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Case Report

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Neuropsychological alterations in borderline personality disorder: purpose of a case

Abstract

Different investigations reveal the neurological and neuropsychological differences among patients with BPD. The objective of this case study is to describe the neuropsychological (cognitive, executive), symptomatological and personality alterations of a patient with dual pathology and the implications that these alterations have in their daily lives. A battery of neuropsychological evaluation was applied to a patient undergoing treatment at the CEDRO Vigo drug dependence unit. The results reflect a neuropsychological performance indicative of a medium premorbid intelligence, a reduced speed of psychomotor and visuospatial processing, deficits in tasks of verbal memory, an executive functioning determined by alterations in the executive components of actualization, change and inhibition. As well as difficulties in social and work activity and a symptomatological profile characterized by obsessive-compulsive, anxious and psychotic clinical manifestations, an elevated motor and unplanned impulsivity, and a tendency to yield to positive affections and reduced perseverance. Neuropsychological exploration helps us to detect deficits in the cognitive / executive processes, generates awareness of the deficit and allows realizing a neuropsychological profile, which facilitates the design and elaboration of individualized treatment programs.

Keywords: borderline personality disorder, dual pathology, neuropsychological disorders, psychosocial functioning, neuropsychological exploration

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Introduction

Borderline personality disorder (BPD) is characterized by the presence of affective instability, impulsivity, self-harm and severe dysfunction of interpersonal relationships.[1] These psychopathological characteristics have centered the study of this disorder, being much less known and studied the neuropsychological deficits of these patients, whose study would allow us a better knowledge of this pathology, that includes new strategies in the planning of the psychotherapeutic and psychopharmacological treatment, as well as To orient ourselves on the patient's individual prognosis.[2,3] Neuropsychological alterations in patients with psychiatric pathology have been studied, among others, in schizophrenia,[4–8] obsessive-compulsive disorder,[9,10] personality disorder,[11,12] Personality disorder[2,3] in substance-related disorders,[13–18] autism,[19] or attention deficit disorder.[20,21] There is an important consensus in the scientific literature regarding the close relationship between neurocognition and psychosocial functioning in severe mental disorders, with negative interference from the former to the latter.[22,23]

Goals

To describe the neuropsychological (cognitive, executive), symptomatological and personality alterations of a patient with dual pathology and the implications that these alterations have in their daily life. To evaluate the presence of cognitive impairment through the exploration of basic cognitive processes (attention, memory and perception), executive functions (actualization, inhibition, cognitive flexibility and decision making), different components of impulsivity and symptomatology in the Time of evaluation.

Presentation of the case

He is a 41-year-old male, schooling until completing primary studies. Early onset of toxic use (at age 16) is reported, with high intravenous and inhaled cocaine use. It also presents antecedents of multiple serious autolytic attempts, as well as previous treatments in different devices of the area of drug addiction and in different modalities, from ambulatory to residential. At the time of the evaluation, it is included in a treatment program for psychosocial dependents (PTDP) in semi-voluntary mode (Day Unit), with diagnoses of Borderline Personality Disorder (F60.31 [301.83]) and Disorder (F14 [304.20]) according to the criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V).[24]

Material and method

Instruments

An adaptation of the neuropsychological evaluation battery[25] was applied and the patient evaluation protocol was administered in 2 sessions of 60 minutes duration.

Instruments

The evaluation of neuropsychology focused on assessing a possible cognitive impairment, with the assessment of basic cognitive processes (attention, memory and perception), executive functions (updating, inhibition, cognitive flexibility and decision making), different components of Impulsivity and symptomatology presented at the time of the evaluation. The tests used and the cognitive / executive domains evaluated (Table 1).

Table 1 Tests used and cognitive domains/business

Test	Cognitive domains / executives
WAIS-III	
Key Numbers	Psychomotor processing speed and hand-eye coordination
Arithmetic	mental calculation and working memory
vocabulary	As estimation of premorbid intelligence. Semantic memory
digits	Focused and sustained attention
Understanding	verbal understanding and social cognition
search Symbols	visual perception, psychomotor speed processing
Trail Making Test (TMT)	
Part A	motor and visuo-spatial skills visual search
test D2	
TR (processed Elements)	Psychomotor speed processing
omissions	attentional control
commissions	Inhibitory control
CON (concentration)	Processing efficiency
Stroop test	
Words	Processing speed reader
Colour	selective attention
Word-Color	cognitive inhibition
Verbal Learning Test (TAVEC)	verbal memory
SCL-90	symptomatic perception
Barrat scale (BIS-11)	Impulsiveness
UPPS-P	Dimensions of impulsivity

Results

The results reflect a neuropsychological performance indicative of an average premorbid intelligence (WAIS-III Vocabulary, Centil=50), a reduced psychomotor processing speed (IVP WAIS-III, CI=81), and visuospatial processing (TMT-A Pc=25 (TAVEC Recognition, Sd=-3), an executive functioning determined by alterations in the executive components of updating (WAIT-III Arithmetic, Centil=16), change (STROOP Interference, T=36) (SCL-90-R, Pc.95), anxious (SCL-90-R, Pc.95), and an inhibitory effect (SCO-90-R, Pc.95), a clinical profile characterized by obsessive- R, Pc.90) and psychoticism (SCL-90-R, Pc.85), a high in motor impulsivity (BIS-11/Pd=35) and unplanned impulsivity (BIS-11/Pd=26) Yielding to positive affects (UPPS-P, Sd=+1.76) and reduced perseverance (UPPS-P, Sd=+1.42); Alterations that make manifest in the day to day, in difficulties of voluntary control of the attention, reduced resistance to the interference, little tolerance to the cognitive effort, persevering behaviors, apathy and a reduced self-regulation of its behavior. On the UPPS scale, there is a tendency to give in to strong impulses when accompanied by positive emotions, a reduced capacity for perseverance and a high total impulsivity (Table 2). In Barrat's impulsivity scale, he scores high on motor and unplanned impulsivity (planning and organization of future actions) (Table 3). In the questionnaire assessing perceived subjective malaise (SCL-90-R), it presents a symptomatological profile characterized by clinical manifestations of obsessive-compulsive, anxious and psychotic (Table 4). In the specific processing speed tests, the average value of the Strooop (T=46), mid-low in the WAIS III (CI=81) and below average In part A of the TMT (Pc.25) and the task of reaction time of D2 (Pc.10). Indicative of a reduced speed of psychomotor and visuospatial processing. With respect to attentional sub processes, it presents a reduced sustained and selective attention of internal character in tasks related to the adequate selection of which information is necessary to attend and which to ignore (Stroop-Colores, T=32/D2 Omissions Pc.2) (Figure 1), so it can be said that it presents deficits in the sub processes of sustained, selective and alternating attention (cognitive flexibility). In particular, the deficits he presents are reflected in the difficulties he has in maintaining his attention when the required task is boring or monotonous, when he has to select the relevant information that must be addressed and the irrelevant to ignore, or When it must be cognitively flexible and must adapt its behavior to a novel or changing situation (Table 5).

Table 2 UPPS (impulsivity)

Negative urgency		Sd = + 0.91
Lack of premeditation	PD = 27	Sd = + 0.80
Lack of Perseverance	PD = 27	Sd = + 1.42
Sensation Seeking	PD = 33	Sd = + 0.50
Positive urgency	PD = 39	Sd = +1.76
Total	PD = 159	Sd = +1.46

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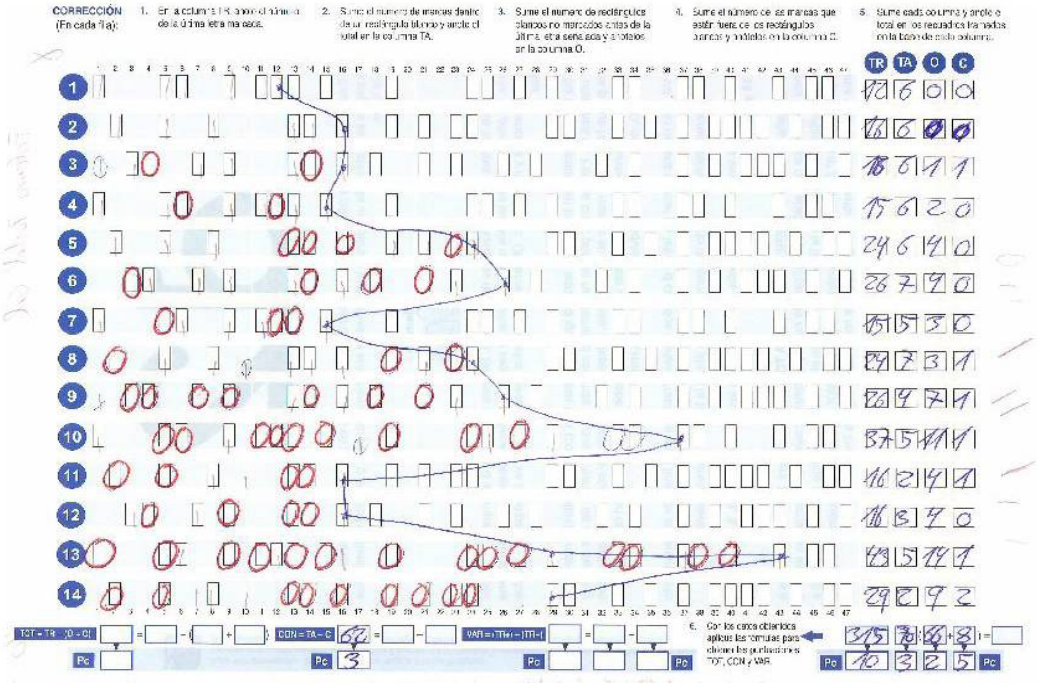
In the Verbal Memory Test (TAVEC), it achieves a medium-low performance in the processes of coding, storing, retrieving and evoking verbal information. This is reflected in a low-average performance in most of the test indices (free recall, learning curve, discrimination, recognition) and that is manifested in a reduced active recovery of information through the use of learning strategies. On the other hand, in the recognition test it obtains a medium-low score (-3sd), indicative of difficulties of access to information through associative recovery processes (keys) (Table 5).

Table 3 Barrat scale (BIS-11)

cognitive impulsivity	PD = 23
motor impulsivity	PD = 35
Unplanned impulsivity	PD = 26
Total score	PD = 84

Table 4 SCL-90

somatization	1.42	Pc.60
Obsession / compulsion	3.3	Pc.95
interpersonal sensitivity	1,56	Pc.65
Depression	2,38	Pc.75
Anxiety	3	Pc.90
Hostility	1.33	Pc.65
phobic anxiety	1.71	Pc.80
paranoid ideation	1,83	Pc.70
psychoticism	2.1	Pc.85
Symptomatic Board index	2,08	Pc.80
Total positive symptoms	71	Pc.80
Discomfort index	2,63	Pc.75



Test	subtest	Punctuation (Scalar / Direct	Interpretation
WAIS-II	Key Numbers	6	Centile = 9
	vocabulary	10	Centile = 50
	Arithmetic	7	Centile = 16
	digits	9	Centile = 37
	search Symbols	7	Centile = 16
	Processing Speed Index	CI = 81	Centile = 10
TMT	Part A	43 Sec	Pc.25
D2	TR (processed Elements)	PD = 315	PC = 10
	TA (No. hits)	PD = 70	PC = 3
	Omissions (Attentional Control)	PD = 66	PC = 2
	Commissions (Inhibitory Control)	PD = 8	PC = 5
	Concentration (Efficacy)	PD = 62	PC = 3

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Table Continued....

Test	subtest	Punctuation (Scalar / Direct	Interpretation
STROOP	Words	PD = 94	T = 46
	Colors	PD = 53	T = 32
	Word - Color	PD = 20	T = 20
	Interference	PD = -13	T = 36
TAVEC	Learning (RLI)	4-6-7 - 8-7	Sd = -2
	Primacy	44%	Sd = + 2
	Half	9.5% / 9.5%	Sd = -4
	recency	38%	Sd = + 2
	Recognition	12	Sd = -3
	discriminability	86	Sd = -2

Proposed treatment

In order to improve the patient's adaptation to his / her environment, a cognitive rehabilitation program focused on techniques of restitution and compensation of attentional sub-processes and memory, as well as specific work on self-regulation of behavior (management of Emotions).

User

There are numerous publications linking prolonged use of illegal drugs with possible cognitive impairment.[13–18] The results obtained in the exploration carried out are consistent with previous investigations that have shown a significant influence of the prolonged use of drugs on the functioning of different components of the executive function,[18] as well as, with different investigations that show the Neurological and neuropsychological differences between patients with BPD and other psychiatric conditions.[2,3] Although these results are consistent with previous studies, they should be interpreted with caution, since it is a dual population in which it is difficult to attribute the causal direction between neuropsychological alterations and psychopathology. However, the presence of these alterations supports the need to carry out neuropsychological rehabilitation programs in patients with BPD, especially those with comorbid substance abuse. The findings of this single case study should be interpreted with caution, taking into account the limitations of the studies in drug-dependent population, such as heterogeneous samples (polyconsumers, pattern of consumption), low level of cognitive reserve[17] And the difficulty in attributing the causal direction between neuropsychological alterations and prolonged substance use. Neuropsychological assessment has been shown to be a useful tool to help better define the needs for therapeutic intervention and to orient in a more efficient way the objectives of neurocognitive rehabilitation in the rehabilitative treatment of the drug-dependent population).[26–29] Future prospective studies and large samples are needed to determine the possible effects of drug use on different components of executive functioning and their potential impact on the daily functioning of drug-dependent patients.

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None.

Conflicts of interest

The author declares there is no conflicts of interest.

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