

Underlying causes and risk factors of cerebral palsy

Anmar Jumaa Ghali¹, Ehab Jumaa Ghali², Esraa Tariq Mohamed Ali³

¹ Pediatric neurology-, Central Teaching Hospital of Children, Jumaaanmar91@gmail.com

² Internal medicine-, Al-Yarmook Teaching Hospital, eehabjumaah@gmail.com

³ Community Medicine – Alkarkh General Hospital esraatariq83@yahoo.com

Abstract

Background: Cerebral palsy (CP) is encephalopathic diseases, which is static non progressive acquired during periods of brain growth at fetal life, infancy, or early childhood, which lead to disorder in motor function, postures. and newly recognition that cp is static but changeable neurological features

Objective: to evaluate risk factors associated with cp.

Materials and Methods: this is prospective Case control study done in central teaching hospital of children in Baghdad on 100 case study population of children diagnosed with CP and 100 Control group of children who do not have cp. This study was Carried out using proforma access and Collect relevant data from the records of these individuals.

Results: - larger part of study subjects were guys. (male & Female (1.2: 1). risk factors that were altogether connected with cp. were gestational period, IUGR, premature rupture of membrane, neonatal jaundice, neonatal seizures, neonatal CNS infection, head trauma. while maternal age, mode of Laboure, twin member antepartum hemorrhage, abnormal presentation, and cord prolapse, had not significant results.

Conclusion: -the strongest risk factor associated with cp is birth asphyxia & followed by gestational age, neonatal jaundice, neonatal seizures, premature rupture of membrane, neonatal CNS infections & head trauma, so, parents and clinicians should be aware of the risk factors for CP.

Key words: Cerebral palsy, risk factors, children

Introduction

Cerebral paralysis is demonstrative term used to portray a gathering of engine Syndromes result from problems of early mental health (1) it is a non-progressive disorder of developing brain (2) it's disorder of posture, movement, and tone due to Static encephalopathy acquired during brain growth in fetal life, infancy, or early childhood (2). This term is not entirely accurate because of the recognition that the neurologic features of cp often change or progress over time (1).

In developed countries, the most recent reported prevalence of cp. ranges from 1.8 to 25/1000 Live births (3,4).

Hazard factors are normally introduced by the circumstance of their event in pre-birth, perinatal, and Postnatal periods. it has been assessed that around 70-80% of cp. cases are obtained prenatally and frequently from obscure causes. Birth entanglements, including asphyxia. are Currently assessed to represent around 6-8% of patients with cp.

the most predominant pre-birth and perinatal danger factor for cp. have routinely been viewed as low birth weight and low gestational age while neonatal encephalopathy, different pregnancy, contamination, aggravation and hereditary variables are likewise imperative to talk about either as

genuine or Candidate Causes for the pathophysiological pathways is that underlie a portion of the sorts of cp. (5)

Some investigation detailed a huge decrease in the pervasiveness of cp. among offspring of birth weight 1500 to 2499g and farther decline in kids with birth weight 1000 to 1499g as contrasted and past state reports (1988-1996). (6)

even though similar Significant reductions were not Seen in infant born with normal birth weight or in Those with extremely Low birth weight, the prevalence of cp in the latter groups in not increasing. (6)

patients and Methods:

- Prospective case Control study was done in this study from 1st of December 2019 to 1st of October 2020, on 100 patients with cp, age of them (1-14) years, attended neurological outpatient clinic or had been admitted to neurological ward at central teaching hospital of children. this hospital was tertiary center of pediatrics which of had neurological and outpatient clinic along week with 3 pediatric neurologists
- the Case study population consisted of children diagnosed with cp , while the Control population

consisted of children not diagnosed with cp .

- In our study we use data collected by using proforma This was used collect information on the relevant risk factors in both the case and the control groups. more over data on relevant Sociodemographic characteristics were accessed and collected. the information taken from any parent or caregiver which include demographic data such as name, age, sex, residency gestational age, mode of Laboure, perinatal, natal, or post-natal complication which lead to cp.
- Statistical analysis to data of our study by Computer software, chi-square test was used to test significance of associations P-value <0.05 was considered significant Statistically.

Results

- in our study found (55%) of cp Cases were male and (45%) female. also maternal age of cp patient was important risk factor associated with cp. So, we found (8%) of cp Cases had maternal age <20yrs and (72%) of cp Case had maternal age between 20-35 yrs. and maternal age >35yrs was (20%) this risk factor was not significant P-value (0.069).

Table (1) distribution of cp Cases according to maternal age.

	Categories	Cases	Control	P-value
maternal age	<20yrs	8	3	0.069
	20-35yrs	72	85	
	>35yrs	20	12	
total		100	100	

- cp patient who were born a preterm <37 Weeks was significant risk factor (P - value 0.045) so, gestational is important risk factors for cp.

Table (2) gestational age associated with cp.

	Categories	Cases	Control	P - value
Gestational age	Full term	76%	87%	0.045
	preterm	24%	13%	

mode of Labour is risk factor of cp, some patient of cp product by vaginal delivery (64%) while 36% of cp case by product Cesarean section. So, mode of Labour is not significant for cp cases (p-value 0.171)

Table (3) maternal mode of Labour of c.p cases.

	Categories	Cases	Control	P - value
mode of Labour	vaginal Labour	64	73	0.171
	Cesarian section	36	27	
		100	100	

Prenatal risk factors: -

Intrauterine growth retardation had significant result in producing cp patients (P-value 0.004) So, 21% of cp Case had history of intrauterine growth retardation also preeclampsia had significant results (0.038) of cp cases. Other prenatal risk factors in our study had not Significant result to produce cp.

5% of cp cases had history of antepartum hemorrhage and 3% of cp Case's twin Products.

Table (4) prenatal risk factors for cp

variable	Cases	Control	p - value
intrauterine growth retardation	21%	7%	0.004
Antepartum hemorrhage	5%	1%	0.097
Twin	3%	2%	0.651
Preeclampsia	15%	6%	0.038

Natal risk factors: -

Birth asphyxia is the most important risk factor to produce cp patient, (44%) of cp patients had Hx. of Birth asphyxia which is most significant result. (p value <0.001) also Low birth weight <2500 gram is more danger risk factor to Cause cp patients.

In our study found (4%) of cp patients had Hx. of low Birth weight <2500 gram which is Significant p - value <0.043 more 10% of cp. cases had Hx. Of Premature rupture of membrane, this result was significant p value (0.045). 6% of cp. cases had Hx. Of abnormal presentation 1% of cp cases Birth with Cord prolapse.

Table (5) natal risk factors for cp

variable	Cases	Control	p - value
Birth asphyxia	44%	89%	< 0.001
Low birth weight <2500 gram	4%	0%	< 0.043
Premature rupture of membrane	10%	3%	0.0451
abnormal presentation	6%	4%	0.516
Cord prolapses	1%	0%	0.316

Postnatal risk factors:

Neonatal jaundice is the most significant risk factors associated with cp (68%) of cp cases. also neonatal CNS infection 16% of cp cases which is significant result.

5% of cp cases associated with neonatal seizures, which is also significant p-value result (0.023) 4% of cp Case had Hx. of head trauma in infantile period which is significant result <0.048

Table 6 postnatal risk factors for cp

variable	Cases	Control	p - value
neonatal jaundice	68%	22%	< 0.001
neonatal CNS infection	16%	0%	< 0.001
neonatal seizures	5%	0%	0.023
head trauma	4%	0%	< 0.043

Discussion

- In our study analyzed Common risk factors associated with cp, which found sex distribution (55%) of patient were male, while (45%) were female & male: female ratio (1.2:1), these results agree with some studies have found a higher prevalence of cp in male Than female children (7, 8, 9)
- We found 64% of cp patients were vaginal delivery and 36% of them were product by cesarian section, these results were not significant because veginal delivery is common

way for child labour. AL-Naddawi study reported similar results. (10)

- Intrauterine growth retardation was significant risk factor of cp, which had similar result of other study (11) IUGR which indicated to found underlying causes of IUGR during pregnancy to decrease risk of cp.
- The most huge danger factor related with cp in our examination was birth asphyxia which is concur with study done in Nigeria (12).
- prematurity ≤ 37 weeks had significant risk factor of cp in our study, this result is against so study

in China. which is not significant (13) also preterm birth increase probability of cp in study done previously (16).

- In our study found low birth weight < 2.500g had significant risk factor of cp, in other study found low birth weight infant are highly predictive of later cp (14).
- Another factor that was altogether connected with c.p. in our examination was neonatal Jaundice. this concurs with different reports from agricultural nations (12,15).
- CNS diseases were likewise essentially connected with cp. in our investigation. This is like past reports from agricultural nations. (12,17)
- Current study found Neonatal seizures had Significant results of risk factor of cp which is Similar to results in other previous reported study (18, 19).

Conclusion

a large portion of cp Cases in our examination had recognizable danger factors which are conceivably preventable. improvement in essential medical care particularly maternal and infant Care will help decrease the frequency of cp.

Recommendation

The following recommendations to decrease risk factors and incidence of cp:

1. Education prequantum ladies and their relatives
2. on threat signs in infant and newborn children.
3. All pregnant lady's ought to go to antenatal consideration (ANC)
4. Home conveyance ought to be effectively debilitate
5. Establishment of essential medical services Centers With fundamental offices for safe

direct of Labor and infant revival and Skilled birth orderlies reachable for all networks around there.

6. Establishment of exceptional neonatal emergency unit at all reference level medical clinics
7. arrangement of serious phototherapy units at all reference level medical clinics
8. training and re-preparing of all Cadres of medical care laborers.

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