

Research Article**Risk Factors & Complications of Cerebral Palsy in Misurata Hospital -LIBYA**

Dr. Bashir Mustafa Ashour*, Dr. Malek Sewasi

Department of Paediatric, Misurata Central Hospital, Faculty of Medicine, Misurata University –LIBYA

***Corresponding author**

Dr. Bashir Mustafa Ashour

Email: bmashur@yahoo.com

Abstract: The aim of the study to know the etiological factor, clinical type, variable complication for cerebral palsy in misurata hospital and try to prevent this chronic illness later. It was a descriptive study based on hospital records conducted at Pediatric Department Misurata Central Hospital –Libya. Study included patients who were admitted with diagnosis of cerebral palsy from 1/7/2010 till 30/6/2013. Risk factors of cerebral palsy such as birth weight, Gestational age, consanguinity, mode of delivery, similar illness in the family and other risk factor of cerebral palsy were studied. Other variables such as complications, malnutrition assessed by weight for age, anemic status and assessment of motor functions were also studied. They were 116 patient 69 were male and 47 were female .the male to female ratio was 1.46:1. Birth asphyxia accounted for 42 (36%) of cases .low birth weight accounted for 11 (10%) of cases .very low birth weight accounted for 1 (0.8%) of cases. neonatal meningitis were 12 (10%), premature were 10(8.6%) and the etiology was undetermined in 22 cases (18.9%). The Spastic cerebral palsy was the most common type occurring 77% of cases, atonic 13% and mixed varieties of cerebral palsy in 10%. Recurrent seizures were seen in 54% of cases, 25% of cases had musculoskeletal complication mainly inform of tendon contracture. 25% of cases were mental retarded and about 50% had malnutrition and their weight below third centile, 56% of them were anemic. Variable ocular problem detected in about 50% of cases in form of optic atrophy and strabismus. In conclusion the etiological factors of cerebral palsy are largely preventable in our city. Improvement in anenatal, natal, peinatal care is essential to reduce the incidence of cerebral palsy. Rehabilitations center should be established at the community level to offer integrated services to children with CP in order to reduce morbidity and mortality in this age group. We should direct our health service toward reduction in the incidence of cerebral palsy .The cost of such program is far less than those associated with treatment and rehabilitations.

Keywords: Cerebral Palsy, Risk factors**INTRODUCTION**

Cerebral palsy is a diagnostic term used to describe a group of motor syndromes resulting from disorders of early brain development [1].

CP is caused by a broad group of developmental, genetic, metabolic, ischemic, infectious, and other acquired etiologies that produce a common group of neurologic phenotypes. Although it has historically been considered a static encephalopathy, this term is not entirely accurate because of the recognition that the neurologic features of CP often change or progress over times. Although CP is often associated with epilepsy and abnormalities of speech, vision, and intellect, it is the selective vulnerability of the brain's motor systems that defines the disorder [1].

Types of Cerebral Palsy

Spastic CP is the most common type of cerebral palsy, the names of these types combine a Latin prefix describing the number of affected limbs (e.g. di- means two) with the term plegia or paresis, meaning paralyzed or weak [4]:

Diplegia–either both arms or both legs

Hemiplegia–limbs on only one side of the body

Quadriplegia–all four limbs

Monoplegia–one limb (extremely rare)

Triplegia–three limbs (extremely rare)

Spastic diplegia affects the legs more than the arms. Learning disabilities and seizures are less common than in spastic hemiplegia. Persons with spastic hemiplegia (hemi paresis) also may experience hemi paretic tremors, learning disabilities, vision problems, seizures, and dysfunction of the muscles of the mouth and tongue are classic symptoms. Spastic quadriplegia involves all four limbs. There is dysfunction of the muscles of the mouth and tongue, seizures, and increased risk for cognitive difficulties. Athetoid (or dyskinetic) cerebral palsy is characterized by slow, uncontrolled, writhing movements of the hands, feet, arms, or legs (athetosis) [2]. Ataxic cerebral palsy affects balance and depth perception [3]. Mixed CP involves two or more types of cerebral palsy. While any mix of types and subtypes can occur, the most common are athetoid-spastic. Diplegic and athetoid-spastic-hemiplegic; the least

common is athetoid-ataxic. It is possible to have a mix of all three (spastic-athetoid-ataxic) [4].

Prevalence

CP is the most common and costly form of chronic motor disability that begins in childhood with a prevalence of 2/1000 [1].

Risk factors

Prenatal brain insult: Infection, toxin, placental insufficiency, malnutrition, anoxia.

Perinatal insults: LBW, ELBW, hypoxic ischemic injury, intracranial hemorrhage, metabolic abnormalities (hypoglycemia).

Postnatal insults: Infection e.g meningitis, trauma, hyrebilirubinemia, severe malnutrition, metabolic abnormalities.

Low Apgar score: Low score does not necessarily signify fetal hypoxic acidosis, but generally 5-min Apgar score less than 3 is regarded as evidence of asphyxia. Apgar score does not predict neonatal mortality or subsequent CNS palsy, and it is normal in most patients who later develop cerebral palsy and incidence of cerebral palsy is low among infants with Apgar score 0-3 at 5-min. Apgar scores 0-3 at 20-min predict high mortality and morbidity.

Complications of CP

Intellectual impairment, epilepsy, failure to thrive, vision and hearing problems, impaired sensation of touch and pain, hip dislocation, curvature of spine(scoliosis), incontinence, constipation, tooth decay, skin sores, and chest infection [5].

The aim of the study

- To study the risk factors of cerebral palsy among patients admitted in misurata central hospital.
- To study the complications of cerebral palsy among these patients. And try to decrease the incidence of these chronic illness in future.

MATERIALS AND METHODS

Study design

It was a descriptive study based on hospital records

Study setting

Pediatrics Department of Misurata Central Hospital - LIBYA

Study population and period of the study

116 patients who were admitted with diagnosis of cerebral palsy from 1/7/2010 till 30/6/2013.

Study variables

Risk factors of cerebral palsy such as birth weight, consanguinity, mode of delivery, similar illness in the family and other causes of cerebral palsy were studied. Other variables such as complications, malnutrition assessed by weight for age, anemic status and assessment of motor functions were also studied.

RESULTS

During period of our study we collected 116 children with cerebral palsy; male children were more affected than female. 69 were male (59.95 %) and 47 were female (40.05 %). The male to female ratio was 1.46: 1. Most of patients were born at hospital or in private clinic and very few born at home. 15 cases were more than 10 years of age, 60 patients less than 5 years and 15 cases were between 5-10 years. So the peak ages of admission were from 1-4 years (51%).

Most of patient delivered by vaginal delivery (90 case) and 20 case delivered by C/S. Data are not available in other cases. There were 10 (8.6%) cases preterm birth and most of cases were full term. Around 76 (65%) cases their birth weight between 2.5 -3.5 kg, less than 2.5 Kg were 11(10%) babies and less than 1,5 kg was only one baby(0.8%). Birth asphyxia was reported in 42 (36%) of cases. 12 had history of neonatal meningitis. Antenatal problem e.g hemorrhage was reported in 15 cases, 10 (8.6%) were premature and etiology was uncertain in 22 (18.9). Spastic cerebral palsy was the most common type occurring 77% of cases, atonic 13% and mixed varieties of cerebral palsy in 10%. Recurrent seizures were seen in 54% of cases, 25% of cases had musculoskeletal complication mainly inform of tendon contracture. 25% of cases were mental retarded and about 50% had malnutrition and their weight below third centile, 56% of them were anemic. Variable ocular problem detected in about 50% of cases in form of optic atrophy and strabismus.

Table 1: Age distribution of patients:

Age (years)	Number	%
Up to 1	26	22.4%
1- 4	60	51.7%
5 – 9	15	13%
10 & above	15	13%
Total	116	

51% of patients were of 1-4 years of age group.

Table 2: Sex distribution

Sex	Number	%
Male	69	59.45
Female	47	40.54
Total	116	100

Male children were more affected 59.45% of the patients were males.

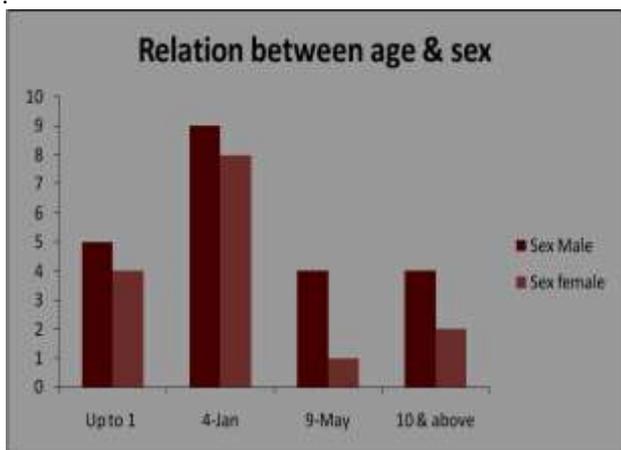
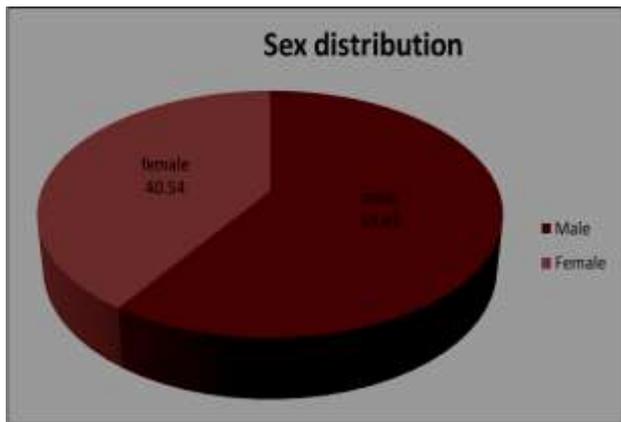


Table 5: Mode of delivery

Mode of delivery	Number	%
Vaginal	88	75.8
C/S	22	18.92
Data not available	6	5.41
Total	116	

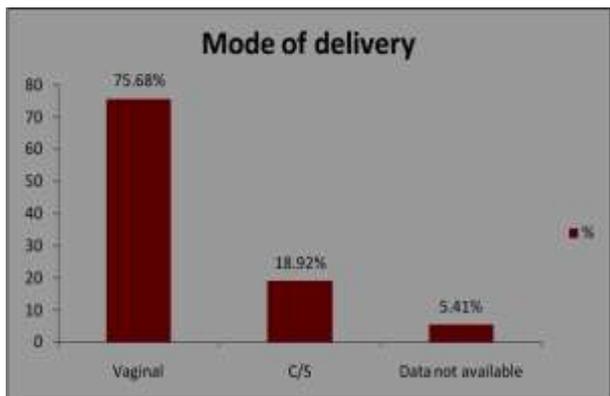


Table 6: distribution of patients according to birth weight:

Birth weight (Kg)	Number	%
1.5-2.5	11	10.81
2.5-3.5	76	65.5
> 3.5	28	24
<1.5	01	0.8
Total	116	

Table 8: Causes of cerebral palsy:

Cause	Number	%
Birth asphyxia	42	36%
Neonatal meningitis	12	10.81
Antenatal problems	15	13.51
Prematurity	10	8.60
*other disorders during neonatal period	15	13.51
No clear cause	22	18.9

*other disorders include neonatal jaundices, neonatal sepsis, and RDS.

Table 9: distribution of patients according to the complications

Complication	No	%
Malnutrition	60	51.35
Anemia(Hb<10 gm/dl)	66	56.75
Mental retardation	25	21.62
Epilepsy	63	54.05
Microcephaly	20	18.91

Many patients were having more than one complication, so the total was more than 116.

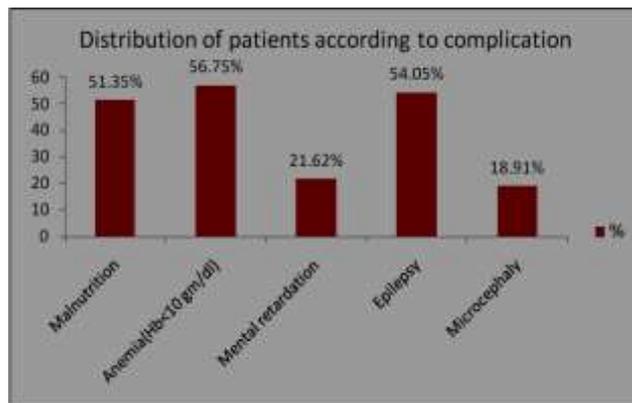


Table 10: Malnutrition was assessed based on weight for age

Remark	Number	%
Normal (3 rd – 97 th)	54	43.24
Below normal (< 3 rd)	60	51.35
Total	116	100

So most of the cases were below normal weight for age (< 3rd centile).

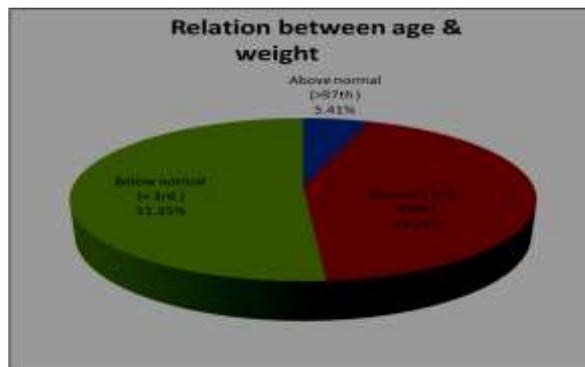


Table 11: Anemia status (I D A)*

Anemia status	Number	%
Anemic	66	56.75
Normal	50	43.24
Total	116	100

*Those patients with Hb < 10 g % were classified as anemic.

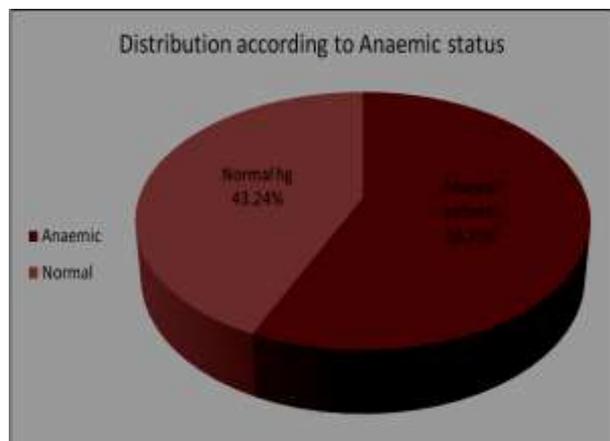


Table 12: Distribution of patients based on Muscle Tone

Tone	Number	%
Hypertonia	89	77%
Hypotonia	16	13%
mixed	11	10%
Total	116	100

DISCUSSION

The study analyzed of 116 children with cerebral palsy there were more male than female with ratio 1.46 : 1 .the reason for this disparity are uncertain, this same ratio noticed in Sweden 2006 [6] and also Hong Kong when the ratio male to female 3:2 [7], another study done in Europe 2002 by Johnson ANN with result in ratio 1.3:1[6]. Published data from Nigeria and Saudia Arabia show almost same ratio and only there was study done in Sudan show the opposite ratio female: male 1.5:1 [8].

In our study most of the cases when are admitted between 1 - 4 year old. In study done in 16 centers in 9 European countries show most of admitted cases were in the age of 4 year [10]. About 80% of mothers had attended an antenatal clinic on regular basis. In present study the perinatal factor were the most frequent cause of cerebral palsy among which birth asphyxia represent 36% and this same result done in many countries e.g in Sudan was 38.6%, in Iran (2008) was 46.4% [11] and also similar to result published by Kurumuna JM in Dar Essalam [12]. This high rate reflects the lack of antenatal and perinatal care. But it is reported in good center (USA) that only Fewer than 10% of children with CP had evidence of intrapartum asphyxia.

In the preset study the epilepsy is present among 54% of cases and mental retardation was in 21% of cases. Epilepsy is common in child with cerebral palsy and has poor prognosis [13]. In study done in Bengazei (Libya) during of 1980 and 1984 show epilepsy in 74% of cases and mental retardation in 70% of cases [14], and in our study the seizers more common than in other studies done in other area e.g in Sudan epilepsy seen in 37.8% of cases and in India epilepsy seen in 35.4% of cases and it is sever and difficult to control especially in cases with mental retardation [15]. Neonatal jaundice and kernicterus are occasionally associated with cerebral palsy [16].

In our study history of jaundice and exchange transfusion was reported in 4% of cases. This is in contrast is reported from West Africa where G6PD is significant problem accounting for 88% of neonatal jaundice [17].

Meningitis was reported in 10% of cases and all of them occur in early neonatal period (1st week). Low birth weight especially VLBW and extreme LBW are frequent causes of cerebral palsy in developed countries but in our study LBW cause only 10% of cerebral palsy and from this only one case his weight was below 1.5 kg this low rate obtained in this study for VLBW can be attributed to high prenatal ,neonatal mortality among VLBW. Also premature accounted for 10 (8.6%) cases of cerebral palsy and this opposite what is seen in developed countries were PT and SGA responsible for significant number of cerebral palsy [18]. In 18.9 % of patient the cause of cerebral palsy was not determined and this also was reported in many countries e.g Lubis study [19].

Based on the predominant motor deficit, this study showed that 77% of cases were spastic cerebral palsy, mainly was quadriplegic and 13% atonic and 10% mixed.

Similar data were reported from number of countries [20]. In our study around 50% of cases had malnutrition and anemia. and this indicate poor nutrition support which because the treating doctor not concentrate on nutrition advice with absent of dietitian in our hospital and main line of management is to sending patient for physiotherapy and controlling epilepsy . In study in Greece, approximately 33% of patients suffered from iron deficiency anemia [14].

CONCLUSION

We believe that the actual prevalence of cerebral palsy is higher than that reported here. The designation of cerebral palsy as entity regardless of underlying condition is valuable because medical care and rehabilitation requirement are similar. Management of cerebral palsy needs team of physician (pediatrician, occupational, physical therapists, social worker, speech trainer, educator, and developmental psychologist) and

this costly and not available for most patient of cerebral palsy. Rehabilitations center should be established at the community level to offer integrated services to children with CP in order to reduce morbidity and mortality in this age group. Many causes of CP in our area may be prevented .more effort is needed to educate the mothers about the value of antenatal and perinatal care. We should direct our health service toward reduction in the incidence of cerebral palsy because as they said prevention is always better than treatment. The cost of such program is far less than those associated with treatment and rehabilitations

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