

CO51-002-e

Functional independence in 3.5 years old children with neonatal arterial ischemic stroke



M. Ravel^{a,*}, C. Degano^b, V. Gautheron (Prof)^c,
S. Chabrier (Dr)^d, C. Renaud^d

^a Université Bordeaux Segalen, Bordeaux, France

^b Université Claude Bernard Lyon 1

^c LPE, EA4338, Université Jean Monnet, Saint-Étienne

^d 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: magalyravel@gmail.com (M. Ravel)

Introduction Perinatal ischemic stroke is one of the most common type of stroke in children and the most important cause of unilateral Cerebral Palsy. The object of the study was to find the factors related to lesser functional independence at 3.5 years old, in a population of children with neonatal arterial ischemic stroke.

Patients and methods It was a French multicentric cohort study (AVCnn cohort), in a population of term born children with neonatal arterial ischemic stroke. 100 newborns were included between November 2003 and October 2006, in 39 French hospital centers. At 3.5 years old, their functional independence was assessed by the Wee-FIM scale. The Wee-FIM stars were compared to healthy children of same age in general population and with the following factors: cerebral palsy, epilepsy, stroke side and mother studies level.

Results 80 children fulfilled the Wee-FIM scale at 3.5 years old. The motor condition at 7 years old was known in 69 children (42 boys and 27 girls): 23 had cerebral palsy and 7 were epileptic. The AVC was in the right hemisphere in 26% of cases and in the left hemisphere in 74% of cases. 70% of the mothers were graduated more than Bachelor Degree. Functional independence was weaker in the AVCnn cohort than in healthy children of same age in general population, except for alimentation. The most affected fields were bladder control, bath and shower transfers, expression and comprehension. Epilepsy seems to be the most pejorative factor on independence, and even more if associated to cerebral palsy. The most impacted fields were then: dressing, toilet use, sphincters control, and transfers. Stroke side and mother studies level were not associated to significant variation of functional independence.

Conclusion There is a delay in all functional independence fields in children with neonatal arterial ischemic stroke. Functional independence, assessed by the Wee-FIM scale, seems to be most of all impacted by the presence of epilepsy.

Keywords Neonatal arterial ischemic stroke; Wee-FIM; Functional independence

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

<http://dx.doi.org/10.1016/j.rehab.2015.07.325>

CO51-003-e

Preventing Shaken Baby Syndrome (SBS) by teaching professionals more adequately



A. Laurent-Vannier (Dr)

Hôpitaux de Saint-Maurice, Saint-Maurice, France

E-mail address: a.laurentvannier@gmail.com

Objective Evaluate the professionals' knowledge over SBS in order to adapt their training.

Method A quiz was set up to know professionals' knowledge over: intensity of the movement; frequency of the recurrence; shaking a baby vs. willing only to shake it; existence of sequels, their intensity and evolution over time; knowledge that SBS is a

penal offense giving way to financial compensations; knowledge of guidelines to professionals issued by the national authority of health.

Results 393 physicians/judges and professionals of childcare went through this test. Whatever the speciality, most of the professionals were not able to answer correctly. Typically, they thought that the mechanism was not necessarily violent/that lesions can be induced by game/that most often shaking is not repeated/that it does not trigger sequels/that sequels vanish with time/as well, they ignored that shaking is a penal offense giving way to financial compensation as well as the existence of official guidelines on SBS.

Discussion Lack of knowledge in this field is detrimental to children. For instance, detecting the first signs of violence is crucial to prevent reiteration. Taking care adequately of the brain-injured children is crucial to prevent sequels. Better training for everyone is the key.

Keywords Shaken baby syndrome; Non-accidental head injury; Prevention; Violence

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

<http://dx.doi.org/10.1016/j.rehab.2015.07.326>

CO51-004-e

Ecological Assessment of Everyday Executive Functioning at Home and at School using the BRIEF Questionnaire following Childhood Traumatic Brain Injury (TBI)



M. Chevignard (Dr)^{a,*}, B. Kerrouche^b,
A. Krasny-Pacini (Dr)^c, A. Mariller^a,
E. Pineau-Chardon^a, P. Notteghem^a,
J. Prodhomme^d, D. Le Gall (Prof)^e, J.L. Roulin (Dr)^f,
N. Fournet (Dr)^f, A. Roy (Dr)^e

^a Service de Rééducation des Pathologies Neurologiques Acquises de l'Enfant, Hôpitaux de Saint-Maurice, Saint-Maurice, France

^b Centre de Suivi et d'Insertion pour Enfants et Adolescents avec Lésion Cérébrale Acquise, Hôpitaux de Saint-Maurice

^c Institut Universitaire de Réadaptation Clemenceau, Strasbourg

^d Service de Neurochirurgie, Hôpital Necker Enfants Malades, Paris

^e Laboratoire de Psychologie, LUNAM, Université d'Angers

^f Laboratoire de Neurocognition et de Psychologie, Université Savoie Mont-Blanc, Chambéry

*Corresponding author.

E-mail address: m.chevignard@hopitaux-taurice.fr (M. Chevignard)

Introduction Cognitive and behavioural aspects of executive functioning (EF) are frequently impaired following childhood TBI. The Behavior Rating Inventory of Executive Function (BRIEF) questionnaire provides an ecological assessment of EFs in everyday life in home and school environments. The aims of this study were to describe the dysexecutive disorders in children with TBI using the BRIEF; to compare parent- and teacher-ratings and to analyse the demographic and medical variables influencing outcome.

Methods Participants: Children/adolescents aged 5–17 years 11 months, referred to a paediatric rehabilitation department following TBI. Outcome measures: the parent- and the teacher-report of the BRIEF were collected during neuropsychological assessment (2009–2014), as well as the teacher-report (from 2014). Age at injury and assessment, parental education and TBI severity were collected.

Results 194 patients (142 boys) participated in the study [mild ($n = 13$), moderate ($n = 12$) or severe ($n = 169$: mean duration of coma 7.2 days; SD = 6.5)]. 193 parent-reports and 28 complete teacher reports of the BRIEF were available. Mean age at injury/assessment were 6.9 (SD = 4.4), and 11.8 (SD = 3.5) years respectively. According to parent-ratings, children had significantly elevated scores in all BRIEF indices [Global Executive Composite

(GEC), Behaviour Regulation Index (BRI), Metacognition Index (MI)], and subscales (mean T-scores 61–64; all $P < .0001$), with 24% to 48.0% scoring in the clinical range. Teachers' ratings indicated similar deficits in all sub-scales (mean T-scores 63–70; all $P < .001$), with 39.3–57.2% scoring in the clinical range. For patients with teacher and parent-reports ($n = 27$), no significant difference was found between parent and teacher ratings, which were significantly correlated ($r: .44-.72$). Regression analyses indicated that GEC was significantly predicted by older age at assessment. The regression model for BRI was not significant. For MI, younger age at injury and older age at assessment were significant predictors.

Discussion and conclusion This study highlights elevated levels of executive dysfunction in everyday life following childhood TBI, evident in home and school environments. Younger age at injury seems to influence the cognitive rather than the behavioural aspects of EFs, whereas older age at assessment is related to higher levels of complaints, probably due to the increasing levels of expectations.

Keywords Traumatic brain injury; Child; Adolescent; Executive functions; Ecological assessment; Everyday life; Home; School

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

<http://dx.doi.org/10.1016/j.rehab.2015.07.327>

C051-005-e

Validation of the French translation of the Glasgow Outcome Scale–Extended, Pediatric version (GOS-E Peds): Clinical utility in assessing outcome in children and adolescents following acquired brain injury (ABI)



M. Chevignard (Dr)^{a,*}, B. Kerrouche^b, K. Lind (Dr)^c, D. Dreyfus^d, H. Toure (Dr)^a, D. Brugel (Dr)^a, S. Beers (Prof)^e

^a Service de Rééducation des Pathologies Neurologiques Acquisées de l'Enfant, Hôpitaux de Saint-Maurice, Saint-Maurice, France

^b Centre de Suivi et d'Insertion pour Enfants et Adolescents avec Lésion Cérébrale Acquisée; Hôpitaux de Saint-Maurice

^c Service de Pédiatrie Générale, Hôpital Necker Enfants Malades, France

^d Éducation Nationale, Toulouse

^e University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania, USA

*Corresponding author.

E-mail address: m.chevignard@hopitaux-taurice.fr (M. Chevignard)

Introduction The GOS-E Pediatric version allows measuring overall outcome in children and adolescents following ABI. Scores range from 1: upper good recovery, to 7: vegetative state.

Objectives To validate the French translation of the GOS-E Peds in children with (ABI) of various severity and stages post-injury.

Methods The GOS-E Peds was used in a PMR department devoted to children with ABI, in three groups of patients: (1) patients shortly hospitalised post-ABI: GOS-E Peds was rated upon admission, at 3 and 6 months post-injury; (2) patients several years post-injury, requiring services of a multi-disciplinary outreach team; (3) patients followed-up on simple medical clinics. The type and severity of ABI were collected.

Results 398 patients were included [2/3 boys; mean age at injury 6 years (SD = 4)]. In group 1 ($n = 124$), mean (SD) GOS-E Peds scores were 5.9(.77) upon admission, 5.12(1.2) at 3 months ($n = 99$) and 4.88(1.45) at 6 months ($n = 83$); scores were significantly worse in case of hemiplegia (66%). GOS-E Peds improved over time (0–3 months $P < 0.0001$; 3–6 months, $P = 0.001$). Although age at injury was not correlated with initial rating of GOS-E Peds ($r = -.18$), younger age at injury was correlated to worse GOS-E Peds scores at

3 and 6 months ($r = -.3$ and $-.44$; $P < 0.001$). In group 2, 101 patients were cross-sectionally assessed by the outreach team in April 2014 [mean age 14.8 (SD = 4) years]. Mean GOS-E Peds was 3.95 (SD = 1.4). Factors influencing GOS-E Peds were presence of cerebellar signs, younger age at injury ($r = -.29$; $P = 0.003$) and lower intellectual ability ($r = -.27$; $P = 0.008$). In group 3, 173 patients consecutively seen in clinics were assessed [mean age 10.4 years (SD = 4.5)]. Mean GOS-E Peds score was 3.3 (SD = 1.5). Presence of hemiplegia and cerebellar signs were significantly related to GOS-E Peds scores. Duration of coma, presence of diffuse brain injury and epilepsy negatively influenced GOS-E Peds scores in the three groups.

Conclusions The GOS-E Peds has good sensitivity to change, and higher levels when children need a multi-disciplinary outreach team in the long-term, than when they require simple clinic follow-up. Young age at injury, diffuse brain injury, epilepsy, motor impairments, and intellectual ability all significantly influence overall outcome.

Keywords Traumatic brain injury; Acquired brain injury; Child; Adolescent; Overall outcome; Independence level; Predictor; Outcome

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

<http://dx.doi.org/10.1016/j.rehab.2015.07.328>

C051-006-e

Childhood acquired brain injury and subsequent delinquent behavior: A retrospective study of demographic, injury-related, neurological and cognitive characteristics in a sample of 40 patients



C. Lefèvre-Dognin (Dr)^{a,*}, H. Toure (Dr)^b, D. Brugel (Dr)^b, A. Laurent-Vannier (Dr)^a, V. Verdier^b, M. Chevignard (Dr)^a

^a Service de Rééducation des Pathologies Neurologiques de l'Enfant, Hôpitaux de Saint-Maurice, 14, rue du Val d'Osne, 94410 Saint-Maurice, Paris, France

^b Centre de Suivi et d'Insertion pour Enfants et Adolescents victimes de Lésions Cérébrales Acquisées, Hôpitaux de Saint-Maurice, 14, rue du Val d'Osne, 94410 Saint-Maurice

*Corresponding author.

E-mail address: clemence75@hotmail.com (C. Lefèvre-ognin)

Introduction Childhood acquired brain injury (ABI) is responsible for severe cognitive and behavioural disorders, sometimes leading to violent and/or offending behaviours. The aim of this study was to review the cases of patients treated in a rehabilitation unit dedicated to children with ABI, who subsequently demonstrated behaviors leading to an intervention of the police and/or the justice, and identify any common characteristics.

Methods Retrospective inventory of patients with ABI treated in a single rehabilitation department, who subsequently had contact with the police/justice following offenses. We collected demographic factors, type and severity of ABI, initial neurological examination, first and last neuropsychological assessment, type of schooling pre- and post-injury, and data from their offenses.

Results Searches retrieved 40 patients (36 boys): 34 traumatic brain injury (TBI; 27 severe), 4 brain tumours, 1 frontal hemorrhagic stroke and 1 anoxia; mean age at injury was 9.7 years [SD = 4; (2.1–15.7)]. In 88% of cases, none of the parents had graduated from high school. Half of the children had previous school difficulties and 30% had repeated a grade. Overall, children sustained severe injuries, with impaired neurological function, major cognitive deficits [mean initial full-scale IQ 73.1 (SD = 12.8)] without significant improvement [77.4 (SD = 13.4) at the last assessment]. The processing speed index was particularly low