Contributes of Neuropsychology for the evaluation and rehabilitation of a severe Traumatic Brain Injury (TBI)

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Traumatic Brain Injury (TBI) is an important public health problem (Junque, Bruna, & Mataró, 2001; Portellano, 2005; Santos, 2002) since there is: (a) a progressive increase in the number of affected individuals; (b) a high proportion of young patients involved; and (c) an increase in survival rates due to technological and medical advances (Junque et al., 2001; McMillan & Greenwood, 2003).

The high global prevalence of TBI confers a crucial position to it in the field of neuropsychological evaluation and rehabilitation (Portellano, 2005), making the health technicians responsible for paying special attention to the physical, cognitive and emotional effects related to this type of brain damage (Serra & Oliveira, 2003).

AIM
The aim of the present study is to systematize the neuropsychological evaluation and rehabilitation of an adult patient with severe TBI. The neuropsychological evaluation focused the cognitive, behavioural and emotional impairments.

METHOD

PARTICIPANTS
An adult patient with severe TBI (age: 25 yrs; education: 7 yrs) was selected. Type of brain injury: Diffuse axonal injury.

MATERIAL
- Zung Self-rating Depression Scale (Zung, 1965)
- Subtests of the Lisbon Depression Assessment Battery (Guerrero, 1988): Orientation Questionnaire (personal, temporal and spatial); subtitle of “A” cut, digit span, language (identification, nomination, repetition, comprehension, token test, writing and reading), logic memory, visual memory, word learning, motor initiative, symbolic gesture, calculus, clock drawing, WAIS cubes and proverbs interpretation;
- Subtest of the Integrated Program of Neuropsychological Exploration (Peña-Casanova, 1990): Mental control;
- California Verbal Learning Test (CVLT) (Baeta, 2002; Dallis et al., 1997/2000, as cited in Lezak, Howieson, & Loring, 2004);
- Wisconsin Card Sorting Test (Heaton, Chelune, Talley, Kay, & Curtiss, 1993);
- Trail Making Test (Speed & Strauss, 1998);
- Portuguese Neuropsychological Stroop (Castro, Martins, & Cunha, 2000); and
- Complex Figure Copy Test (Rocha & Coelho, 1988).

PROCEDURE

The neuropsychological intervention started three months after the brain lesion, with a detailed evaluation that occurred along six weekly sessions, each one lasting 40 minutes.

Since not all of the administered instruments have Portuguese normative data, part of the interpretation had a qualitative character. The evaluation showed the presence of severe depression and a deficit in higher mental functions, such as attention, memory, visuoconstructural abilities and executive functions, including low verbal initiative. This data guided the development of a neuropsychological rehabilitation program that consisted primarily in the (development) and administration of alternative versions of the neuropsychological instruments previously administered.

Afterwards, 10 rehabilitation sessions were conducted, each one with an approximate duration of 45 minutes. Finally, in order to evaluate the efficacy of the developed cognitive rehabilitation program, a second evaluation was made, five months after the first one.

RESULTS

In this case study, it was possible to see recovery in several aspects of the patient’s psychological functioning. In the second evaluation, five months after the first one, there was an improvement in the depressive and behavioural symptoms, and in all of the higher mental functions, except verbal initiative. However, it is important to recognize that in case-study methodologies it is hard to distinguish the changes due to spontaneous recovery and those due to specific effects of the treatment (McMillan & Greenwood, 1997). Nevertheless, even if spontaneous recovery has taken place, it was widely believed (Clearone, 1969, as cited in Callahan, 2001) that the implementation of a systematic neuropsychological rehabilitation plays a major role in recovering cognitive functions.

REFERENCES


