



HAL
open science

Long-term functional outcome following severe childhood traumatic brain injury: results of the prospective longitudinal follow-up of the TGE cohort

Sara Neumane, Hugo Câmara-Costa, Leila Francillette, H. Toure, Dominique Brugel, Anne Laurent-vannier, P. Meyer, Georges Dellatolas, Laurence Watier, Mathilde Chevignard

► To cite this version:

Sara Neumane, Hugo Câmara-Costa, Leila Francillette, H. Toure, Dominique Brugel, et al.. Long-term functional outcome following severe childhood traumatic brain injury: results of the prospective longitudinal follow-up of the TGE cohort. 31st Annual Meeting of the European Academy of Childhood Disability (EACD), May 2019, Paris, France. pp.4-61, 10.1111/dmcn.14244 . inserm-03976884

HAL Id: inserm-03976884

<https://inserm.hal.science/inserm-03976884>

Submitted on 15 Mar 2023

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Long-term functional outcome following severe childhood traumatic brain injury: results of the prospective longitudinal follow-up of the TGE cohort

S NEUMANE¹, H CÂMARA-COSTA^{2,3}, L FRANCILLETTE², H TOURE¹, D BRUGEL¹,
A LAURENT-VANNIER¹, P MEYER^{4,5}, G DELLATOLAS³, L WATIER⁶, M CHEVIGNARD^{1,2}

¹ *1 Rehabilitation Department for Children with Acquired Brain Injury, Hôpitaux de Saint Maurice, Saint Maurice, France;*

² *Sorbonne Université, Laboratoire d'Imagerie Biomédicale, LIB, Paris, France;*

³ *INSERM CESP, Villejuif, France;*

⁴ *Paediatric Anesthesiology Department, Hôpital Necker Enfants Malades, 757 Paris, France;*

⁵ *Facule de Médecine Rene Descartes Paris, France;*

⁶ *Biostatistics, Biomathematics, Pharmacoepidemiology and Infectious Diseases B2PHI, INSERM, UVSQ, Institut Pasteur, Université Paris-Saclay, Paris, France*

Introduction: The aims of this study were to study functional outcome over 24 months following childhood severe traumatic brain injury (TBI); and to determine how initial functional status predicts 7-year intellectual and academic outcomes.

Patients and Methods: Children (0–15y) consecutively admitted in a single trauma center, following severe accidental TBI, were included in a prospective longitudinal study (TGE cohort). At 3, 12, 24 months, and 7 years, disability, functional, intellectual, and educational outcomes were assessed (paediatric Glasgow Outcome Scale; GOS-Ped, Paediatric Injury Functional Outcome Scale; PIFOS; Wechsler scales; mainstream school vs special education).

Results: 65 children survived (66% males; mean age at injury 8.1y [SD=4.6]; lowest Glasgow Coma Scale 6.1 [1.8]; length of coma 6.6d [4.8]). GOS-Peds indicated severe impairments at 1 month (vegetative state: 8%, good recovery: 6.5%), with significant improvement over time (25% 'good recovery' by 24mo). Functional impairments were severe initially, improved by 3 and 12 months ($p<0.0005$), without subsequent significant progress. At each time-point, PIFOS score was highly correlated to TBI severity (length of coma [$p<0.0004$] and to GOS-Ped scores ($p<0.0001$)). 12-month PIFOS score was highly correlated to full-scale IQ at 12, 24 months ($p<0.0001$) and 7 years ($p<0.004$), and significantly predicted the type of education ($p<0.0001$ at 12 and 24mo; $p<0.002$ at 7y).

Conclusion: Functional status at 1 and 2 years significantly predicts long-term intellectual and educational outcomes. Systematic personalised long-term follow-up should be organised, with increased attention for those with persistent functional impairment 12-months post-injury.