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Frequency of Feeding Problems in Children with Cerebral Palsy

Hira Usman[1], Maria Asghar[2]

[1]Speech Therapist at Sharif Memorial Hospital Gujrat
[2] Medical Officer, Basic Health Unit Rangpur Gujrat

ABSTRACT

Objective: To determine the frequency of feeding problems in children with cerebral palsy.

Patients and Methods: This cross-sectional study was conducted at developmental department of Children Hospital Lahore. Total 30 children with cerebral palsy were evaluated. The objective was to see the frequency of feeding problems in children suffering from cerebral palsy with age ranges between 1-9 years. A Performa was used for each patient, which was filled on the basis of history and clinical observation. Feeding skill assessment was based on Gisel and Patrick's feeding behavior skill score. Score of 4 or less was regarded as normal, score of 5-8 was defined as marginal problem & score of 9 or more was regarded as inadequate feeding skills. All the collected data was entered in SPSS (statistical package for social sciences) for analysis.

Results: Out of total 30 patients, maximum (60%) were between 1-3 years of age. Feeding skill score was normal in 50% children. About 20% had marginal feeding skills and 30% inadequate feeding skills. Regarding frequency distribution of feeding problems due to oral motor dysfunction, drooling of saliva was most common complaint (66.7%) followed by absent tongue lateralization (63.3%) an hypertonic tongue (60%). The most common complication that was found due to feeding problems was recurrent chest infection (53.3%).

Conclusion: The present study concludes that in children with Cerebral Palsy, feeding problems due to oral motor dysfunctions are common and feeding problems produce different complications in these children.

Keywords: Cerebral Palsy, Children, Oral motor dysfunction.

Author`s Contribution	Address of Correspondence
[1&2]*Active participation in research, Interpretation, and Analysis of results.*	*Dr. Maria Asghar* *faiza_asghar50@yahoo.com*

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Introduction

The term Cerebral palsy (CP) was first coined in 1862 by, an orthopedic surgeon named, William James Little. A recent study describes CP as "a group of disorders concerning the development of movement and posture, causing activity limitation, that are attributable to non-progressive disturbances that occur in the developing infant or fetal brain".[1] The worldwide incidence of CP is approximately 2 to 2.5/1000 live births. The incidence is strongly associated with gestational age, occurring in 1 of 20 surviving preterm infants.[2] In CP, speech is affected due to oral motor dysfunction. Additionally, both receptive and expressive language deficits are common in patients with CP along with mental retardation. Feeding difficulties, swallowing dysfunction and drooling are also present.[3] This can result in nutritional problems affecting physical growth.[4] This study, however, is focusing on the feeding disorders in children with CP. It is estimated that the prevalence ratios are quite high, in children with CP, in regards to feeding difficulties. In 2000, the Oxford Feeding Study evaluated 271 children with CP and

feeding problems. It was found that feeding difficulties occur in 30–40% of children with CP and are the most common among children with severe motor impairment .[5] Studies have indicated numerous feeding problems in children with CP. Some common problems includes requirement of help during feeding, choking during feeding, feeding time greater than 3 hour per day, constipation, frequent vomiting. Impaired oral sensori-motor function can result in drooling that in turn results in impaired hydration, Chronic aspiration is often common and may be difficult to delineate when there is no cough response to aspiration events. Difficulties in children with CP result from damage and disruption to the central nervous System (CNS) and enteric nervous system (ENS).[6-10] Problems with feeding are associated with specific medical problems such as aspiration, chest infections, gastroesophageal reflux (GOR) and constipation. Feeding difficulties may cause inadequate fluid intake resulting in dehydration. Consequently, early involvement of a skilled multi-professional team is essential to reduce the impact of feeding difficulties.[11]

It is possible that nutritional deficits may exacerbate the effects of primary brain injury in children with CP. Feeding difficulties can have a psychosocial impact for child. Feeding dependence may also, have an impact on parents and other family members in other ways. Evidence to support the use of feeding intervention strategies for children with CP is limited. In spite of this, some suggested potential benefits from interventions include individualized positioning for feeding, alteration of food consistency and use of oral appliances. Independent sitting on the floor was the commonly used feeding position in children with neurological dysfunction. Feeding devices are unlikely to be helpful in enhancing feeding efficiency. Oral feeding interventions for children with CP may promote oral motor function, but these interventions have not been shown to be effective in promoting feeding efficiency or weight gain.[12]

This study was planned to find out the severity of feeding problems in children with CP. This study would also help to know the frequency of feeding problems generated due to oral motor dysfunction

Patients and Methods

This cross-sectional observational study was conducted at Department of developmental pediatrics at Children Hospital Lahore over a time period of three months. Total 30 diagnosed patients of CP from age 1 to 9 years without gender discrimination were inducted. All other patients, not fulfilling the above-mentioned criteria were excluded For evaluation purpose, a performa based on history and examination of the patient was used. The feeding skills assessment tool, advocated by Patrick and Gisel, was adopted and used by the researcher to investigate the feeding problems in the recruited patients. Parents of the patients were engaged to obtain the answers of the questions in the tool. Questions were phrased to parents of the patients in a succinct and consistent manner. Parents' consent was obtained before asking the questions. Parents were assured that the responses would be confidential and the results would be anonymized in the finalized version of the research. All the data was analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0. All the qualitative variables were expressed in form of frequency and percentage.

Results

We segregated patients in different groups based on their age ranges. Most recruited patients, with CP, were in the age group of 1-3 years (60.0%). The least number of patients were in the age range of 7-9 years (13.3%). Amongst the 30 patients selected, in terms of gender, 47% were male and 53% were female patients (Table 1).

Table 1: Distribution of age and gender among patients of cerebral palsy (n=30)

Variables	No.	Percentage
Age (years)		
1-3	18	60.0
4-6	8	26.7
7-9	4	13.3
Gender		
Male	14	46.7
Female	16	53.3

As shown in table 2, the results also of this study revealed that 50% of patients had normal feeding skills. This implied that most patients could cope with activities related to feeding. The results displayed that 20.0% had marginal feeding skills and 30.0% of patients had inadequate feeding skills.

Table 2: Distribution of feeding skill scores among patients of cerebral palsy (n=30)

Feeding behavior skills score	n(%)
Normal feeding skill score (NFSS)	15(50.0)
Marginal feeding skill score (MFSS)	6(20.0)
Inadequate feeding skill score (IFSS)	9(30.0)

Feeding problems that were associated with oral motor dysfunctions have been shown in table 3. The most severe problem was drooling that was found in 20 patients (66.7%) followed by other complaints.

Table 3: Pattern of feeding problems due to oral motor dysfunction in patients of cerebral palsy (n=30)

Oral motor dysfunctions	n (%)
Absent tongue lateralization	19(63.3)
Hypertonic tongue	18(60.0)
Restricted temporomandibular joint movement	13(43.3)
Inappropriate wide mouth opening	6(20.0)
No closure of lips around spoon	12(40.0)
Inability to self-feed	17(56.7)
Chewing problem	12(40.0)
Swallowing problem	12(40.0)
Drooling	20(66.7)
Sucking problem	11(36.7)
Inability to take solid food	12(40.0%)

Complications that arise due to feeding problems have been displayed in table 4. The results found that significant number of patients had complications related with chest infection, constipation and choking.

Table 4: Complications arising due to feeding problems in patients of cerebral palsy (n=30)

Complications	n (%)
Recurrent chest infections	16(53.3)
Chocking during feed	9(30.0)
Vomiting	9(30.0)
Constipation	13(43.3)
Cry during feeding	6(20.0)

Discussion

CP is a common pediatric disorder. It is a chronic motor disorder resulting from a non- progressive insult to the developing brain. Children with CP suffer from multiple problems and potential disabilities such as mental retardation, epilepsy, feeding difficulties and ophthalmologic and hearing impairments.[13] Disorders of feeding and swallowing are common in children with CP. Feeding gastrostomy tubes are a reasonable alternative for children with severe feeding and swallowing problems who have had poor weight gain.[14]

In the current study, we explored various feeding problems prevalent in children with CP. As shown in the results section, it is evident that out of 30 patients, 30.0% showed inadequate feeding skills. The most severe problem reported in present study, of children with CP, was drooling 66.7%. The frequency of patients who were unable to self-feed was 56.7%. Additionally, 30.0% reported choking and vomiting during feeding. A similar study conducted in India reported that out of 33 patients, the maximum number of patients showed inadequate feeding skills. Other problems were the inability to self-feed 48.5%, coughing and choking during feeding 6.1% and vomiting 3.0%.[15] In the present study, 40.0% patients reported chewing and swallowing problems. A similar study conducted at Queen's University of Belfast, UK reported that out of 1357 children with CP, 21% had chewing & swallowing problems and 22% demonstrated excessive drooling, respectively.[16]

In the current study, in the frequency of constipation was found in 43.3% cases. A study conducted on 152 children with CP at Netherland showed that frequency of patients with the problem of constipation was 57.0%. [17]

In the current study, our findings highlighted that oral motor dysfunction was prevalent in all cases. One main problem, due to oral motor dysfunction, was sucking problem; the frequency of sucking problem was found to be 36.7%. A similar study conducted from Behavioral Sciences Unit, Institute of Child Health, UK reported that amongst 49 subjects, the frequency of sucking problem was 57%. Further, 90% had significant oral motor dysfunction.[3] Another study conducted in China reported that out of 59 patients, 51 cases had oral motor dysfunction. [18]

In our study out of 30 patients, 20.0% showed marginal feeding skills. In contrast to this a study conducted by Gangil in India, of participants 70% were males and 30%

females, maximum number of patients showed marginal feeding skills (62.0%) and 8.0% demonstrated inadequate feeding skills.[19] Findings of present studies were different from the previous studies. One potential rationale could be a different geographical distribution and sample size.

Conclusion

The results of this study showed that fifty percent of children suffering with CP had marginal or inadequate feeding skills. The feeding problems associated with oral motor dysfunction are common in patients of CP. Feeding problems are also responsible to produce different complications in these children.

Limitations of Study: Limitations of our study were decrease time period to conduct this research, and small sample size.

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