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Neuropsychological rehabilitation in patients with borderline personality disorder: a case series

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Recent research studies have been confirming the evidence that patients with personality borderline disorder (BPD) suffer significant neuropsychological disorders. Neurocognitive dysfunction of BPD seems to mainly affect the functions characteristic of the prefrontal areas that participate in information processing and management and in the regulation of complex behavioral responses. Neuropsychological disorders not only are seen in the specific tests but are also reflected and could play an important role in the clinical manifestations of borderline disorder, such as emotional dysregulation and impulsive behaviors.

Neurocognitive rehabilitation therapy has been used successfully in psychiatric disorders such as schizophrenia, also characterized by the presence of neuropsychological dysfunctions. Thus, it can be expected that rehabilitation of the neurocognitive functions affected in BPD contributes to the patient's functional improvement.

The present work describes a series of five patients with BPD who presented important neuropsychological dysfunctions and who were treated successfully with a specific program of neurocognitive rehabilitation. The results observed justify the performance of controlled clinical studies on the efficacy of this technique in the treatment of BPD.

Key words:

Personality borderline disorder. Neuropsychological rehabilitation.

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Rehabilitación neuropsicológica en pacientes con trastorno límite de personalidad: una serie de casos

La evidencia de que los pacientes con trastorno límite de la personalidad (TLP) padecen alteraciones neuro-

psicológicas significativas se ha ido confirmando en recientes estudios de investigación. La disfunción neurocognitiva del TLP parece afectar principalmente a funciones propias de las áreas prefrontales que participan en el procesamiento y manejo de la información y en la regulación de las respuestas conductuales complejas. Las alteraciones neuropsicológicas no sólo se evidencian en los tests específicos sino que se reflejan y podrían tener un papel importante en las manifestaciones clínicas del trastorno límite, como la disregulación emocional y las conductas impulsivas.

La terapia de rehabilitación neurocognitiva ha sido utilizada con éxito en trastornos psiquiátricos como la esquizofrenia, caracterizada también por la presencia de disfunciones neuropsicológicas. Por ello es esperable que la rehabilitación de las funciones neurocognitivas afectadas en el TLP contribuya a la mejoría funcional de los pacientes.

En el presente trabajo se describe una serie de cinco pacientes con TLP que presentaban disfunciones neuropsicológicas notables y que fueron tratados con éxito mediante un programa específico de rehabilitación neurocognitiva. Los resultados observados justifican la realización de estudios clínicos controlados de la eficacia de esta técnica en el tratamiento del TLP.

Palabras clave:

Trastorno límite de la personalidad. Rehabilitación neuropsicológica.

INTRODUCTION

Over all these years of research conducted on the borderline personality disorder (BPD), attention has been focused on behavioral components such as impulsive acts, stormy interpersonal relationships and self-mutilations. However, neurocognitive abnormalities have been overlooked, even though they may be equally important. In fact, a study carried out in 1991 related the risk of suicide in BPD with cognitive functioning and not with depression levels.¹ That is why having knowledge regarding the neuropsychological characteristics of these patients could be

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important for their diagnosis, calculation of suicide risk, treatment planning and prognosis.

In the last two decades, the role of some neuropsychological factors in the development of BPD have been taken into account.^{2,3} There are research studies that have manifested neuropsychological differences between patients with Borderline Personality Disorder and other psychiatric diseases or control groups. Some authors have even proposed that the neurocognitive harm plays a key role in the development and maintenance of the disorder, and that it is a fundamental feature in the expression of BPD.⁴ Other studies have verified that the severity of the brain damage positively correlates with the severity of behavioral disorders.^{5,6}

Even though all of these research studies have indicated neuropsychological differences between patients with borderline disorder and other psychiatric groups or healthy control groups, agreement has still not been reached on how to propose a consistent model of cognitive alterations in this disease. For example, one study by Cornelius et al. (1989) could not detect differences between BPD patients and a healthy control group in the cognitive domains of memory, language and spatial function. O'Leary et al. (1991) studied the neurocognitive function of BPD, revealing different alterations in memory and visual discrimination tests in comparison with healthy controls.

Many of the most recent neuropsychological investigations on BPD have used more complete neuropsychological batteries that seem to identify more specific cognitive alterations. Dinn et al. (2004) compared BPD patients with healthy controls in different cognitive domains. The BPD patients scored worse on visuospatial skills, processing speed and nonverbal memory tests while no significant differences were found in attention and verbal memory tests. In the Bazanis et al. study (2002), it was demonstrated that the patients scored more poorly on tests that evaluated planning and decision-making but they did not find any differences in visual memory tests, including visual recognition. In one study of Ruocco (2005), the results revealed significant differences between BPD and the healthy control group in multiple neuropsychological domains (attention, cognitive flexibility, learning and memory, planning, processing speed and visuospatial skills). According to this author, the data obtained are consistent with those obtained in another study and show significant correlations between neuropsychological measurements of the frontal lobe function and BPD symptoms in a sample of young normal adults (Ruocco and Trobst, 2003) and a sample of brain-damaged adults (Ruocco and Swirsky-Sacchetti, 2005).

The final objective of neuropsychology and neuropsychological evaluation is the establishment of rehabilitation programs which, as far as possible, try to alleviate both cognitive deficits as well as their personal, social and work

consequences. At present, no data are available on the application of neuropsychological rehabilitation programs in patients diagnosed of BPD, although some studies have stressed the importance of using cognitive rehabilitation as a practical suggestion in the cognitive alterations found in these patients.⁷

The data available in the literature and previously reviewed show the important repercussions of these cognitive deficits in the academic, professional and personal development of the patient. In this work, we have tried to describe the results of the application of neurocognitive rehabilitation program focused on the prefrontal functions, so that it can serve for the design of controlled studies and intervention strategies that are useful for mental health professionals.

SYMPTOMS

We have conducted a neuropsychological rehabilitation program in five patients diagnosed of borderline personality disorder admitted to the Day Unit of the Hospital Clínico de San Carlos. The patients were selected due to their incapacity to reestablish acceptable functional activity in spite of the treatment applied in the Unit (dialectic-behavioral therapy and mentalization-based therapy) and in spite of a considerable improvement in affective stability and remission of pathological impulsive behaviors. A cognitive rehabilitation program focused on the altered cognitive functions was conducted in all of them. Prior to designing the rehabilitation program, a neuropsychological evaluation protocol was administered to each one of the patients in order to identify the cognitive alterations considered to be core in the genesis of the BPD symptoms and thus create recovery or replacement strategies for such alterations that could be generalized towards better psychosocial functioning of the patient. The Neurocognitive Intervention program consisted in 21 sessions of 45 minutes each at weekly intervals during a six-month period that dealt with attention, memory, executive functions and processing speed. After having carried out the objectives proposed, the neuropsychological evaluation protocol was administered again to each one of the patients in order to evaluate the cognitive recovery of each one of them.

In February 2007, a 30-year old male, single, with university studies and no profession, diagnosed of BPD, came to the doctor's office for neuropsychological evaluation. In the examination, we found disorders in immediate and deferred memory recovery processes, sustained attention disorders, alterations in working memory and inverse serializations as well as slow down and information processing. This picture of focal-type cognitive alterations was due to a moderate grade subcortical involvement of the prefrontal dorsolateral zones that affected his independent activities of his daily life.

In March 2007, a 36-year old male, single, without university studies, profession mechanic, diagnosed of BPD, who was unemployed at the time of his disease because he was cognitively incapable of carrying out his work effectively, came to the doctor's office. We performed a neuropsychological examination, finding alterations in the deferred memory recovery processes, disorders and sustained attention, working memory, planning and organization, low impulse control and slow down in data processing. This picture of cognitive alterations corresponds with a cortico-subcortical focal involvement of prefrontal dorsolateral zones and with the involvement of the independent activities of daily life. The patient was included in a psychoeducational intervention program that he could not satisfactorily follow given his cognitive alterations.

In June 2007, we evaluated a 32-year old female patient, a 35-year old male patient and a 33-year-old female patient, all of whom had a previous background of holding different jobs (shop assistant, hotel industry worker, receptionist), who had been diagnosed of BPD. In the examination, we found the same cognitive disorders as in the previous patients.

In these cases, impulsiveness (precipitation) made up one of the principal difficulties, so that the principal objectives were focused to the maximum training and reinforcement of planning, proposal of alternatives and to the checking and verification of the responses, due to their importance in the daily, social and work situations.

A neuropsychological rehabilitation program designed in our neuropsychological research unit and focused on the sustained attention functions, memory (recovery processes), processing speed and executive functions was applied to all of the patients.

The purpose of the treatment in the five cases included training of the attention capacities, memory (recovery processes), processing speed and executive functions.

The rehabilitation treatment was initially aimed at increasing the awareness of the difficulties and training of strategies to improve the cognitive difficulties that hinder the patient's capacity to carry out an independent life.

At the end of the neurocognitive rehabilitation program, a new neuropsychological evaluation was made. At that time, a significant improvement was observed in all the dysfunctional neuropsychological parameters that was also associated to a substantial increase of the skills in daily management, both in the daily activities and in social relationships and work performance. The improvement was clear in the five patients studied, both in the objective evaluation of the symptoms and in the subjective assessment of the patients.

DISCUSSION

Since the beginning of the 1990s, «cognitive neuropsychiatry» has been seeking to reformulate the psychiatric symptoms using the concepts of normal cognitive neuropsychology.⁸

The term «neuropsychological rehabilitation» or rehabilitation of cerebral functions is defined as that activity that aims to teach or train activities aimed at the improvement of cognitive functions and the global personality after an injury or disease (whether structural or functional brain damage).⁹

The results regarding the efficacy of the rehabilitation mainly come from diseases such as cranioencephalic traumas, cerebral vascular accidents, dementias, neurological diseases such as multiple sclerosis and even psychiatric diseases such as schizophrenia. Given that we have not found results from studies in which cognitive intervention programs have been conducted, it would be of interest to propose studies in BPD patients in whom neuropsychological rehabilitation programs focused on altered cognitive functions in this disease have been applied.

Those BPD patients who have persistent cognitive alterations could benefit from the application of rehabilitation programs aimed at the type and grade of difficulty these patients present. It would be also interesting to evaluate if it has any positive impact on general functioning in patients affected by this disease. Up to the present time, research in cognitive rehabilitation with different programs has demonstrated the importance of rehabilitation of the cognitive and emotional functions in order to improve functional independence level, the possibility of carrying out a productive life and quality of life of the patients and their family members.

The cognitive functions that are the object of the neurocognitive rehabilitation in BPD are attention, memory (recovery processes of the immediate and deferred memory), processing speed and prefrontal functions that would make up the principal areas affected in BPD.

In relationship to BPD, because of the greater intensity of the cognitive defects in these patients and their conservation of some degree of insight or awareness of defect, neurocognitive rehabilitation may be effective and may have results that can be extrapolated to the daily functioning of BPD patients, since that it may improve many of the problems of the daily life and thus the patient's perception of quality of life.

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