

PROGNOSIS IN CEREBRAL PALSY

A REVIEW OF 101 CONSECUTIVE CHILDREN WHO LEFT THE FOREST TOWN SCHOOL FOR CEREBRAL PALSIED CHILDREN DURING THE YEARS 1956-1961

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The past 15 years have witnessed a world-wide growth in the facilities offered to children suffering from cerebral palsy. For many years parents seeking advice in the management and care of their cerebral palsied child were told that nothing could be done. During the late '40s and early '50s, a wave of enthusiasm, engendered mainly by parents, swept the world. The growth of the United Cerebral Palsy Association in America, the National Spastic Society in England, the Transvaal Association for the Care of Cerebral Palsy in Johannesburg, and other similar bodies all over the world, offered new hope to those afflicted.

It was the popular belief 10 or 15 years ago that the cerebral palsied child housed a normal brain within a deformed body. This idea, however, would appear to have been over-optimistic. We now know that, in addition to the motor disabilities occurring in cerebral palsied children, there are always other defects such as perceptual and sensory losses and, in most cases, impairment of

intelligence. The earlier idea that treatment of the spastic limbs would enable a child to take his place in society has now been modified. Workers in the field have become aware of the fact that an estimate of the ultimate prognosis for any individual will depend not only on the degree of the motor disability, but also on the basic intelligence of the child.

The Forest Town School for Cerebral Palsied Children has now been in existence for 13 years. It is thought that it would be of interest to report what has happened to the children who have passed through this school to other places. It is hoped that this investigation may be of some use in trying to assess the future needs of cerebral palsied children and also the future responsibilities of those who have to deal with the cerebral palsied among our population.

During the period 1956-1961, 101 children left the school after having spent a shorter or longer time there (Table I). Among these 101 children 6 were transferred to the Pretoria Cerebral Palsy School for geographical reasons (Table II). Seven were transferred elsewhere, but

TABLE I. DESTINATION OF 101 CONSECUTIVE CHILDREN WHO LEFT FOREST TOWN SCHOOL FOR CEREBRAL PALSIED CHILDREN DURING THE PERIOD 1956-1961

Cerebral palsied children transferred for geographical reasons	6
Cerebral palsied children discharged and later readmitted ..	7
Total	13
Non-cerebral palsied children to normal schools	4
Non-cerebral palsied children to special classes of normal schools	2
Non-cerebral palsied children to institutes for grossly retarded children	7
Total	13
Cerebral palsied children to special classes of normal schools	5
Cerebral palsied children to normal schools (but doubtful if they will cope)	4
Cerebral palsied children to normal schools (coping well) ..	13
Cerebral palsied children to institutes for grossly retarded children	13
Cerebral palsied children taken home by parents and being kept there	14
Cerebral palsied children to work	3
Cerebral palsied children to sheltered workshops	3
Cerebral palsied children to St. Vincent's School for the Deaf	3
Cerebral palsied children to epileptic school	2
Cerebral palsied children too ill to treat	4
Cerebral palsied children to Tara Hospital for Neurological Disorders	2
Cerebral palsied children to vocational high school	6
Cerebral palsied children to Edith Hinds Secondary School for Retarded Children	2
Cerebral palsied children to technical training college ..	1
Total	75

Of the above, 3 died and 1 was killed in a car accident.

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TABLE II. TRANSFERRED TO PRETORIA SCHOOL FOR GEOGRAPHICAL REASONS

File No.	Age (years)	Diagnosis	IQ
140	9	Spastic quadriplegia	89
348	13	Spastic quadriplegia	77
405	9	Ataxia and tremor	67
603	4	Athetosis	81
688	4	Spastic quadriplegia	94
718	4	Paraplegia	63

later re-admitted (Table III). These children must be excluded from the survey, since they cannot yet be said to have 'left school'.

Thirteen children with conditions other than cerebral palsy were discharged (Table IV).

This survey, therefore, can only cover 75 children who suffered from cerebral palsy and who left Forest Town School during the period under review.

In considering the question of prognosis in cerebral palsy (with these 75 children who left the school as a yardstick) it must be remembered that the school does not admit a completely representative group of cerebral palsied children.¹ Ineducable children are refused admission. There is also the very occasional child whose mental and physical disabilities are so mild that he is advised to remain at a normal school without ever having been admitted to Forest Town School. Therefore, the picture emerging from the figures quoted displays slightly more optimism than the problem actually warrants. The figures do, however, give some indication of what can ultimately be expected of the children who have been admitted.

TABLE III. DISCHARGED AND READMITTED

File No.	Age at time of discharge (years)	Diagnosis	IQ	Remarks
415	7	Left hemiplegia	82	Taken overseas by parents, later readmitted here
423	12	Spastic paraplegia	92	Geographic reasons, at 9 years absconded. At 11 years to normal school. Readmitted and again discharged to normal school, special class
445	5	Spastic triplexia	72	Family moved to Krugersdorp when 5 years old. Later readmitted
467	6	Left hemiplegia	105	Nursery school, then readmitted
745	3	Spastic quadriplexia	106	Too young. Applied for readmission later
601	3	Spastic paraplegia	107	Unable to attend because of transport difficulties, but can now do so by courtesy of Uncle Ted's Fund buses
532	3	Athetoid	104	Thought to be able to cope in ordinary nursery school, but could not and returned 2 years later. High-tone deafness

TABLE IVA. NON-CEREBRAL PALSIED CHILDREN TO NORMAL SCHOOLS

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
334	5	Emotional disturbances. Not CP*	117	Normal school
782	4	? Muscular dystrophy and ? brain injured. Not CP	93	Nursery school
787	5	Speech defect. Not CP (Koh's blocks) (S.A. individual scale)	95	Normal nursery school and speech clinic
882	7	Familial dysautonomia. Not CP	66	135
				Normal nursery school

TABLE IVB. NON-CEREBRAL PALSIED CHILDREN TO SPECIAL CLASSES

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
560	4	Todd's paralysis. Epileptic. Not CP	50	To normal nursery school. Later to special class of normal school
836	8	Partially sighted. Not CP	55	Normal school

TABLE IVC. NON-CEREBRAL PALSIED CHILDREN TO INSTITUTES FOR GROSSLY RETARDED CHILDREN

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
293	7	Mentally deficient	28	The Hamlet—occupation centre for ineducable children
436	7	Mentally deficient	45	Normal school initially, now at The Hamlet
451	7	Mentally deficient	'Low'	Special class
469	12	Psychotic	'Low'	The Hamlet
536	6	Mentally deficient	32	Destination not known
789	6	Mentally deficient	54	The Hamlet
880	11	Infantile psychosis	82	Rudolph Steiner School, Pretoria

* CP = Cerebral palsy.

INTELLIGENCE

The intelligence of children attending Forest Town School has been assessed by psychologists working full-time at the school (Dr. D. van Niekerk, 1956-1959, and Mr. J. P. B. Starker,² 1959-1961).

The intelligence quotients (IQ) given in this review represent the highest estimate calculated for each child. In arriving at this figure the psychologists used the South African Individual Scale, Koh's Blocks, the Merrill-Palmer Scale and the Vinelands Social Maturity Scale.

Much experience is necessary before assessing children with cerebral palsy. The psychologists performing the tests worked full-time at the school and chose tests which allowed for each child's peculiar disabilities. Remarkably similar results have been recorded independently by each of the 2 observers over the years (Table V).

Table V compares the IQ distribution of 72 cerebral palsied children who left Forest Town during 1956-1961

TABLE V. DISTRIBUTION OF IQS OF CEREBRAL PALSIED CHILDREN*

Intelligence (IQ in brackets)	Percentage of those in the school at the end of 1961 (124 children)		Percentage of the 72 CP children with known IQ results who left the school permanently, 1956-1961**	
	%	%	%	%
Superior (120 plus) ..	4	4	1.5	1.5
Bright average (110-119) ..	4	4	5.5	5.5
Average (90-109) ..	24	24	18.0	18.0
Dull average (80-89) ..	18	18	15.25	15.25
Borderline (65-79) ..	31	31	22.25	22.25
Defective (50-64) ..	15	15	14.0	14.0
Ineducable (below 50) ..	4	4	23.5	23.5

* From the records of Mr. J. P. B. Starker and Dr. D. van Niekerk.

** The IQ of 9 CP children who left the school permanently was not recorded.

with the distribution of IQs of children in the school at the end of 1961.² A higher percentage of children in the ineducable range is noted among those who have

TABLE VI. TO SPECIAL CLASSES

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
133	14	Athetosis	71	Special class in Bethlehem
156	12	Spastic quadriplegia	85	School for retarded, Natal
186	12	Ataxia	63	Open-air school
502	12	Left hemiplegia	75	Special class in Kruger Laerskool
724	13	Athetosis. Brain injured	65	Special class in Edenvale

TABLE VII. TO NORMAL SCHOOLS (BUT DOUBTFUL WHETHER THEY WILL COPE)

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
508	9	Spastic quadriplegia	45	Burghershoop
639	11	Athetoid	81	Edenvale Primary School (probably to special class because of behaviour problem)
775	13	Athetoid	83	Vanderbylpark School (will end up in special class)
345	10	Spastic and athetosis	93	Special class in Belfast

TABLE VIII. TO NORMAL SCHOOLS (COPING WELL)

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
194	13	Athetosis	92	Môreligskool, Boskop
262	10	Right hemiplegia and cerebellar lesion	?	Josua Naudeskool, Roodepoort
272	7	Right hemiplegia	100	Maryvale Convent
314	9	Spastic quadriplegia	104	Saxonwold Primary School
325	10	Spastic quadriplegia	103	Rosebank School
341	5	Athetosis	117	Krugersdorp
355	6	Triplegia	114	Roodepoort Convent (doing reasonably well)
393	6	Left hemiplegia	99	Môreligskool
403	6	Spastic paraplegia plus muscular dystrophy	134	Convent
421	10	Left hemiplegia	?	Coping well
449	10	Athetosis	102	Mayfair Convent (coping well)
476	4	Spastic paraplegia	111	Doing well
640	7	Spastic quadriplegia	105	Witpoortjieskool

been discharged. This reflects the school's efforts to admit children with doubtful educational ability in order to give a fair chance to every child. When adequate observation within the school reveals that a child has an IQ below 50 and that he cannot benefit from the facilities provided at the school, he is transferred to a more suitable environment.

Apart from these considerations, the distribution of IQs in the 2 groups are comparable. With this similarity in mind, I believe that the destinations of those children who have left the school during the period under review give some indication of the direction in which the majority of children who pass through Forest Town School will move.

DESTINATIONS OF THE CHILDREN

Normal Schools

The ambition of everyone connected with the treatment of children with cerebral palsy is to fit as many of them as possible into normal life. Wherever possible, a child is transferred to a normal school if he does not require regular therapy and is considered able to cope with the activities and educational programme there.

Twenty-two children were transferred to normal schools. Of these, 5 went to 'special classes' (i.e. to classes for educationally subnormal children - Table VI) and 4 were considered doubtfully able to cope, and will probably end up in special classes (Table VII). Thus only 13 of the 75 are thought to be capable of benefiting from normal schooling (Table VIII). It is hoped that these 13 children will ultimately take their place in normal society and earn their own livelihood.

This suggests that 17% of the cerebral palsied children at Forest Town School will lead a near normal existence. However, when one considers the large number of ineducable cerebral palsied children who are refused admission, it appears that this percentage will be much smaller for the cerebral palsy population at large.

It will be noticed from Table VIII that the ages at which children were transferred to normal schools were predominantly between 6 and 8 years. It would appear that a child's best hope of being transferred to a normal school lies in admission to a school such as Forest Town at an early age. It has been the experience at Forest

TABLE IX. TO INSTITUTES FOR GROSSLY RETARDED CHILDREN

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
35	18	Athetosis	?	—
126	10	Mentally deficient and spastic paraplegia	17	The Hamlet
139	13	Right hemiplegia	46	Rudolph Steiner School in Hermanus
197	7	Ataxia and mentally deficient	32	The Hamlet and UCPA *
258	8	Mentally deficient and tremor	Not testable	Woodside Sanctuary. Died later
226	10	Ataxia, mentally deficient	36	UCPA
410	5	Athetosis	31	UCPA and The Hamlet
454	8	Athetosis	Below 50	UCPA
499	9	Athetosis	17	UCPA
674	6	Spastic quadriplegia and mentally deficient	41	UCPA
708	4	Left hemiplegia	Not testable	—
713	3	Spastic quadriplegia. Internal hydrocephaly, mentally deficient	20	UCPA
800	5	Right hemiplegia	44	The Hamlet

* UCPA = United Cerebral Palsy Association clinic in Rosettenville.

Town School that children admitted after the age of 7 can rarely be fitted to cope with normal schooling.

In transferring cerebral palsied children to normal schools it has often been the practice to advise parents to seek schools where the number of children per class is reasonably limited. It is acknowledged that many of these children, while able to cope with normal schooling, cannot do so in a class containing many children.

Schools and Institutes for Children who are Grossly Retarded

Twenty children were transferred to schools or institutes for grossly retarded children. These included 'The Hamlet', the Rudolph Steiner School in Hermanus, the hostel of the United Cerebral Palsy Association in Rosettenville, the Sunfield Home for Retarded Children in Howick, and others. These 20 children were made up of 13 cerebral palsied and 7 non-cerebral palsied children (Table I).

The cerebral palsied children transferred in this group were all grossly retarded. They were all assessed as having an IQ of less than 50 (Table IX).

With the passage of time it has become increasingly apparent that facilities for the care of ineducable cerebral palsied children are still inadequate. It is often not possible to recommend a suitable destination for certain ineducable cerebral palsied children, since existing organizations have not yet reached the stage of providing adequate facilities for such children.

The Transvaal Association for the Care of Cerebral Palsy has undertaken in its constitution to care for all persons suffering from cerebral palsy. As has been stated elsewhere, the Forest Town School caters only for those children who are educable. At one time, the United Cerebral Palsy Association's hostel in Rosettenville was admitting grossly retarded children, giving them hostel facilities and providing them with occupation during the day as well as physiotherapy and other therapies. This position does not appear to obtain at present and it is hoped that one or other of the interested organizations will give its earnest attention in the near future to the matter of the permanent care of cerebral palsied children who are grossly mentally retarded. The provision of such facilities is necessary, both from humane and sociological aspects. The burden of having to care 24 hours a day for children such as these, is more than the average parent can endure. A number of children have been taken home by their parents after being advised that their child is ineducable (Table X). In some of these cases, it was not possible to suggest to the parents an alternative institution for the care of their child.

It may be asked why so many children were discharged to schools and institutions for the grossly retarded, when it is the declared policy of the school not to admit ineducable children. It is extremely difficult at an initial examination to be certain that a child is ineducable. It has happened on a number of occasions that a child with

TABLE X. TAKEN HOME BY PARENTS AND BEING KEPT THERE

File No.	Age at time of discharge (years)	Diagnosis	IQ	Remarks
71	2	Right hemiplegia	99	To family farm
149	10	Spastic quadriplegia	Not testable	At UCPA
427	19	Parkinson's syndrome	72	—
464	4	Ataxia	29	Initially went to normal nursery school
512	13	Right hemiplegia	75	Very lazy child who gets own way
538	14	Spastic quadriplegia	44	To parents' farm
585	9	Right spastic hemiplegia	52	To family farm
744	8	Left monoplegia and diabetes	51	—
486	7	Spastic quadriplegia	41	—
581	14	Athetosis	82	Language difficulties. Returned to Lourenco Marques
704	6	Athetosis	81	Parents divorced
870	3	Athetosis	60	Absconded. At home
182	4	Mentally deficient and athetosis	?	To vocational guidance, then home to Rhodesia
462	3	Spastic paraplegia	85	Taken overseas

TABLE XI. TO WORK

File No.	Age at time of discharge (years)	Diagnosis	IQ	Remarks
12	17	Athetosis	71	To work in father's cafe
217	16	Spastic paraplegia	74	To father's office. Father an optician
274	17	Paraplegia	94	To work in uncle's office. Now working in UCPA remuneratively

TABLE XII. TO SHELTERED WORKSHOPS

File No.	Age at time of discharge (years)	Diagnosis	IQ	Remarks
119	11	Cerebellar ataxia	40	Union of Jewish Women sheltered workshop
171	14	Ataxia and psychotic	92	First went to vocational high school and then to sheltered employment
362	14	Right spastic hemiplegia	54	Municipal sheltered workshop

TABLE XIII. TO ST. VINCENT'S SCHOOL FOR THE DEAF

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
190	11	Ataxia. Deaf	Not testable	Transferred to St. Vincent's School, but may be excluded from there as ineducable
296	7	Spastic paraplegia	116	—
554	3	Left hemiplegia with hearing defect	76	—

doubtful intelligence has been admitted for fuller assessment of his mental and physical abilities. Likewise it is often difficult to assess in a baby or toddler whether retarded physical development is due to mental retardation or to some physical defect. The assessment period may last anything from a few days to a number of years! This also explains why so many non-cerebral palsied, mentally retarded children have been admitted to the school. At least it can never be said that a child has been refused admission without having been given a fair trial.

I would like to refer here to the usefulness of an organization such as the Forest Town School as a diagnostic instrument. An accurate diagnosis can often only be made after pooling the combined experiences of the psychologist, teachers, therapists and doctors, all of whom have had the opportunity of prolonged observation of the particular child.

To Employment

Three children left the school to go to work. Two went into family businesses (where special provision had been made for them by their parents) and one to a comparatively sheltered occupation (Table XI).

Three children were sent to sheltered workshops (Table XII).

School for the Hard of Hearing and the Deaf

Three children were transferred to St. Vincent's School for the Deaf (Table XIII). These children were rendered ambulant by physiotherapy before being transferred. There is a close cooperation between Forest Town School and St. Vincent's School. In a cerebral palsied child with a hearing defect, it is wise to render the child ambulant as early as possible and then to transfer it to a school for the hard of hearing so that this aspect of the child's disabilities may be given special consideration. Two of

the children transferred to St. Vincent's School are making good progress there, and the third has been excluded as ineducable.

Readmissions

In a number of cases children were discharged from the school only to be readmitted 2 or 3 years later. It will be noted in cases 601 and 532 that the children were discharged at the age of 3 to a normal nursery school only to be readmitted 2 or 3 years later. It is now the conviction of the educational staff and of the doctors that it is unwise to transfer any child with cerebral palsy before he has learnt to read and write.

The policy of the school now is not to transfer any child with cerebral palsy until he has reached the Standard I level.

Miscellaneous

In 2 cases the severity of the epilepsy which accompanied the cerebral palsy was such that it became necessary to transfer the children to schools for the epileptic (Table XIV).

TABLE XIV. TO EPILEPTIC SCHOOL

File No.	Age at time of transfer (years)	Diagnosis	IQ
487	4	Epilepsy and severe hypotonia	.. 48
579	15	Friedreich's ataxia and epilepsy*	.. 75

* Not cerebral palsy by definition, since cerebral palsy is defined as a non-progressive disease. The diagnosis was only established a long while after admission of the child to the school.

Four children were considered too ill to treat (Table XV).

Two children diagnosed as psychotic were transferred to Tara Hospital for Neurological Disorders (Table XVI).

TABLE XV. TOO ILL TO TREAT

File No.	Age at time of discharge (years)	Diagnosis	IQ	Remarks
394	5	Spastic quadriplegia and mentally deficient	Very low	Died. Post-tonsillectomy
561	12	Ataxia	53	Seriously ill. Referred home
663	6	Athetosis	78	Cancer of the liver. Died
742	10	Athetosis. ? Cerebral tumour. ? Progressive demyelinating disease	66	Referred home to Zeerust

TABLE XVI. TO TARA

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
115	13	Spastic quadriplegia and infantile psychosis	96	First went to Melville School, then to Tara, then to Loopspruit School for mental deviates
300	13	Left spastic hemiplegia	60	Later died in car crash

TABLE XVII. TO VOCATIONAL HIGH SCHOOL

File No.	Age at time of transfer (years)	Diagnosis	IQ	Remarks
34	13	Left hemiplegia	79	Elizabeth Conradie, Kimberley
117	13	Spastic paraplegia	81	To Marist Bros. School, then to vocational high school, then to Marist Bros.
206	14	Spastic quadriplegia	82	Elizabeth Conradie, since left
267	13	Athetosis	75	Elizabeth Conradie, Kimberley
347	14	Spastic quadriplegia	78	Elizabeth Conradie, Kimberley
792	13	Athetoid	85	—

Six children were transferred to vocational high schools for handicapped children, including the Elizabeth Conradie School in Kimberley and the Hope Home School (Table XVII).

Two children were sent to a vocational secondary school for mentally retarded children (Table XVIII).

TABLE XVIII. TO EDITH HINDS' SECONDARY SCHOOL FOR RETARDED CHILDREN

File No.	Age at time of transfer (years)	Diagnosis	IQ
214	15	Left hemiplegia	60
297	13	Right hemiplegia	62

One child was transferred to a Technical Training College (Table XIX).

TABLE XIX. TO TECHNICAL TRAINING COLLEGE

File No.	Age at time of transfer (years)	Diagnosis	IQ
577	18	Right hemiplegia with hemiathetosis	Portuguese child not testable owing to language difficulty, but apparently intelligent

Died

Among the children who left the school, 4 have died. Three of these died of natural causes, probably related to the cerebral palsy; and one died in a car accident (Table XX).

TABLE XX. DIED

File No.	Age at death (years)	Diagnosis	Cause of death
300	13	Left hemiplegia	Car accident
258	10	Tremor and mentally deficient	Pneumonia
394	7	Spastic quadriplegia	Died one day after tonsillectomy
663	6	Athetoid	Cancer of the liver

SUMMARY

The destination of 101 children who left Forest Town School during the years 1956-1961 is analysed and tabulated.

It is stressed that only a small number of children suffering from cerebral palsy are able to benefit from normal schools.

A plea is made for the provision of more adequate facilities for children who are both mentally and physically handicapped.

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