [2&3]Final approval and guarantor of the article.

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A B S T R A C T

Background: Dyskinetic cerebral palsy (DCP) is an involuntary repetitive movement disorder characterized by alternating state of muscular hypertonia and hypotonia due to lesions in basal ganglia.

Objective: To describe the functional abilities DCP subjects aged between 5-12 years.

Methodology: An observational case series on 48 children from special schools was conducted by convenient sampling. All diagnosed patients of DCP aged between 5-12 years with I.Q levels 70-79 were included and the children who had undergone any surgical procedure or on medication were excluded. Informed consent was taken from the parents of the children. Subjects were assessed with the help of a functional independence measure (FIM) scale having validity (0.98) (1). The study variables were presented in the form of descriptive statistics.

Results: The mean age of 48 participants was 7.21 with a standard deviation of 2.143. Five subjects required total assistance (level I) those were 0-25% independent, 36 subjects required maximal assistance (level II) those were 25-50% independent, and 7 subjects required moderate assistance (level II) those were 50-75% independent in their daily tasks according to FIM.

Conclusion: DCP patients require maximum assistance and were dependent on their caregivers for performing daily living tasks.

Keywords: *Cerebral Palsy, Dyskinetic, Functional Independence Measure*

Introduction

Dyskinetic cerebral palsy (DCP) is an involuntary repetitive movement disorder characterized by an alternating state of muscular hypertonia and hypotonia due to lesion in basal ganglia. [1] The salient features of Dyskinetic cerebral palsy are Dystonia, Athetosis, and Chorea.[2]

According to the united cerebral palsy research and education foundation, the prevalence of CP was 2-2.5 per 1000 live births among them 70% was spastic CP and 5-10% was ataxic and 15-20% was DCP. Dyskinetic CP occurs as a result of insult to basal ganglia characterized by disturbances in both cognitive and motor skills of the individual ranging from mild to severe impairments depending upon the extent and severity of the damage. [3]

DCP might be due to prenatal, perinatal, or neonatal insults. Prenatal risk factors account for approximately 80% of cases with an unknown cause. While in Perinatal, hypoxic ischemic brain injury is the underlying cause and in neo-natal premature birth, intrauterine growth retardation and intra-cranial hemorrhage was found as a risk factor. [4]

Delayed milestones are the first noticeable symptoms with persistent primitive reflexes, muscular spasm, hypotonic and weak limbs with abnormal slow writhing movements that are random and not under control. [4]

For appropriate management of individuals with Dyskinetic CP, multi-disciplinary evidence based approach should be used that includes; occupational therapy, stretching, positioning, milestone management, reflex inhibitory patterns, casting, splints balance exercises, swing therapy, speech therapy with facial exercises, gait training, fine motor skills training, constraint induced movement therapy, task oriented protocols, and strengthening with sensory system management while pharmacologic treatment comprises of cholinergic and dopaminergic agents. [5]

The current study, therefore, aims to describe the functional abilities in Dyskinetic Cerebral palsy children so that necessary preventive and treatment strategies should be used for improving and minimizing their level of dependence thus making their quality of life better.

Methodology

An observational case series with a total of 48 children going in special education centers of Lahore was conducted. Data was collected by Non-probability convenient sampling. All diagnosed patients of Dyskinetic CP aged between 5-12 years with I.Q level between 70-79 were included and the subjects who had undergone any surgical procedure or on medication were excluded. After taking written consent from their parents or guardians, subjects were assessed by functional independence measure (FIM) scale having validity (0.98) (6). Statistical Package for Social Sciences (SPSS) version 23 was used for data analysis. The study variables were presented in the form of descriptive statistics (tables, graphs, and percentages).

Results

The mean age of 48 participants with the age ranging between 5-12 years was 7.21 with a standard deviation of 2.143. Out of 48 patients, 17 (35%) were boys and 31 (65%) were girls.

According to functional independence measures (FIM) 5 subjects required total assistance (level I) which meant that they were 0-25% non-independent 36 subjects required maximal assistance (level II) which meant that they were 25-50% independent in their tasks of daily livings and 7 subjects required moderate assistance (level III) which meant that, they were 50-75% independent according to FIM criteria. (Table I, figure 1)

Table No I: Functional level of dyskinetic cerebral palsy patients (n=48)

Performance level	N	%	Valid Percent	Cumulative Percent
Total Assistance (less than 25%)	5	10.4	10.4	10.4
Maximal Assistance (25% or more)	36	75.0	75.0	85.4
Moderate Assistance (50% or more)	7	14.6	14.6	100.0
Total	48	100.0	100.0	

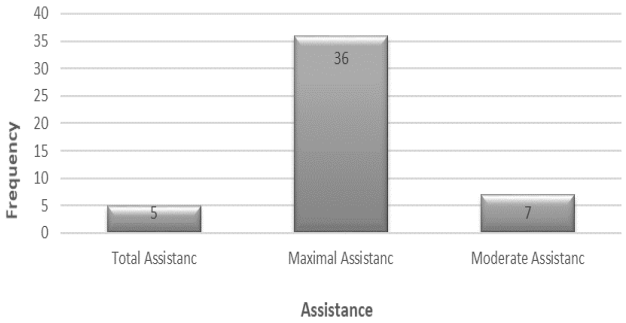

Figure 1. Shows the Functional Independence Measures.

Discussion

The current study was aimed at advancing our insights in the functional profile of children with Dyskinetic CP. It has been suggested that most of the patients requires maximal assistance in their task of daily living. A recent study has shown that patients with severe CP and low BMI are more dependent functionally than those with mild CP and normal BMI. [7]

The majority of the patients required maximal assistance to perform functional task. They were able to care for themselves independently with mild assistance in bathing and grooming, had good communication skills. Some of them had unclear speech due to dysarthria but they had good perception.[8]

However, most of them lacking adequate bowel and bladder management with poor mobility status particularly their transfers were severely impaired with the majority of them being wheelchair bound. A study in 2017 showed that adults with CP showed incontinence

problems predominate females with CP have a greater frequency of urge incontinence. [9]

Their social cognition when observed had shown that they were socially interactive had poor memory and problem solving skills. A recently conducted study has shown that Dyskinetic CP patients expressed worse cognitive functions proportional to their impairment level except for verbal memory. [10]

Conclusion

The current study concluded that patients with DCP require maximum assistance and was dependent on their caregivers for performing daily living tasks.

Limitation & Recommendations: There are several limitations to the study. Due to a shortage of time, the sample size was small. The results of the study should not be generalized as data was only taken from Lahore. The researcher recommends that an experimental study can be done by making different groups including individuals who have the same baseline characteristics to assess the effectiveness of one intervention compared with another for the improvement in long-term functional outcomes in patients with DCP.

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