SOFMER 2015

Paediatric PRM

Oral communications

CO46-002-e
Interest of neuromotor assessment in early screening of children at high risk for cerebral palsy within a specialized network

S. Ghroubi (Prof)*a, W. Elleuch (Dr)*a, S. Mahersi (Dr)b, F. Kammoun (Prof)b, N. Hmida (Prof)c, C. Triki (Prof)b, M.H. Elleuch (Prof)*a

*a Service de Médecine Physique et de Réadaptation, CHU Habib Bourguiba, Unité de recherche de l’évaluation des pathologies de l’appareil locomoteur UR12ES18, université de Sfax, Sfax, Tunisia
*b Service de néuropédiatrie, CHU Hedi Chaker, Sfax, Tunisia
*c Service de néonatologie, CHU Hedi Chaker, Sfax, Tunisia

*Corresponding author.

E-mail address: sghroubi@yahoo.fr (S. Ghroubi)

Objective To identify clinical and laboratory signs of early screening of cerebral palsy in order to propose an early management of children.

Methods Prospective study including 100 newborns with risk factors for CP (relying on gestational age, birth weight, perinatal and neonatal brain injuries). The screening was conducted during a medical consultation by a specialist and was based on clinical setting (neurological examination and neuromotor assessment) and radiological examination (cranial ultrasound, magnetic resonance imaging). The clinical assessment was performed at the 1st, 4th, 9th, 12th, 18th, 24th months and at 5 years after selection of patients.

Results The different clinical factors were weak predictors of becoming during the first month of life. At 4 months, the factors correlated with the evolution to cerebral palsy were: the decrease of lower limbs’ spontaneous movements and the lower limb fixed in extension at suspension maneuvers (P < 0.001), Babinski sign (P < 0.001), as well as absence of an ulnar-palmar grip (P < 0.01). At 9 months, we found more predictive signs of the evolution to CP, particularly the head holding problems (P < 0.001), the absence of acquisition of sitting position (P < 0.001), the absence of precision grip (P < 0.001), the deficit of uprising the lower limbs, of hip abduction, of extension of the knee in the lateral inclinations and drawn-seated (P < 0.001), hyperreflexia (P = 0.004) and the Babinski sign (P < 0.001). At 12, 15 and 18 months, neurological examination showed a peripheral hypertonia in 62% of children. At 24 months, peripheral hypertonia is found only in 43% of cases. 38% of children had an adequate level of psychomotor development and a normal neurological examination hence the diagnosis of transient motor abnormalities (TMA) was retained. For imaging, normal cranial ultrasound was significantly more associated with TMA than CP (P < 0.001).

Discussion Neurological examination focusing on reflexes and muscle tone is poorly predictive in the first months of life. Neuromotor assessment with the study of spontaneous movements may reflect functional limitations in the first months of life and have been shown to predict later CP. However, the distinction between CP and TMA remains difficult and requires a long follow-up.

Keywords Cerebral palsy; Neuromotor assessment; Early screening; Spontaneous movement

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

Further reading

http://dx.doi.org/10.1016/j.rehab.2015.07.321

CO46-003-e
Interest of early management of children with cerebral palsy within a specialized network

S. Ghroubi (Prof)*a, W. Elleuch (Dr)*a, S. Alila (Dr)*a, F. Kammoun (Prof)b, N. Hmida (Prof)c, C. Triki (Prof)b, M.H. Elleuch (Prof)*a

*a Service de Médecine Physique et de Réadaptation, CHU Habib Bourguiba, Unité de recherche de l’évaluation des pathologies de l’appareil locomoteur UR12ES18, université de Sfax, Sfax, Tunisia
*b Service de néuropédiatrie, CHU Hedi Chaker, Sfax, Tunisia
*c Service de néonatologie, CHU Hedi Chaker, Sfax, Tunisia

*Corresponding author.

E-mail address: sghroubi@yahoo.fr (S. Ghroubi)

Objective To show the superiority of early specialized management of children with cerebral palsy (CP) in specific structures.

Materials and methods This was a prospective study including 100 newborns with risk of PC recognized on clinical and radiological criteria and followed since the age of 4 months. They were divided into 2 groups according to the type of management and the place of habitat: G1 included children who received a specialized management since an early age in specialized centers and G2 included children with an external and irregular management. All these children have been regularly assessed, especially at 2 years old.

Results The diagnosis of PC was retained in 62 children who were divided into 30 children in G1 and 32 children in the G2. These two groups were comparable according to the different risk factors: the gestational age, follow-up and complications of pregnancy, circumstances of birth, postnatal complications and clinical assessment at output of service. Evaluation at 2 years old showed that the number of walking children in G1 was more important...
with a younger age of walk acquisition. These differences were not significant. The language development was better in G1 (P = 0.01). The absence of language was 13.4% in G1 versus 28.1% in G2. The number of children with difficulties in cognitive development was higher in G2 (P = 0.02). Behavior problems were more frequent in G2 with a significant difference for hyperactivity (P = 0.014).

Discussion The management of children with risk of neurosensory impairments remains today an ethical and public health priority. Early interventions take a special place. According to the European Academy for Childhood Disability, although its effectiveness is not scientifically proven and the appropriate assessment methods are lacking, it is now accepted as a right [1]. The results of this study confirm clearly the interest of early treatment in a specialized structure.

Keywords Cerebral palsy; Children; Management; Specialized network; Development

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

References

http://dx.doi.org/10.1016/j.rehab.2015.07.322

CO46-006-e

Fate at 2 years of children with risk of developmental disorders followed by the network Grandir en Languedoc Roussillon: Effect of isolated or associated motor development disorders

L. Raffier a,*, R.P. Dupuy (Dr)b, I. Soukssi-Medioni (Dr)c, H. Daudé (Dr)d
a Réseau Grandir en Languedoc Roussillon, Montpellier, France
b Réseau Grandir en Languedoc-Roussillon
CHU Caremeau
c CAMSP, CHU Montpellier
Corresponding author.
E-mail address: laurent.raffier@nglr.fr (L. Raffier)

Introduction Since 2010, the “Grandir en Languedoc Roussillon” network proposes a monitoring until 7/8 years for children with a risk of handicap, and includes in average 700 newborns per year. Three risk levels are defined: very high, high and moderate risk, depending on perinatal pathology. The children are examined by a referent practitioner who passes developmental surveillance data on to the network.

Method We examined the data from 546 24 months aged children (corrected) in five developmental domains.

Results Abnormalities of global motor function were found in 11.6% of children, of fine motor control in 5.3% of them. 15% had sensorial disorders (visual and/or auditory), 20% had delayed speech, and at last, 20% of children had behavioral difficulties concerning relationship, separation, feeding, and sleep.

Discussion According to scientific literature number of cerebral palsy reaches 2/1000 living births [1]. Risk is more important for preterm infants, inversely proportional to gestational age. In our cohort, “very preterm” or “extremely preterm infants” are over-represented: 3.8% cannot walk at 24 months (corrected) or can walk despite cerebral palsy. In infant with handicap risk, motor disorders are often associated with other developmental difficulties, sometimes minor but not devoid of consequences on fate [2]. The screening and the management of those associated disorders permit to reduce the additional disabilities and learning troubles. This is one goal of the vulnerable children follow-up network.

Keywords Screening; Cerebral palsy; Preterm infant; Development disorder

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

References

http://dx.doi.org/10.1016/j.rehab.2015.07.323

CO51-001-e

Relations between cognition and motricity in children with neonatal arterial ischemic stroke

G. Thébault a,*, D. Brouillet (Prof)b, J. Fluss (Dr)c, V. Gautheron (Prof)d, S. Martin (Dr)d, J. Fluss (Dr)c, V. Gautheron (Prof)d, S. Chabrier (Dr)d
a Groupe de Recherche sur la thrombose, EA 3065, Université Jean Monnet, Laboratoire Epsylon, EA 4556, Université Montpellier III, Saint-Étienne, France
b Laboratoire Epsylon, EA 4556, Université Montpellier III
c Hôpital des Enfants de Genève
d Laboratoire de Physiologie de l’Exercice, EA 4338, Université Jean Monnet, Saint-Étienne
e Centre national de référence de l’AVC de l’enfant et Groupe de recherche sur la thrombose, EA3065, Université Jean Monnet, Saint-Étienne
Corresponding author.
E-mail address: guithebault@yahoo.fr (G. Thébault)

Introduction and goal Perinatal arterial ischemic stroke (PAIS) affects one child for 4000 births. The few studies about cognitive development specific to PAIS showed that cognitive performances in this population do not follow up a normal development (Westmacott et al., 2010; Ricci et al., 2008). Based on new data about relation between motricity and cognition (Smits-Engelsman et Hill, 2012), and on the theory of the embodied cognition, led us to hypothesize that cognitive performances would be correlated to the motor performances in children with PAIS.

Patients and methodology We tested 77 7 years old children meeting the criteria of neonatal AIS, with a diagnosis before the 28th day of life relying on cerebral imagery. After excluding children with seizure and bi-hemispheric lesion, 56 children participated to our study. The cognitive evaluation was performed with the Wechsler Intelligence Scale for Children (WISC-4), the motor evaluation relied on testing of gross motor of the upper arm (Box and Block Test) and fine prehension test (“Nine Hole Peg Test”). The localisation of the lesion, the economic level of parents, the gender, sensory impairments and the presence of hemiplegia were collected. We analyzed these results with simple linear regression.

Results The main result of our study is the significative correlation (P < 0.03) between scores of the WISC4 (except for working memory index) and motor results. In contrast we did not find any correlation between the scores of the WISC4 and the presence of hemiplegia or with lesion localization.

Discussion Many brain networks develop during the first year through sensorimotor experiences, which contribute to the emergence of knowledge. This concept of development, supported by the approach embodied cognition, can explain the correlations between cognition and motor found in our work and in several studies with children with other early neurological damage.

Keywords Perinatal accident ischemic arterial stroke; Development; Cognition; Motor; Embodied cognition

Disclosure of interest The authors have not supplied their declaration of conflict of interest.

http://dx.doi.org/10.1016/j.rehab.2015.07.324