



Treatment of Children with Cerebral Palsy

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Summary

Cerebral palsy (CP) is the most frequent motor handicap in childhood. In addition to movement disabilities, persons with CP may also have sensory and perception disorders, epilepsy, behaviour and emotional problems, and can be mentally retarded. There are many definitions but most widely used is that one which stressed the timing of lesion in the early stages of brain development. CP is life-long, but improves with adequate intervention. Physiotherapy is still the most basic and adequate approach of treatment. It should start early enough, it is before child's abnormal movement patterns are dominant and habitual.

Key words: Cerebral palsy, Definition, Treatment, History

There are an estimated 15 million people with cerebral palsy around the world and more than half of them are mentally retarded and one third of them have epilepsy.

Traditional definition of 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 its development...' (1).

As can be seen from the typical definition above, an unusual feature of the term cerebral palsy is that it refers only to clinical descriptions for which there is no definitive test.

Both the epidemiology of the cerebral palsies and our perceptions of it, are changing. The lay public still regards these conditions largely as the result of brain damage occurring during labour and delivery, but the scientific evidence is that this is now responsible for a small proportion of cases only (2). Recent research is increasingly revealing the variety and complexity of the different causes of the cerebral palsies (3).

Increases in the prevalence of cerebral palsy in recent years in some countries have been seen as a result of the increased survival rate of low birth weight premature infants with several common types of neuropathological lesions. Because 85% of infants with a birth weight of 700-1500g now survive the neonatal period, the magnitude of the problem is enormous. Roughly 5-10% of these infants will exhibit later motor deficits, usually spastic diplegia, hemiplegia, or quadriplegia. An ataxic and dystonic forms of cerebral palsy (CP) occur less commonly. In addition, 25-50% of these "at risk" infants will display more subtle evidence of fine motor and cognitive disabilities resulting in school failure or requiring costly extra services. While the incidence of perinatal brain injury in the term infant is lower than in the preterm infant, the cognitive and sensorimotor disabilities in survivors can be severe.

With modern technologies we are able to identify brain lesions but we do not know much about the abilities and potentials of the developing brain to compensate and adapt to the damage.



Prevention of cerebral palsy depends on knowledge of the causes, but action need not be delayed until understanding is complete. Much could be achieved now by using such knowledge as we have.

It seems unlikely that there will be ever a drug that will undo the results of damage or death of masses of nerve cells and therefore the treatment of neurological disorders will be mainly in the hands of physiotherapists, occupational therapists and speech therapists.

The aim of treatment for children with disabilities due to brain damage is to lead them towards the greatest possible independence and to prepare them for as normal an adolescent and adult life as can be achieved.

During and after World War II, positive experiences with training the war injured also influenced the treatment of other physical handicaps including cerebral palsy. New ways were searched for in order to train the affected limbs, to decrease spasticity and athetoid movements.

Physiotherapy in cerebral palsy has developed significantly during the last 50 years. Each new step brought valuable experiences, though sometimes not what had been hoped for. From a local approach with passive movements and strengthening the weak muscles, authors progressed more and more to consider the whole child; they used different ways and techniques.

The pioneers of therapy were: Phelps introduced the training of reciprocal movements, of voluntary skills and equilibrium reactions (4). Pohl's exercises followed normal developmental sequences (5). Carlson recognised the importance of motivation for a task (6, 7), and Deaver insisted upon training for daily living and preparing for a vocation (8). Collis realised the advantage of early therapy, i.e. to start treatment before the abnormal movement patterns are fully established (9, 10, 11). Fay has introduced phylogenetic movements. They may serve as a basis for training of higher developmental sequences (12). Hereby, Vojta's techniques with resistance contributed to a better stability of the trunk, which is a precondition to improve spontaneous activities (13, 14). The Bobaths were the first to find a way to control the abnormal patterns first with reflex inhibiting postures (15) and later to facilitate normal movements from key-points of control, i.e. to transmit normal active sensorimotor experiences to the child, already to the young baby. It is a dynamic treatment that can be integrated in every activity (16, 17, 18, 19, 20). Pető initiated a method, which combines education and treatment (21, 22).

Nowadays we have a better chance of controlling abnormal movements and facilitating and training more normal movements. Also treatment can be integrated into daily life (23). With early therapy (provided the babies are referred by the age of three to five months), we have the chance to train normal movements, before abnormal movements are established, but still depending on the brain lesion.

Conclusion

Cerebral palsy is life-long, but improves with adequate intervention.



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