CO51-005-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)

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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 = 4.5]). In group 1 (n = 124), mean (SD) GOS-E Peds scores were 5.9 (7.7) 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 = –0.18), younger age at injury was correlated to worse GOS-E Peds scores at 3 and 6 months (r = –3 and –4.4; 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 = –0.29; P = 0.003) and lower intellectual ability (r = –0.27; P = 0.008). In group 3, 173 patients consecutively seen in clinics were assessed [mean age 10.4 years (SD = 4)]. 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.

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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

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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.
violence (56%), but also entailed thefts, traffic offences, sexual

Discussion Children with ABI who suffer or commit offenses are mainly boys, from very low socioeconomic background, with pre-injury academic and social difficulties, who sustained severe TBI. They suffer very severe and disabling cognitive deficits and behavioral disorders. Multidisciplinary care and follow-up of those children more at risk is essential in the long-term.

Keywords Acquired brain injury; Child; Cognitive disorders; Behavioral disorders; Youth offenders; Violence; Educational outcome

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

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**CO51-007-e**

**Childhood craniopharyngioma: What about participation?**

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**Introduction** Craniopharyngioma is a rare, benign central nervous system tumor, which may be source of multiple complications, from endocrinology to vision, neurology and neurocognitive functions. This morbidity can lead to participation restrictions, as described in the International Classification of Functioning. Primary objective of this study was to measure participation in a population of children and young adults having been affected by a childhood craniopharyngioma, using the LIFE-H questionnaire (Assessment of Life Habits), valid as a participation measure in various pediatric disabilities. We also examined potential links between the tumor characteristics, the complications and the participation.

**Patients and methods** Descriptive, multicenter study, including all patients having presented a childhood craniopharyngioma (before 18), followed in Lyon region between 2007 and 2013. Main criteria was the LIFE-H results, completed by the patient or the carer.  

**Results** On 21 patients included in the study, 14 have completed the questionnaire, with a mean answer delay of 6.7 years after the diagnosis (SD: 3.9 years). Mean total LIFE-H score was 8.4 (SD: 3.52) for a normal score estimated at 10 in general population. The lowest scores affected nutrition, community life and recreation dimensions. All patients had an endocrinological deficit, 19% an hypothalamic syndrome, 52% an impaired fullness feeling, 76% visual impairment, 14% a neurologic impairment, 57% a neuro-cognitive impairment. 57% of all patients could keep on attending a specific school, LIFE-H results were significantly lower in nutrition, communication, housing and recreation dimensions.  

**Conclusion** Patients with childhood craniopharyngioma have their participation affected, mainly in the social dimensions. We could enhance it with systematic diagnosis of those participation impairments, with the goal of a suitable multidisciplinary management.

**Keywords** Childhood craniopharyngioma; Morbidity; Participation; LIFE-H

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

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**Promoting the use of Motor Function Measure (MFM) as outcome measure in patients with Duchenne Muscular Dystrophy (DMD) treated by corticosteroids**

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**Objectives** Assessing muscle function is a key step in measuring changes and evaluating the outcomes of therapeutic interventions in Duchenne Muscular Dystrophy (DMD). Regarding the large use of corticosteroids (CS) in this population to delay the loss of function, our goal was to monitor the evolution of motor function in patients with DMD treated by corticosteroids (CS) and to study the responsiveness of Motor Function Measure (MFM) in this population in order to provide an estimation of the number of subject needed for a clinical trial.

**Method** A total of 76 patients with DMD, aged 5.9 to 11.8 years, with at least 6 months of follow-up and 2 MFM were enrolled, 30 in the CS treated group (8 ± 1.62 y) and 46 in the untreated group (7.91 ± 1.50 y).

**Results** The relationship between MFM scores and age was studied in CS treated patients and untreated patients. The evolution of these scores was compared between groups, on a 6-, 12- and 24-month period by calculating slopes of change and standardized response mean. At 6, 12 and 24 months, significant differences in the mean score change were found, for all MFM scores, between CS treated patients and untreated patients. For D1 subscore specifically, at 6 months, the increase is significant in the treated group (11.3 ± 14%/y; SRM 2.6 at 24 mo) while a decrease is observed in the untreated group (–17.8 ± 17.7%/y; SRM 1). At 12 and 24 months, D1 subscore stabilized for treated patients but declined significantly for untreated boys (–15.5 ± 15.1%/y; SRM 1 at 12 mo and –18.8 ± 7.1%/y; SRM 2.6 at 24 mo), 21 patients lost the ability to walk during the study: 6 in the CS treated group (25% at 24 months, mean age: 10.74 ± 1.28 y) and 15 in the untreated group (64.71% at 24 months, mean age: 9.20 ± 1.78 y).