

Demographic and clinical characteristic of Cerebral Palsy Among Children in Diyala Province – Iraq

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Abstract

Background: Cerebral palsy (CP) is defined as non-progressive disorder of movement and posture due to brain insult or injury occurring in the period of early brain growth (generally under three years of age).

Objectives: This is a descriptive study of the demographic and clinical characteristics of cerebral palsy in Diyala province – Iraq is to put the light on this upsetting neurological disorder.

Patients and Methods: This study is carried out among children who were referred from the primary health care centers to the reference consultation clinic at Al-battool Maternity and Children teaching hospital in Baquba, the center of Diyala governorate from the first of May 2008 till 30th of April 2011.

The following data were studied, the presenting complaint, patients age and sex distribution, mode of delivery, age of presentation, number of full-term and pre-term, the condition at birth and birth asphyxia, types of CP and associated medical abnormalities.

Results: The total number of patients were 82, males were affected more than females, the ratio is (1.4:1) (male 48 =58.5% and female 34=41.5%). The most common first presenting complaints were the delayed milestones (50%). Most of the patient presented between the age of (7-12) months (48.8%). Spastic CP was the most common type (57.3%), among the other types of spastic CP are spastic quadriplegia (45.1%). Most of the patients are product of vaginal delivery (61%).

Most of the patients came to parents who had consanguineous marriage (58%).

Conclusions: The study explain that the high prevalence of spastic quadriplegia which is the most common type of CP encountered in the clinical practice is due to the high prevalence of birth asphyxia.

Recommendations:

- 1- To prevent the treatable causes of CP e.g. asphyxia and kernicterus, through initiation of centers for early detection of childhood disability.
- 2- Establish special centers to look after CP patients specially those need orthopedic surgery and physiotherapy and so on.

Keywords: Cerebral palsy, delayed milestones, asphyxia, children, Diyala.

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Introduction

Cerebral palsy (CP): This disease was first described by Dr. Little in 1826.[1] CP is the most common cause of severe childhood

disability affecting 1 in 400 children,[2] the incidence varies from one country to another, but it is around 1-2/1000 live birth, and,

prevalence is about 500/100000 population.[3,4]

(CP) is a group of motor disorders resulting from disorders of early brain growth. The manifestation of a given lesion may change with maturity of the nervous system [5,6], but the insult that caused the lesion is no longer present and there is no active disease at the time of diagnosis, although it has historically been considered as a static encephalopathy. This term is not entirely accurate because of the recognition that the neurological features of CP often change or progress over time. [7,8,9]

Spastic CP has been the most frequent type, accounting for approximately 50% of cases followed by athetoid CP seen in approximately 20%. [9,10] The clinical findings in some affected children appear to evolve and affected children may exhibit a somewhat different distribution of involvement at different ages. [11]

Patients and Methods

The study extended from the first of May 2008 till 30th of April 2011 on patients who were attending the out-patient clinic in Al-

battool teaching hospital in Baquba center of Diyala province-Iraq.

A special data collection sheet was developed for the purpose of this study. Eighty-two children with a diagnosis of CP were retrospectively studied. Information was obtained by direct questionnaire of parents and/or from the registration record and the birth records. The following data were studied, the presenting complaint, patients age and sex distribution, mode of delivery, age of presentation, number of full-term and pre-term, the condition at birth and birth asphyxia, types of CP and associated medical abnormalities with CP, including; impaired vision or hearing, renal, cardiac problems and so on.

Results

Eighty-two children with CP were studied, the most common first presenting complaint was the delayed milestones (50%), then convulsion (12.1%), recurrent chest infections (11%), failure to thrive (9.8%), difficulty in swallowing (9.8%) and hand preference and inability to move one hand (7.3%), as shown in table (1)

Table (1): The distribution of the presenting complaint of cerebral palsy.

Clinical presentation	No.	%
Delayed milestone	41	50
convulsion	10	12.1
Recurrent chest infections	9	11
Failure to thrive	8	9.8
Difficulty in swallowing	8	9.8
Hand preference and inability to move one hand	6	7.3
Total	82	100

The total number of patients with CP in the study were 82, males were outnumbering females (1.4:1), as the number of male patients is (48=58.5%) and the number of female patients is (34=41.5%).

The majority of the patients presented between the age of (7-12) months (48.8%), other age distributions are shown in table (2).

Table(2): Distribution of cerebral palsy patients according to age.

age	No.	%
7 - 12 months	40	48.8
1 – 2 y	25	30.5
2 – 4 y	10	12.2
>4y	7	8.5
Total	82	100

Sixty-eight percent of mothers were attending the antenatal clinics regularly, about 23% had pre-eclampsia toxemia, other

9% of mothers are diabetic as shown in table(3).

Table(3): Distribution of mother according to antenatal care, and other problems.

	No.	%
Attend antenatal care regularly	56	68
Pre-eclampsia toxemia	19	23
Diabetic mother	8	9
Total	82	100

Sixty- one percent were delivered by normal vaginal delivery and the other modes of deliveries are shown in table (4) .

Table (4): Distribution of cerebral palsy patients according to mode of delivery.

Type of deliver	No.	%
Normal vaginal delivery	50	61
Caesarian section	27	32.9
Forceps delivery	5	6.1
Total	82	100

1-Spastic CP was the most common type among the studied cases (57.3%), among the other types of spastic CP are spastic quadriplegia(45.1%), hemiplegia(6.1%), diplegia (4.9%) and monplegia (1.2%)

[1,4,7,18].
 2-Hypotonic(17.2%), 3- chorio-athetoid (5.9%), 4- ataxic(4.9%), 5- mixed (14.7%), as shown in table (5).

Table(5): Distribution of patients according to type of cerebral palsy.

Type	No.	%
1. spastic	47	57.3
a. quadriplegia	37	45.1
b. hemiplegic	5	6.1
c. diplegic	4	4.9
d. monoplegic	1	1.2
2. hypotonic	14	17.2
3. chorio-athetoid	5	5.9
4, ataxic	4	4.9
5. mixed	12	14.7
Total	82	100

Eighty-two children with CP were studied, neonatal jaundice developed in 42 (51.2%) of cases, 21(25.6%) received no treatment, 14(17.1%) were treated with phototherapy and 5(6.1%) required exchange transfusion. History of birth asphyxia of different degrees of hypoxic-ischemic encephalopathy was reported in 43(52.5%) cases, 40(48.8) cases of them had been admitted previously to the neonatal care unit (NCU) ; while the remaining 3(3.7%) cases were home delivery

Discussion

The most common first presentation of patients with cerebral palsy to the health center was the delayed motor developmental skills (50%). The delayed motor development often with a dissociation between motor and intellectual development, observed by the parents, suggest the diagnosis of cerebral palsy[3].

There is slight predominance of males compared to females (58.5% vs. 41.5%) ratio (1.4:1) which is similar to other studies [15,16].

The vast majority of patients were diagnosed between the ages of (7-12) months (48.8%) as most of the CP patients are diagnosed by the end of the first year of life, which is similar to other studies [14].

and they had no access to the medical care. Eight patients were babies of diabetic mothers.

Thirty –six percent (30) of CP patients were premature babies, while the other (52) 64% were full-term.

Details of the associated medical abnormalities that were found in 16 of cases, include; Musculoskeletal 7 (43.75%), Eye 3 (18.75%), Ear 2 (12.5%), Heart 2 (12.5%), Kidney 2 (12.5%).

According to study about prevalence of cerebral palsy in the United States in 2006 – 2008

Pediatrics Vol. 118 No. 2 August 1, 2008 pp. 475 -482, Official Journal of American Academy of pediatric, boys had a higher prevalence compared with girls, and the ages of presentation and diagnosis of cerebral palsy were comparable to our study. Regular attendance to the antenatal clinic and follow up of mother with high risk pregnancies did not reduce the total number of CP suggesting a non- obstetrical cause for CP. [15] This also had been observed here because 56% of cases attended the antenatal clinic but still they had ended with babies with CP which may be explained by many reasons; the low availability of equipments for the sake of early diagnosis and detection, miss- management during intra-partum

period because of the lack of facilities necessary for fetal management, or may be these CP cases are developmental in nature or may be developed due to postnatal insult. Majority of patients (61%) were delivered by normal vaginal delivery, while (6.1%) were products of prolonged and difficult labor which is a known factor for the development of CP due to oxygen deprivation in the birth canal which lead to hypoxic-ischemic encephalopathy, and the possibilities of complications especially intracranial hemorrhage; which is also a risk factor for those 6.1% products of forceps delivery. [19,20] Thirty-two point nine percent (32.9%) of patients were delivered by the cesarean section which did not prevent the future development of CP, this may be explained that brain damage occur before birth, although in the majority of cases it occurs around the time of delivery, or in the first months of life[19].

According to study about Asphyxia-related risk factors in spastic cerebral palsy, in BJOG: An International Journal of Obstetrics & Gynecology Volume 115, Issue 12, pages 1518-1538, November 2008.

Placental and cord complications accounted for the majority of asphyxia conditions. placental infarction was significantly associated with a four-fold increased risk for spastic quadriplegia and cord around the neck was significantly associated with a three-fold increased risk for spastic CP overall. The combination of placental infarction and being small for gestational age (SGA) afforded an especially high risk for spastic quadriplegia.

The most common type of CP encountered in the clinical practice is the spastic one ranging from 40% [14] up to 60% [14,15] followed by the mixed type 9-22% [16]. The high prevalence of quadriplegia may be due to the high prevalence of birth asphyxia.[17, 18].

The commonest type of CP is the spastic quadriplegia that has been reported to occur in up to 80% [17, 18]. One hand preference

and inability to move one hand signifies one side of the body involvement and the later signify spastic hemiplegia.

The head lag which is the most common presenting feature of chorio-athetosis CP complicating bilirubin [18] encephalopathy (kernicterus), as hypotonia predominate in the first year of life then abnormal movements, as athetosis, occur later as myelination will have completed in the next 2 years. [17].

Majority of the patients were children of parents who got consanguineous marriage; which may explain a genetic or familial predisposition. [18,19].

Thirty six percent of patients were premature, which is an important risk factor especially when associated with low birth weight, primarily because of intra-cerebral hemorrhage and peri-ventricular leukomalacia[20].

According to a study about cerebral palsy published in the Official Journal of American Academy of Neurology. September/October 2008, volume 4(5) Portion of cerebral palsy cases associated with preterm birth (less than 37 weeks gestational age). Babies weighing less than 2kg at birth have a higher risk of having CP too and the risk increases as the birth weight falls.

Eight patients were babies of diabetic mothers, CP occurrence in these patients may be related to many factors such as macrosomia and related birth injuries, placental insufficiency, attacks of hypoglycemia and the increased incidence of congenital malformations in these babies [20, 21].

Forty three patients (52.5%) sustained asphyxia of variable degree of hypoxic-ischemic encephalopathy, of which forty patients (48.8%) underwent resuscitation and were admitted to NCU, while the other three (3.7%) were home delivery by midwife and they have no medical care.

Associated congenital malformation were comparable to other studies. [21]

Conclusion

The high prevalence of spastic quadriplegia which is the most common type of CP encountered in the clinical practice may be due to the high prevalence of birth asphyxia.

Recommendations

- 1- To prevent the treatable causes of CP e.g. asphyxia and kernicterus through initiation of centers for early detection of childhood disability.
- 2- To establish special centers to look after CP patients specially those need orthopedic surgery and physiotherapy and so on.

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