

## Frequently Associated Problems of Cerebral Palsy

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### ABSTRACT

**Objective** To identify the frequently associated problems of cerebral palsy in our setup.

**Study Design:** Descriptive case series..

**Setting:** Department of Pediatrics, Allied Hospital Faisalabad during the period of 2005-2006,

**Patients and Method:** Two hundred children from 1 to 12 years of age of either sex who were diagnosed as cerebral palsy on the basis of history and clinical examination were included and associated problems were identified.

### Results:

Out of 200 cases of CP, the most commonly identified problem was nutritional disorder and growth failure followed by mental retardation, constipation, seizures, contractures, aspiration pneumonia, urinary tract infection, oromotor dysfunctions, visual abnormalities, dental anomalies, hearing abnormalities, scoliosis and behaviour disturbances in that order.

**Key Words:** Cerebral Palsy, Associated Problems

**Abbreviations:** Cerebral Palsy CP.

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### INTRODUCTION

Cerebral palsy is non-progressive disorder of movement and posture resulting from an insult to the growing brain [1].

The child with cerebral palsy has an abnormally functioning CNS. The problem is expressed in many ways, all of which are associated with the primary problem [2].

Cerebral palsy rarely occurs without associated deficits. The diagnosis of cerebral palsy alone is not sufficient. In some cases, the cerebral palsy is not the most limiting condition, associated dysfunctions alter treatment and effect long-term outcome [3]. Evaluation and delineation of the associated deficits is part of the evaluation of CP.

Common problems associated with CP include mental retardation, communicative and behaviour disturbances. Seizures, feeding difficulties, visual and auditory disturbances are also seen with increasing frequency.

The purpose of the study was to determine the associated problems of cerebral palsy in order to improve the management of cerebral palsy.

### PATIENTS AND METHOD

The study was conducted in the department of Pediatrics, Allied Hospital Faisalabad during the period of January, 2005 to December, 2006. A total of

200 patients from indoor and outdoor diagnosed on the basis of history and clinical examination as cerebral palsy were included and their associated problems were identified and details filled as per proforma. Protein energy malnutrition (PEM) was classified according to modified Gomez classification. Detailed neurological examination was done and development was assessed according to Denver Development Scoring. Assessment of intelligence (I.Q), hearing assessment and ophthalmologic evaluation were performed in all cases. Children were categorized into mild (I.Q=50-70) moderate (I.Q=30-50) and severe (I.Q<30) mental retardation. Children with active seizures or with a definite history of recurrent seizures were considered to have epilepsy. Behavioral problems were considered significant if they were severe enough to be perceived as problems by parents or interfered with therapy or education.

Cranial ultrasound and CT scan were done for evidence of cortical atrophy and periventricular leukomalacia. Further investigations to identify the associated problems were guided by history and examination and included blood counts, urine complete and culture, chest X ray and X. ray spine and hip joints.

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Data was analyzed using SPSS software and presented through frequency tables and graphs.

## RESULTS

Out of 200 cases of CP, spastic CP was found in majority 68% (n=136) cases while remaining 32% (n=64) cases were extra pyramidal type. The distribution of types is shown in table 1.

Commonly identified problems in cerebral palsy were nutritional disorders, mental retardation, seizures, hearing and visual abnormalities as shown in table 2.

Seizures occurred in 76% (n=152) cases of CP. Most common seizure type was generalized tonic clonic 62% (n=94), followed by complex partial 29% (n=43), myoclonic 6% (n=10) and infantile spasm in 3% (n=5) cases as shown in figure: 1.

Oromotor dysfunctions were identified in 75% (n=114) cases. The commonly observed oromotor dysfunctions were drooling 79% (n=90) swallowing difficulty 73% (n=83), gastroesophageal reflux 66% (n=75), and speech problems in 44% (n=50) cases either alone or in combination.

Visual abnormalities were seen in 45% (n=90) cases of CP and included strabismus in 72% (n=65), 74% had convergent and 26% had divergent squint. Blindness and optic atrophy were reported in 22% (n=20) and nystagmus in 6% (n=5) cases.

## DISCUSSION

Cerebral palsy is a non-progressive irreversible disorder of tone, movement and posture as a result of damage to the growing brain. As associated dysfunctions alter and effect the treatment plan and long term outcome, an understanding of the interaction of the motor components and associated deficits is necessary for setting realistic goals [2].

Spastic CP is the commonest with the spastic quadriplegia the most common sub type. [4, 5] similar to our study as shown in table 1, while in the advanced countries spastic hemiplegia and diplegia are the predominant types. This is because of increased survival of premature and better prenatal care in developed countries as compared to our set up.

Almost all children with cerebral palsy have at least one additional disability associated with damage to CNS. We studied 200 cases of CP for the presence of associated problems. Growth failure is common in CP secondary to feeding problems, gastro esophageal reflux, inability to independently access food and

recurrent infections [6,7,8,9]. Most commonly identified problem in the present study was also growth failure where malnutrition contributed to 85% and microcephaly to 82% similar to study of Aneja-S [2].

Mental retardation coexist with CP in 72.5% patients<sup>(10)</sup>. We also found mental retardation and cognitive impairment in 82% (n=170) cases, as a result of more global damage to the cerebral cortex due to asphyxia or CNS infection in our set up as shown by the fact that spastic quadriplegia was the commonest type (table 1). In spastic CP, mental retardation is more frequent and more severe in proportion to the number of limbs involved [11,12,13,14]. However motor impairment does not always mean mental retardation as 18% (n=30) cases in our study had normal I.Q. Children who escape mental retardation are nevertheless brain damaged and have progressive impairments. These may present as communicative disorders in the preschool child and learning disability in the older child [15,16].

Seizures occur in one third of children with CP and are commonly associated with hemiplegic type of CP and most common seizure type is partial<sup>(17)</sup>, contrast to our study where we found seizures in 2/3<sup>rd</sup> of cases, 76% (n=152) cases, and were commonly associated with quadriplegic CP and most common seizure type was generalized tonic clonic similar to the study of Rahman MM et al<sup>(18)</sup> and Singhi PD et al [10].

Disorders of tone (increased tone) in the antigravity muscles that include flexors of the upper extremities and extensors of the lower extremities prevent the performance of individual and integrated motor activities, ultimately lead to fixed postural deformities in the form of contractures and scoliosis [19,20,21,22,23], present in 67% (n=30) cases in this study.

Abnormal neural control of oral motor mechanism may result in speech and articulation problems seen in 44% (n=50) cases, Other Oromotor dysfunctions swallowing abnormalities, drooling and gastro esophageal reflux [7,24,25], are also seen with increased frequency in this study.

Swallowing difficulties owing to supranuclear bulbar palsies often lead to aspiration pneumonias [26] present in 25% (n=50) cases in our study.

Strabismus occurs in 50% and visual field cuts in 25% cases of CP [27,28,29]. Visual abnormalities were present in 45% (n=90) cases in this study and included strabismus, blindness and nystagmus.

Hearing abnormalities are present in 10% cases of CP. We also found hearing abnormalities in 15% (n=30) cases.

Children with CP may have dental enamel hypoplasia or are at increased risk for dental caries and malocclusion [25,30,31], consistent with our study where 33% (n=66) patients had dental caries.

Neuro behaviour disturbances including short attention span, impulsivity, distractibility and self stimulation may be seen in CP [32,33,34] present in 15% (n=30) cases in our study.

No accurate data regarding incidence, prevalence or clinical spectrum of CP is available in Pakistan. We compared the results of our study with that of singhi PD et al [10] as shown in table 3.

## CONCLUSION

Cerebral palsy rarely occurs without associated deficits. An understanding and delineation of the associated deficit is part of evaluation of CP and is necessary for setting realistic and therapeutic goals.

**Table 1:**  
**Type of Cerebral Palsy**

Type	No. Of cases	Percentage
Spastic Quadriplegia	86	63
Spastic Diplegia	26	19
Spastic Hemiplegia	14	11
Mixed	10	07
<b>Total</b>	<b>136</b>	<b>100</b>
Atonic	50	78
Athetoid	10	15
Ataxic	04	07
<b>Total</b>	<b>64</b>	<b>100</b>

**Table 2:**  
**Cerebral Palsy And Associated Problems**

Sr. No.	Associated problems	Number of cases	Percentage
01	Malnutrition	170	85
02	Microcephaly	164	82
03	Mental retardation or cognitive impairment	164	82
04	Constipation	156	78
05	Seizures	152	76
06	Contractures	134	67

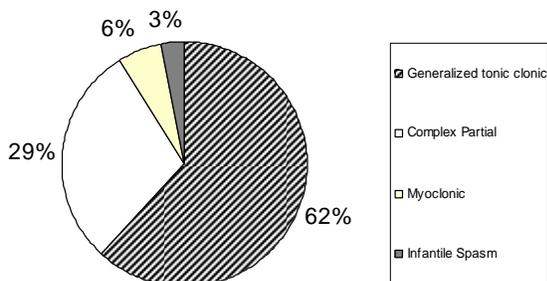
07	UTI	114	57
08	Oromotor Dysfunctions	114	57
09	Visual Abnormalities	90	45
10	Bed Sores	76	38
11	Dental Caries	66	33
12	Aspiration Penumonia	50	25
13	Hearing abnormalities	30	15
14	Scoliosis	30	15
15	Behaviour Disturbances	30	15

**Table 3:**  
**Comparison of Present Study with that of singhi PD et al.**

Sr. No.	Associated problem	Present study %	Singhi pd et al.%
01	Malnutrition	85	50.6
02	Microcephaly	82	88.6
03	Mental retardation or cognitive impairment	82	72.5
04	Constipation	78	N.A
05	Seizures	76	32
06	Contractures	67	N.A
07	Urinary Tract Infection	57	N.A
08	Oromotor Dysfunctions	57	7.8
09	Visual Abnormalities	45	41
10	Bed Sores	38	N.A
11	Dental Caries	33	N.A
12	Aspiration Penumonia	25	N.A
13	Hearing abnormalities	15	14
14	Scoliosis	15	N.A
15	Behaviour Disturbances	15	7.2

**Figure 1:**

**Types of Seizures in Children with Cerebral Palsy**



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#### **EDITORIAL COMMENTS:**

Cerebral Palsy is not uncommon in our country but these children are getting only little attention as far as their problems are concerned. Probably health care personals are very well aware of these problems. I think the author has put good effort to identify these problems and now it is the time to take care of all medical and social issues regarding better care of children with CP.

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