and the period test-trauma. The internal consistency of the questionnaire was good with a Cronbach’s coefficient to 0.80. Reproducibility between relatives and patients was good, but these assessments significantly differ from that of the professionals, who tended to rate more severely the disorders. Unlike the Australian authors, we found no significant correlation between the patients’ RSAB scores and their results on the Stroop Test and DSST.

Discussion and conclusion.— In view of the first results, the properties of the French version of the RASB appear promising in terms of easiness to handle, sensitivity, reproducibility and internal consistency. Further research is necessary on the concurrent validity in order to obtain a complete validation of the tool.


CO02-006-EN
Calculation and number processing troubles in patients with traumatic brain injury
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Discussion
The presence of an index of calculation and number processing troubles in patients with TBI is of great importance because it may impact the patient’s ability to return to driving after brain damage. Physical medicine and rehabilitation teams are regularly confronted with this problematic. We know that a pluridisciplinary assessment (physician, neuropsychologist, work therapy specialist, driving school teacher) is necessary. However, an important amount of research remains to be done in order to establish a harmonious set of tests and to help make changes to current regulations.

Material
Patients and method.— Based on the cognitive model of driving of Michon and on the works of C. Fattal since 1994, we elaborated a neuropsychological series of tests assessing various cognitive functions necessary to drive: attention, executive and visuospatial disorders. This protocol was conducted with a group of 89 patients with brain damage (brain injury, stroke, tumor...). Then, subjects were assessed by an approved driving school teacher during five sessions, especially trained for this type of pathology and after that the patients were divided into two groups: “able to resume driving” or “unable to resume driving”.

Results.— On the whole, all the participants were under the normative average for most of tests. But the differences in performance between the two groups were statistically significant. Moreover, from the 70th patient included and onward, and although the pre-necessary statistical requisites were not entirely respected (effective of the “inapt” group too small) we used the double-blind method and predicted the aptitude or the inaptitude of each patient: this prediction appeared in conformity with the conclusion of the driving teacher for the last 20 patients.

Discussion.— Our results authorize us to think that it is possible to predict the capacity or incapacity of resuming driving after brain damage and thus to use specifically selected tests associated with an ecological assessment.


CO08-001-EN
Conscious behavior after traumatic brain injury: Anatomofunctional support and therapeutic prospects
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Objective.— Most brain-injured patients with severe and chronic consciousness disorders are in a therapeutic deadlock. This concerns mainly vegetative or neurovegetative patients, and patients in minimally conscious state. Chronic coma is an exceptional condition; certain conditions of akinetic mutism, which are more frequent, can be included in severe and chronic consciousness disorders. The goal is to review the functional connectivity of conscious behaviours and relational arousal, in particular since the introduction of modern clinical imagery. Description.— The connectivity described in this work relies mainly on two magnetic resonance imaging structural studies of the deep brain: a high-resolution atlas (voxel = 250 μm side; 4.7–Tesla) of an human anatomic piece; an extensive study of deep fascicles (diffusion tensor imaging and tractography; voxel = 1.25 × 1.25 × 1.5 mm³; 3–Tesla) on 6 healthy subjects. The results show the support of the functional connectivity of consciousness that involves the mesencephalo-pontine tegmentum, the basal ganglia, the hypothalamus and the thalamus. These deep located regions are connected with the cortex through three main paths: thalamic, ganglionic and rostroventral. The thalamic path rises from the tegmentum, uses the central tegmental tract, and reaches the reticular and dorsomedial thalamus; from the thalamus it spreads to the cortex, the limbic system, the striatum and the pallidum. The ganglionic path uses the lenticular
Apathy and impulsivity after traumatic brain injury

A. Arnould, L. Rochat, P. Azouvi, M. Van Der Linden

Abstract

Introduction.– Apathy and impulsivity are two disorders frequently encountered after severe traumatic brain injury (TBI). However, there has been little research on the underlying nature of these behavioural modifications.

Objective.– To assess components of apathy and impulsivity after TBI, their psychosocial consequences, and the burden experienced by the relatives.

Method.– 38 close relatives of severe TBI patients were asked to complete four questionnaires: the UPPS impulsivity scale, short version [1], the apathy inventory [2], the Sydney psychosocial reintegration scale [3] and the Zarit Burden Inventory [4].

Results.– TBI patients showed on the UPPS significantly higher levels of urgency, lack of premeditation, and lack of perseverance, and a significant decrease of sensation seeking, as compared with their pre-injury status (P < .05). Apathic symptoms were reported, concerning the three dimensions of apathy. Psychosocial problems, and the relatives’ burden both significantly and positively correlated with loss of initiative (P < .01) and with all dimensions of impulsivity (P < .05), except with sensation seeking. A positive significant correlation was found between lack of perseverance on the one hand and lack of initiative (P < .01) and loss of interest (P < .05).

Discussion.– TBI patients showed, in comparison with pre-injury, a significant increase of both impulsivity and apathy. These modifications were significantly correlated with psychosocial problems and the relatives’ burden. The underlying cognitive and motivational bases of these changes need to be further studied.

References


Keywords: Apathy; Impulsivity; Psychosocial reintegration; Traumatic brain injury

CO08-002–EN

Treatment of apathy with Zolpidem (Stilnox®): Two double-blind, placebo-controlled single case studies

S. Mathieu, K. Autret, A. Arnould, C. Travers, S. Charveriat, C. Vandenhelsken, G. Jegousses, F. Genet, P. Azouvi

Abstract

Introduction.– There is to date no recognized treatment of apathy secondary to brain injury. There have been several reports of its paradoxical effect in patients with brain pathologies, showing transient but reproducible improvement in apathy or arousal of minimally conscious patients [1]. Functional neuro-imaging revealed an improvement of regional brain perfusion.

We report here the effect of zolpidem on apathy in 2 patients with brain injury. Effects were evaluated in double-blind, placebo-controlled design, using behavioural scales and neuropsychological tests.

Case description.– 1: 46-year-old man, 2 years after a severe right hemorrhagic stroke, showing: left spatial neglect, dysexecutive syndrome, attention disorders, incapacitating fatigability and apathy. Zolpidem allowed behavioral improvement, as shown with the Apathy Inventory, and the Inventory of behavioral dysexecutive syndrome, but without any modification of neuropsychological testing.

2: 35-year-old woman, 12 months after an anoxic encephalopathy, showing: minimally conscious state with very limited verbal and motor activity. Zolpidem allowed a behavioral improvement, as evidenced by the Coma Recovery Scale Revised, but no increase in cognitive performances.

Discussion.– In both cases presented, the paradoxical effect of zolpidem was very beneficial in terms of behavior, especially allowing arousal and taking initiative and leading to greater participation in daily life activities and interaction with the environment. There was, however, no significant effect on cognitive testing. These effects should be further investigated in a larger sample of brain injured patients.

References


Keywords: Zolpidem; Apathy; Brain injury; Evaluation; Double blind

CO08-004–EN

Ecological assessment of cognitive functions in children with acquired brain injury: A systematic review

M. Chevignard, C. Soo, J. Galvin, C. Catroppa, S. Eren

Abstract

We report here the effect of zolpidem on apathy in 2 patients with brain injury. Effects were evaluated in double-blind, placebo-controlled design, using behavioural scales and neuropsychological tests.

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