Cerebral Palsy in Children: Evaluation of Clinical Outcomes

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ABSTRACT

During the period of January 2015 and January 2018 we have screened over 11,280 neonates born in both the hospitals in Catania, in this study we do not entered premature children (less than 35 week of gestation). We found the incidence of CP in 48 children (4%), 19 males and 29 females. Of them, several 14 (29%) children have a severe form of CP, 16 (33%) a mild-moderate and 18 (38%) light. In all children the ultrasonography shows various degree of PVL and IVH according to the criteria of Papile et al 1978. EEG findings, clinical presentation of seizures, brain MRI and rehabilitations programs were studied.

Keywords: Cerebral Palsy; Childhood; ultrasonography; Brain RMN

Short Communication

Cerebral palsy (CP) is a disorder of movement, muscle tone or posture that is caused by an insult to the immature, developing brain, during the pregnancy most often before birth. The actual definition of CP, established in 2007 defines CP as “a group of permanent disorders of the development of movement and posture, causing activity limitation, that are attributed to non-progressive disturbances that occurred in the developing fetal or infant brain” [1]. Despite over the past 15 years knowledge about diagnosis, treatment and prevention of this disorder have considerably improved, it still remains one of the most common diseases in industrialized countries and the most common cause of neuromotor disability in childhood, [2] affecting about 1 in 500 neonates with an estimated prevalence of 17 million people worldwide [3]. The incidence remains constant around 2 children for thousand per years [4]. One of the hallmarks of cerebral palsy is its variability. In determining health and social outcomes in children affected from cerebral palsy (CP) several possible factors are involved, including the underlying cause, the severity of the clinical scenario of CP, medical interventions, and the environment surrounding the child. Several formal methods of classifying persons with CP, such as the Gross Motor Function Classification System, have been developed to standardize that variability [5].

Characteristic signs and symptoms are usually better recognizable during infancy or preschool years (around 3-5 years), despite may be present already in early infancy. In general, cerebral palsy can cause an impairment in motor functions with altered movement associated with exaggerated reflexes, floppiness or rigidity of the limbs and trunk, abnormal posture, involuntary movements, unsteadiness of walking, or some combination of these. Precocious signs can be represented by neurobehavioral alterations (lethargy, irritability, difficult to handle and poor visual attention), or alteration in developmental reflexes (exaggeration, delay in disappearance) [6]. People with cerebral palsy may have difficulty with swallowing and commonly have eye muscle imbalance. People with cerebral palsy may have reduced range of motion at various joints of their bodies due to muscle stiffness.

The predominant CP phenotypes [7] are included in three syndromes: Spastic CP, with upper neuron signs as spasticity, extensor plantar response, or hyperreflexia, to which belong
A study conducted in 2014 by A. Ferrari and other [10] has defined 6 signs suggestive of perceptual disturbances in children with cerebral palsy. These signs include startle response, startle upper limbs in position, frequent eye blinking, the freezing posture, the look of the averted eyes, grimace. The semiotics of perceptual disturbances may be used as a specific and sensitive tool to identify a new class of patients within heterogeneous clinical types of bilateral cerebral palsy and could help doctors identify the prognosis of motor disorders presented by these children. Infant cerebral palsy covers the broadest spectrum of disorders of posture and movement of childhood. The wide range of problems associated with ICP poses difficulties in patient assessment and in achieving the objectives of rehabilitation. Another study conducted in 2015 by İşçioğlu [11] confirmed as a prolonged rehabilitation treatment (24 months) significantly better treatment outcome of mild and moderate forms of the PC as shown in the increase of the score WeeFIM post-treatment compared to baseline. In this review we have evaluated the incidence of this disease in two tertiary hospital of Catania, Italy. (Hospital Santo Bambino and Policlinic University Hospital Catania).

Materials and Methods

a. During the period of January 2015 and January 2018 we have screened over 11,280 neonates born in both the hospitals in Catania, in this study we do not entered premature children (less than 35 week of gestation).

b. We found the incidence of CP in 48 children (4%), 19 males and 29 females. All children underwear to brain ultrasonography, EEG, a combination of neurological (Hammersmith Neonatal Neurologic examination), neuromotor (GENERAL MOVEMENTS, test of infant motor PERFORMANCE, BAYLEY SCALES), neurobehavioral (Nicu network neurobehavial scale-Premie-Neuro), Brain MRI, followed up every 3 months for 24 months.

c. Several 14 (29%) children have a severe form of CP, 16 (33%) a mild-moderate and 18 (38%) light. In all children the ultrasonography shows various degree of PVL and IVH according to the criteria of Papile et al. [12].

d. EEG findings demonstrate in 20 cases slowing in the centrocortical left derivation and in 5 cases the presence of spike and polyspike in the right parieto-frontal region with tendency at the diffusion. Seizures have been documented in 8 cases, of which in 6 cases there were tonic-clinic seizures, and partial in 2 cases. In 6 of these 8, seizures surveys were associated to a severe form of CP.

e. Brain MRI shows enlargement of the lateral ventricular in 34/48 of the cases with mild asymmetric in all the patient.

f. All These children underwent to a prolonged rehabilitation treatment (24 months) that significantly improved the outcome of light and mild-moderate forms of the CP.
Conclusion

In conclusion the outcome of children with CP is difficult to predict because it is related to etiological cause of the CP and to intrinsically factor of the children. For the future it is hoped to be able to conduct more homogeneous (for example rehabilitations treatment there are not homogenous) studies to be able to adapt the observed results, uniformly to all children with CP.

References


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