Paediatrica Indonesiana 32 : 84 - 89 Mar. – Apr. 1992

ORIGINAL ARTICLE

Cerebral Palsy : Review of 49 Patients

by

GULHIS DEDA, UGUR KARAGOL, and YAVUZ GÜRER

(From the Department of Pediatric Neurology, Dr. Sami Ulus Children's Hospital, Ankara, Turkiye)

Abstract

Fourty nine cerebral palsied patients admitted between 1989-1990 are reviewed according to type of paresis and the incidence of epilepsy and mental retardation. Eighteen (36,7%) of these patients were epileptic and 22 (44.89%) were mentally retarded. Out of 6 right-sided hemiparetic patients 3 (50%) had clinical seizures being all generalized tonic-clonic epilepsy. In the left-sided hemiparetic group only 1 patient (16,66%) had clinical seizures being left-sided focal epilepsy.

Key words : Cerebral palsy, mental retardation, epilepsy.

Introduction

Despite earlier optimism that cerebral palsy (CP) was likely to disappear with the advent of improvements in obstetric and neonatal care, there has apparently been no consistent decrease in its frequency in the past decade or two [*1,2,3*].

Since CP is a continuing problem we reviewed 49 CP patients and tried to find the antecedents and the possible correlation of epilepsy with the type of CP.

Materials and methods

Between 1989-1990 CP patients admitted to the Department of Pediatric Neurology, in Dr. Sami Ulus Children's Hospital, Ankara, Turkiye, were examined by one of the authors.

The patients were evaluated in view of their ages, sex, prenatal and perinatal history, clinical findings, EEG recording and CP findings and were classified according to the clinical types of CP. The authors tried to figure a likely correlation between the types of CP and occurrence of epilepsy and mental retardation.

Results

During 1989-1990 49 CP patients of whom 20 boys (40%) and 30 girls (60%) were examined. The age distribution was between 3 months-12 years, the mean age was 37,5 months. The parents of nine patients were found out to have consanguinity (18%) of whom 6 were first degree, 2 second degree and one was third degree.

The mothers of nine patients (18%) harbored some risk factors which might be accepted as antecedents for CP as follows : dermatologic infection in 1, imminent abortion in the first trimester in 2, sepsis in 1, early membrane rupture in 1, pyelonephritis in 1 and hypertension in 1 case.

Seven patients (14%) were born preterm and 7 (14%) small for gestational age, 12 (24%) had hypoxic-ischemic brain injury occurring in the perinatal period while 7 (14%) patients experienced both prematurity and hypoxic-ischemic insult and 7 (14%) suffered from kernicterus.

Clinical findings revealed as right-sided spastic hemiparesis in 6 (12.24%), left-sided hemiparesis in 6 (12.24%), spastic quadriparesis in 19 (38.77%), atonic quadriparesis in 4 (8.16%), spastic para- paresis in 18 (36%), spastic displegia in 1 (2%), flask paraparesis in 1 (2%) and left-sided upper extremity monoparesis in 1 (2%) patient.

Type of cerebral palsy and epilepsy : of 18 (36.7%) epileptic patients, 13 had generalized tonic-clonic, 3 left-sided focal and 2 myoclonic types of fits. Their distri-bution are listed in Table 1.

Type of cerebral palsy and mental retardation : among 49 CP patients 22 patients (44.89%) were mentally retarded. Type of CP and mental retardation are summarized in Table 2.

Gestational age and cerebral palsy : in seven patients the gestational age were less than 34 weeks of whom 3 (42.85%) were spastic quadriparetic, 3 (42.85%) spastic paraparetic

and 1 (14.28%) left-sided spastic hemiparetic. Three (42.85%) of 7 premature patients had generalized tonic-clonic epilepsy and 1 (14.28%) myoclonic epilepsy.

In 5 (71.42%) of these patients there were prenatal problems consisting of imminent abortion in 2, maternal cardiac problem in 1, sepsis in 1 and early membrane rupture in 1 case.

Birth weigth and cerebral palsy : seven patients were small for gestational age and weighed less than 2500 grams. The problems they carried are listed in Table 3.

Discussion

The study population comprised 49 cases of CP and there was a prepoderance of female patients. On the contrary in a study of 593 cases, males predominated [*4*].

In this study 12 CP patients (24%) were found to have had hypoxic-ischemic brain injury occurring in the perinatal period. A study from Australia suggested perinatal hypoxic insult ratio as 8% [*5,6*]. The high percentage in our study might have a likely relation to the traditional delivery problems in rural areas.

In the study of Pharoah et al. among infants with a very short gestational age (less than 28 weeks) there was a sharp fall in the prevalence of CP [*4*]. In our study 7 patients (14,28%) had gestational ages of less than 34 weeks. The percentage of spastic quadriparesis, spastic paraparesis and spastic hemiplegia were higher than those of normal gestational aged patients. None of our patients had gestational age of less than 28 weeks, but still there is a fall in the prevalence of CP in premature patients. This fall is likely to be an artefact of incomplete ascertainment because not only are the infants with CP premature but their growth is retarded so that the chance of survival is severely comprised [*4*]. But the percentage of spastic CP is higher in this group than those of the normal gestational aged group.

Child and Evans noted that the proportion of severely mentally retarded infants was greater among infants of normal birth weight than among those with birth weights of less than 2500 grams [*7*]. Our findings indicate the results of Child and Evans [*7*]. It could be assumed that the low birth weight infants were so severely affected that most of them have been aborted or died before CP and mental retardation was recognised. Another explanation can be that the longer the infant remains in a hostile intrauterine environment the greater the neurological deficits.

In one study, the incidence of epilepsy, the IQ and laterality of CP were investigated in 51 children with hemiparetic CP. Epilepsy had developed in 19; two had partial Jacksonian seizures and 17 generalized tonic-clonic seizures. Clinical seizures were common in those with right-sided hemiparesis [*8*]. In our study 6 patients had right-sided spastic hemiparesis and 6 patients had left-sided spastic hemiparesis. In the right-sided hemiparetic group 3 patients (50%) had clinical seizures being all generalized tonic-clonic epilepsy. In the left-sided spastic hemiparetic group only 1 patient (16,66%) had clinical seizures being left-sided focal epilepsy. These findings are in accordance with the study of Sussova et al. [*8*].

Though this study summarises of a rather small group, more reliable results will emerge for Turkish CP patients from larger groups.

Table 1 . *Clinical types of CP and relation to epilepsy*

CP clinical types	Types of epilepsy				Total No of epileptics	%
	No	Gen, T-C1.	F.M.	Myo		
Spastic Quadrpl.	19	5	-	1	6	31,5
Right sided spastic hemipar.	6	3	-	-	3	50
Left-sided spastic hemipar.	6	-	1	-	1	16,6
Spastic paraparesis	9	3	-	1	4	44,4
Spastic displegia	1	1	-	-	1	
Left-sided atonic hemipar.	2	-	-	1	1	
Atonic Quadrpar.	4	1	-	-	1	25
Left-sided upper ext. monopar.	1	1	-	-	1	

Gen. T-C1. = Generalized tonic-clonic
F.M. = Focal motor epilepsy
Myo = Myoclonic epilepsy
Quadrpar = Quadriparesis

Hemipar. = Hemiparesis
Monopar. = Monoparesis
Quadrpl. = Quadriplegia
Ext. = Extremity

Table 2 . *Type of CP and relation to mental retardation*

CP clinical types	No. of cases	No. of mentally retarded cases	%
Spastic Quadrpl.	19	13	68.4
Spastic Paraparesis	6	4	44.4
Right-sided spastic hemiparesis	6	2	33.3
Atonic Quadriparesis.	4	2	50.0
Left-sided spastic hemiparesis	6	1	16.6

Quadrpl. = Quadriplegia

Table 3. *Type of CP and relation to prematurity*

No. of patiens	Type of or insult
3	Spastic quadriplegia
2	Spastic paraparesis
1	Left-sided spastic hemiparesis
1	Reight-sided spastic hemiparesis
2	Generalized tonic-clonic epilepsy
3	Mentally retarded

REFERENCES

1. Jarvis SN, Halloway JS, Hey EN. Increase in cerebral palsy in normal birth weight babies. Archs Dis Childh 1985; 60: 113-21.
2. Karin B, Nelson MD, Jonas H, Ellenberg PhD. Antecedant of cerebral palsy. Multivariate Analysis of Risk. New Engl J Med. 1986; 315: 2: 81-6.
3. Paneth N, Kiely J. The Frequency of Cerebral Palsy. A review of population studies in industrialized nations since 1950. In: Stanley F, Alberman E, eds. The epidemiology of the cerebral palsies. Philadelphia. JB Lippincott 1984; 45-56.
4. Pharoah POD, Cook T, Rosenbloom L, Cooke RWI. Effects of birth weight, gestational age and maternal obstetric history on birth prevalence of cerebral palsy. Archs Dis Child 1987; 62: 1035-40.
5. Blair E, Stanley FJ. Intrapartum asphyxia. A rare cause of cerebral palsy. J Pediat 1988; 112: 515-9.
6. David MB Hall. Birth asphyxia and cerebral palsy. British Med Journal. 1989; 299: 279-82.
7. Child B, Evans PR. Birth weight of children with cerebral palsy. Lancet 1954; i: 642-5.
8. Sussova J et al. Hemiparetic form of cerebral palsy, in relation to epilepsy and mental retardation. Devl Med Child Neur 1990; 792-5.