Clinical Study of Cerebral Palsy at THQ Hospital, Liaqatpur

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Eighty Children diagnosed as cerebral palsy were included in this study. Male to female ratio was 3.2: 1. 10% belonged to 3-12 months, 48.8% to 1-6 years, 35% to +6-12 years and 6.2% to age group +12-16 years. The chief complaint was motor problems in 38.75%, epilepsy in 33.75%, fever in 13.75%, aggressive behaviour in 5%, poor school performance in 1.25%, convulsions (first episode) in 5% and irritability in 2.5% cases. 77.5% children were quadriplegic, 18.75% hemiplegic and 3.75% diplegic. 68.75% children were spastic, 3.75% ataxic, 6.25% dyskinetic, 16.25% dystonic and 5% choreoathetotic. The complications noted were epilepsy in 51.25%, mental retardation in 56.25%, speech problems in 25%, behaviour problems in 35%, undernutrition in 38.75%, poor school performance in 35%, feeding problems in 27.5%, decreased vision and squint in 12.5%, decreased hearing in 6.25%, caries teeth in 8.75%, orthopedic and positional disorders in 6.25%, constipation in 8.75% and growth retardation of one limb in 3.75% cases. The most probable age of origin was prenatal and natal in 80% and postnatal in 20% cases. The risk factors involved in cerebral palsy originating in prenatal or natal period were one in 20.31% cases, two in 31.25%, more than two in 32.81% and no in 15.63% cases. The three most important prenatal and natal factors were maternal age (12.93%), birth asphyxia (15.5%) and low birth weight (12.07%).The postnatal causes were neonatal jaundice in 25%, CNS insults in 62.5% and trauma in 12.5% cases. **Conclusion:** Cerebral palsy has diversity of presentations with associated multiple problems and its etiology is difficult to diagnose.

Key words: Cerebral palsy, mental retardation, epilepsy, birth asphyxia

Cerebral palsy is an umbrella term covering a group of non-progressive, but often changing, motor impairment syndromes secondary to lesions or anomalies of the brain arising in the early stages of development[1]. It is the most common physical disability in childhood[2]. A total of 2-2.5 per 1000 live born children in the Western world has this condition [3]. Recognizing and managing many important co morbidities of this condition is as important as treating the motor disabilities. There are a number of classifications for cerebral palsy; one is based on severity of cerebral palsy is described by Palisano et al (1997)[4] another based on motor impairments is European one that is used in this study [5]. The objective of this study is to know the different aspects of cerebral palsy.

Patients and methods:

It is an observational cohort study conducted at the Pediatric department of Tehsil Headquarter hospital Liaquetpur from August 2002 to September 2004. The children from 3 months to 16 years of age coming with history of neurological or developmental problems, abnormal behaviour, convulsions or with any acute illness were found to have cerebral palsy and the known cases of cerebral palsy, were included for the study. The children with progressive neurological disorders, normal gross motor milestones, history of brain insult after the age of two years, positive family history of childhood neurological disorder, children with dysmorphic features or clinical signs like hepatomegally and or splenomegaly, skin lesions (café-au-lait spots more than five, ash leaf lesions and shagreen patch) and eye signs were excluded from the study. Verbal consent was taken from the parents or guardians before recruiting for the study.

A detailed prenatal, perinatal, general medical and developmental history from birth until the time of evaluation was taken and detailed physical and developmental evaluation was done. Hearing assessment was done on clinical grounds by asking from mothers and by distraction hearing test.

Results:

Eighty cases were studied, 61 male and 19 female with male to female ratio 3.2: 1. Eight (10%) cases belonged to 3-12 m, 39 (48.75%) to 1-6 years, 28 (35%) to +6-12 years and 5 (6.15%) to +12- 16 years age group. Chief complaint was motor problems in 31 (38.75%), epilepsy in 27 (33.75%), fever in 11 (13.75%), aggressive behaviour in 4 (5%), convulsions (first episode) in 4 (5%), irritability in 2 (2.5%) and poor school performance in 1 (1.25%) cases at the time of presentation. There were 62 (77.5%) children with quadriplegia, 15 (18.75%) with hemiplegia and 3 (3.75%) with diplegia. Fifty-five (68.75%) children were spastic, 13 (16.25%) dystonic, 5 (6.25%) dyskinetic, 4 (5%) choreoathetotic and 3 (3.75%) ataxic.

Table 1. Complications

Complications	n=	%age
Epilepsy	41	51.25
Mental retardation	45	56.25
Decreased vision and squint	10	12.5
Decreased hearing	5	6.25
Speech problems	20	25
Behaviour problems like aggressive behaviour, sleep disturbances	28	35
Caries teeth	7	8.75
Feeding problems	22	27.5
Weight for height (below 2 standard deviation)	31	38.75
Poor school performance	28	35
Orthopedic and positional disorders	5	6.25
Constipation	7	8.75
Growth retardation of one limb	3	3.75

The complications and prenatal/natal risk factors noted in this study are shown in tables 1 and 2.

Table 2: Prenatal and natal factors predisposing to cerebral palsy

Factors	n=	%age
Maternal age < 20 or > 30 yrs	15	12.93
Toxemia	2	1.72
Bleeding	4	3.45
Infections	2	1.72
Trauma	2	1.72
Drugs	5	4.31
Parity 0 or more than 5	8	6.9
Chronic problems	3	2.59
Stature less than150 cm	4	3.45
Birth asphyxia	18	15.52
Prematurity	5	4.31
Post maturity	3	2.59
Low Birth Weight	14	12.07
Breech delivery	3	2.59
Prolonged labor	10	8.62
Multiple gestation	3	2.59
Caesarean	6	5.17
Congenital malformation	3	2.59
Microcephaly	2	1.72
Others*	4	3.45

*Others include hypertension, Diabetes mellitus, precipitate labor, forceps delivery (one each case).

Discussion:

This study was conducted in a setup where investigations facilities were lacking. The male to female ratio was 3.2:1 while other studies also showed males preponderance that might be due to gender discrimination [6 - 11]. The age of diagnosis was much delayed as compared to other studies that might be due to illiteracy and unavailability of good health facilities [12 - 13] The presenting chief complaints were motor problems and epilepsy while poor feeding, stiffness and infection were the main clinical presentations in the study conducted by Rafai MR et al (1984)[14].

There is confusion in the nomenclatures and classifications in the field of cerebral palsy especially in defining dyskinetic and dystonic cerebral palsy [15, 16]. The European classification described dyskinetic cerebral palsy as characterized by abnormal pattern of posture and/or the involuntary and uncontrolled recurring movements while dystonic as characterized by both hypokinesia and hypertonia, and choreoathetotic as both hyperkinesia and hypotonia. The commonest type of motor impairment was spastic (68.75%) in this study, which was also described by other studies [14, 17]. The quadriplegia was the commonest topographical subtype in this as well in as other studies [12] while diplegia in the study by Rifai et al 1984 [14] and hemiplegia in Chandra et al 1993 [13] study were the commonest subtypes.

Common complications in this study were epilepsy, mental retardation behaviour, nutritional, speech, feeding, visual problems and poor school performance. Other studies also reported high rate of complications, which included mental retardation [13, 17], epilepsy, visual, speech, hearing, feeding and nutritional problems [17, 18, 19].

In this study the most probable age of origin was postnatal in 20% while prenatal and natal in 80% cases. Srivastava et al 1992 [9] described postnatal age of origin in 26.1% cases while Talha et al 1984 [8] reported in 28.4%, Murphy et al 1993 [11] in 16% and William et al 1996 [20] in 45% cases. The common risk factors involved in prenatal or natal period included maternal age, birth asphyxia and low birth weight babies. The CNS insults, neonatal jaundice and trauma were the postnatal causes. Other studies reported maternal age, birth asphyxia, prematurity, low birth weight, instrument assisted delivery and antepartum hemorrhage as the common prenatal and natal causes of cerebral palsy [17, 19]. Postnatal causes included neonatal jaundice, CNS insults and neonatal infection [17]. The exact age of origin and the etiology of cerebral palsy were difficult to decide. Even the western studies failed to do so. William et al 1996 [20] demonstrated that the increased risk of cerebral palsy to twins was not entirely explained by prematurity and low birth weight. The risk of cerebral palsy and relation with gestational duration is complex [21, 22]. The occult antenatal infection is increasing implicated [23]. In developed countries birth asphyxia is not a common cause of cerebral palsy. In the United Kingdom study by Niswander et al 1984 [24] found no relationship between cerebral palsy and sub optimal care. In developing countries case control studies are needed to establish the importance of birth asphyxia as a cause of cerebral palsy. Moreover the risk factors cannot be ascertained accurately due to iliteracy and lack of record.

In brief the presentation and complications of cerebral palsy were nearly the same but the etiologic factors were difficult to assess in this study like in most of the other studies done.

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