

Neurobehavioral disorders in a patient diagnosed with posttraumatic stress disorder and undifferentiated schizophrenia. Clinical case of low prevalence and incidence in Colombia.

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Abstract

Introduction: Post Traumatic Stress Disorder (PTSD) is a neuropsychiatric disorder that is characterized by being exposed to traumatic events such as forced displacement, armed conflict and clinical manifestations of low self-related emotional disorders such as anxiety, depression and apathy, which affect the deterioration of the quality of life, neurocognitive functioning and self-perception of their physical and mental health.

Objective: to identify the neuroconductual alterations that presents a subject diagnosed with PTSD and undifferentiated schizophrenia. Clinical case that tends to present low prevalence at clinical level, especially in the Colombian Suroccidente.

Method and materials: Participant: male patient 35 y old, single, right-handed, low schooling. Retired military man diagnosed with PTSD for having been exposed to war. With a clinical picture of undifferentiated paranoid type schizophrenia, accompanied by visual, auditory hallucinations and disinhibitory behavior. Magnetic resonance imaging showed presence of focal lesions in the frontal lobe (executive functions) temporal lobe (memory) and hypodensity in the somatosensory cortex. It was applied an assessment protocol for clinical neuropsychology comprised of the following tests Mini-Mental State Examination-MMSE, severity scale symptoms of post-traumatic stress disorder, digit span scale Wechsler, geriatric depression scale of Yesavage. Anxiety inventory beck, trail making test (Form A/B), history of Babcock, test clock, frontal assessment battery, verbal fluency, general health questionnaire, Barthel index and scale Lawton and Brody for instrumental activities of daily life.

Results: The patient has a mixed clinical picture of depression and anxiety, clinically correlated with the deterioration posing in neurocognitive functioning, especially in executive functioning tasks (tasks inhibition) and the deterioration in their quality of life.

Discussion: The data obtained show that the subject needs intervention plans functional neurorehabilitation immediately. This clinical case shows the consequences that the war usually generates in people. It is necessary that the national, local and regional government establish true mental health policies, those of now only reflect the inefficiency and incompetence of the government on duty.

Keywords: Neurology, Neuropsychology, PTSD, Rehabilitation.

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Introduction

Posttraumatic Stress Disorder (PTSD) is a pathology that is characterized by being exposed to traumatic events such as forced displacement, armed conflict and low self-esteem, related to emotional alterations such as anxiety, depression and

apathy, which affect the deterioration of the quality of life, neurocognitive functioning and self-perception of their physical and mental health [1-12].

Biologically, the human is in the need to experience diversity of situations that generate a process of physical and mental

stability, however, there are other situations [5] that disorganize its immediate context and areas of conduct and behavior (social individual and family) to which is subjected the subject generates such situations in patients with PTSD, dissociative clinical picture which prevents the free development of personality [5].

PTSD is widely defined in the category of anxiety disorders, correlated and clinically overlapping with affective alterations such as depression and apathy, which sometimes make it difficult to diagnose its differential diagnosis and its final diagnosis [11].

Brain injuries and dysfunctions in the temporal lobe, specifically in the entorhinal cortex, parahippocampal gyrus, and fimbriae usually generate intrusive behaviors and thoughts, also associated with a clinical picture of post-traumatic Alexithymia that does not allow subjects diagnosed with PTSD to respond adequately to a variety of stimuli environmental and Neurocognitive [1,5,9,13-25].

Also, various studies [9,13-16,18,20] found that individuals with PTSD have alterations in the hippocampus, associated with an inability to discriminate different situations. The role of dopamine has also been well studied, it seems that the overexcitation of this neurotransmitter is related to disinhibitory alterations, causing the subjects to present behavior that is not in accordance with established social guidelines [14].

The data obtained by different research [9,13-16,18,20] indicate that subjects with PTSD will present dysfunction in the right hippocampus, causing inability to discriminate different situations or stimuli. It has also been found overstimulation of dopamine [1,9,14,18] causing a series of inappropriate behavior and disinhibitory in the context where the subject [14] operates.

Executive functions, particularly in planning, organization and inhibition, they are altered in PTSD patients, related to dysfunction of the amygdala as center emotional memory instinctive level [8,9,13,16,15,18,21-27].

This article aims to identify the Neuroconductual alterations that presents a subject diagnosed with PTSD and undifferentiated schizophrenia. Clinical case that tends to present a low prevalence at clinical level and interesting to be studied, especially in south-occident of Colombia.

Method and Materials

Participant

The clinical case is centered on a male patient of 35 years of age, unmarried, dexterous, with low schooling. Retired military man diagnosed with PTSD for having been exposed to war. With a clinical picture of undifferentiated paranoid schizophrenia, accompanied by visual hallucinations, auditory, disinhibitory behavior and vulgar language with his immediate companion (his mother), his behavior towards the evaluator is friendly and focused on each one of the orders.

Magnetic Resonance Imaging (MRI) of the brain with contrast showed presence of focal lesions in the frontal lobe (executive functions) temporal lobe (memory) and hypodensity in the somatosensory cortex.

In neurological exploration the patient was conscious, moderately alert, partially oriented in his individual, temporal and spatial sphere.

On the physical examination he found blood pressure 120/80, pulse 80, respiratory rate 20.

A history of alcohol abuse, PTSD and undifferentiated schizophrenia is identified, non-verbal behavior revolves around a possible obsessive compulsive behavior, permanently repeats the evaluator's orders, continuously showing that he hears voices (auditory hallucinations) and See people he can only observe (visual hallucinations). The patient consumes prolonged-release quetiapine three times a day for the treatment of schizophrenia.

At the emotional level, the patient presents a mixed clinical picture of depression and generalized anxiety that requires immediate intervention.

Materials

Neuropsychological evaluation: *Mini-Mental State Examination-MMSE:* It is a short cognitive screening test, it evaluates cognitive functions, it is constituted by 30 sections and grouped into five dimensions: orientation (10 points), fixation (3 points), orientation (5 points), calculation and memory (3 points), language (8 points) and visuoconstructive skills (1 point) [26,28].

Severity Scale Symptoms of Post-Traumatic Stress Disorder (PTSD) test that aims to measure the intensity and severity of PTSD [29].

Digit span scale Wechsler: It is a wais subtest that aims to measure attention levels and immediate verbal memory in the subject [30].

Geriatric depression scale Yesavage: It is a questionnaire that aims to assess the depressive symptomatology, consists of 21 items and with response options ranging from 0 to 3, and a maximum score of 63 [31].

Anxiety inventory Beck [32] Likert scale which aims to assess anxiety symptoms, consists of items which in turn are divided into subjective and somatic symptoms. It has a score of 4 points for each question (absolute, slightly, moderate, severe), the sum of its items comprise minimal, mild, moderate and severe anxiety.

Trail making test: Paper and pencil test that aims to measure levels of attention (part A). The subject must join the numbers 1 to 25 consecutively, and executive functions (part B) which consists of joining numbers 1 to 13, but alternating with letters (1A-2B-3C-4D-5E and so on). The subject must perform the test in the shortest possible time [33].

Neurobehavioral disorders in a patient diagnosed with posttraumatic stress disorder and undifferentiated schizophrenia. Clinical case of low prevalence and incidence in Colombia

Babcock history: It aims to evaluate verbal and deferred memory. The test is presented by the auditory pathway [34].

Test clock: It is a screening test or short cognitive screening, aims to evaluate cognitive functions in patients with neurological or neurodegenerative diseases [35].

Frontal assessment battery: It is a specific test that measures the executive functioning and deficits or low cognitive performance presented by elderly or diagnosed with a neurodegenerative disease [36].

Verbal fluency: It is presented with a task to the subject that aims to name animals and people in a minute. It is also performed alternately, where the subject must name a word, alternating it with a category that the evaluator demands. Its score is obtained by the sum of each of the hits.

General health questionnaire: The questionnaire is grouped into four sections of seven items (somatic symptoms, anxiety/insomnia, social dysfunction and depression), which is a questionnaire that evaluates health and self-perception of health in subjects presenting different clinical pictures. A score greater than or equal to 23 points is a possible indicator of a psychiatric condition [37].

Barthel index: It is a questionnaire that aims to evaluate and assess the level of functional independence that subjects present in performing the basic activities of daily living (ABVD) [38].

Lawton and Brody scale of instrumental activities of daily life: Questionnaire that allows to evaluate the level of functional independence that subjects present to perform instrumental activities of daily life [39].

Process:

The evaluation was carried out taking into account the following steps:

1. Interview of patient's knowledge.
2. Revision of clinical history and medical background.
3. Neuropsychological evaluation.
4. Neuropsychological report.
5. Neurorehabilitation functional plan.

Ethical aspects

The patient and his companion, in common agreement with the principal investigators, signed an informed consent stating the process that was to be carried out with the patient. They were guaranteed protection of their personal data. The patient was told that the evaluation was paper and pencil and that it posed no physical risk. The study was carried out taking as a reference the ethical principles for the elaboration of investigations or experimentation in human beings, in this case, the Declaration of Helsinki, the declaration of Berne and resolution 008430 of October 04, 1993 of the Ministry of Social Protection of The Republic of Colombia for ethical aspects of research on human beings.

Results

The direct score obtained in each of the tests that the patient participated in was taken. Table 1 presents the results of each of the neuropsychological tests.

Table 1. Score obtained in the different neuropsychological tasks according to PTSD and undifferentiated schizophrenia.

Name of the test	Result
Mini mental MMSE	27/30
Score of symptoms gravity of PTSD	51/51
Geriatric depression scale	24/30
BAI anxiety inventory	49/63
Digital retention	
Direct order	6/16
Reverse order	2/16
TMT shapes	1'50
TMT form B	2'50
History of Babcock immediate	1/21
History of Bacock deferred	2/21
Watch test	
Order	6/10
Copy	6/10
FAB	8/18
Verbal fluence	
• Animals	3
• People	4
• Alternating	He could not do it
Barthel index	100
Lawton and Brody scale	6/7
GHQ-28	50/84

Qualitative results

The findings were as follows:

Emotional sphere: The patient has a mixed clinical picture of depression and generalized anxiety disorder, data that are verified by the scale of Yesavage and BAI, where the scores are exaggeratedly high for a major depression and a clinical nosologic picture of psychosocial stress (anxiety). These pathologies at the emotional level alter the quality of life of the patient, negatively affecting their cognitive functioning and motor dyskinesias that occur frequently in the patient. It is necessary to intervene in a timely manner depression and anxiety presents, in order to counteract a worsening of their functional activities.

The results of affective tests lead to suggest the need to initiate priority treatment in order to improve the quality of life of patients, since meaningful relationships are given of how their emotional disorders (depression and anxiety) directly affect social spheres, associated with a progressive and gradual deterioration in their cognitive functioning, especially in executive functioning. Individual and family Cognitive domain that is usually severely affected in the patient.

Tracking cognitive brief MMSE: Although the test result does not show cognitive impairment in the patient if necessary to note that age, is not expected to have taken this score, since their neural plasticity and cognitive reserve located in the state of information processing, is, should not present any kind of brief cognitive impairment,

What this shows is that the patient's condition (undifferentiated and PTSD schizophrenia) are impacting direct negative effects on their quality of life, neurological and neurocognitive functioning. The patient presents Faults in the attention and concentration test, the rest of tasks can execute them. In this screening test, the patient is able to locate temporally and spatially, with alterations to maintain attention and concentration, his language is fluid, at times incoherent and incomprehensible, data that can be verified in the task of retention of Digits, the score on this test demonstrates the inability of the patient to store and manipulate immediate information. The results of the test are compatible where possible with damage in brain structures such as the frontal lobe, orbitofrontal gyrus, dorsolateral cortex and ventromedial cortex, brain structures that are related to the planning, organization, direction and control of the immediate behavior (Executive functions).

Specific cognitive functioning: Please note that the TMT test the following cognitive domains assessed. The data obtained in this section reveal that the patient is not able to focus or focus on the different stimuli presented to him in his immediate context, he is difficult to focus and select activities that are to his liking, this is associated with the problems presented in his immediate verbal memory. This data is verified by the task retention of digits, where it was identified that the patient is not able to follow a sequence of direct numbers and reverse order, thus generating a cognitive bias in the amount of information received and It cannot be manipulated and processed, even though in TMT form A the patient manages to follow the sequence, the execution time is not enough to evaluate it as an apt process in his attentional mechanism.

In the section on executive functions of the FAB was identified that the subject has moderate alterations-severe to plan, organize, direct and control their immediate behavior, the patient difficult to perform tasks involving cognitive skills, language is unclear, hasty and by incomprehensible moments, leading to denote the medium term may present a clinical picture of dysexecutive syndrome that requires immediate intervention. These data are verified by the TMT form B, it is identified that the patient lacks the capacity to handle several dimensions at the same time, the test duration approached the limit of the same, showing that executive type abilities are

altered, associated with a possible injury or dysfunction of the frontal lobe.

In verbal fluency task action and alternating is observed characteristics mark of low verbal fluency, the patient cannot properly process information, and their mixed clinical picture of depression and anxiety, language becomes difficult and frustrating. Data that are again corroborated by the TMT test forms A and B the patient presents a progressive and severe executive problem that must be intervened in an urgent and / or priority way.

As for the visuoconstructive skills, it was identified that the patient has no problems running these tasks, but is slow enough to perform, situation associated with deficits in attention and has executive functioning. Likewise, it must be taken into account that it does not have adequate management of the space and processing of visuospatial and visuoconstructive information, associated to a possible cognitive decline of its occipital lobe, whose main function is the relation and processing of the information by way visual.

As for the immediate, deferred and operational verbal memory test history Babcock found that the patient is unable to recall the information, their inability to retain information apparently is related by its lack of executive type (lobe Frontal), also associated with brain dysfunctions that may be present in hippocampal structures (alveus, fimbria, dentate gyrus). Similarly, it can be inferred that his diagnosis of undifferentiated schizophrenia is compromising fronto-subcortical structures such as its frontal and temporal lobe, which are correlated with information consolidation and immediate behavioral planning. Cognitive and neurological deficits that need immediate intervention.

Rating scale for posttraumatic stress disorder PTSD: Based on the results obtained on this scale, it can be inferred that the patient presents with a clinical picture of PTSD, a product of his military service, his behavior is accompanied by spasmodic movements, auditory hallucinations, paranoid behavior, disinhibition verbal behavior related to violent verbal behavior.

It also identifies states of flashbacks associated with traumatic events that appear to correlate with their stay in military service.

This leads to immediate suggestion that the patient requires care by specialized medicine, aiming at improving their quality of life.

Self-perception of health GHQ-28: Data obtained on this scale indicate that the patient has a potential clinical Neuropsychiatric. Data that are related to their emotional (anxiety) alteration, thus exacerbating somatic symptoms of anxiety and social dysfunction that affect the patient's self-perception of his health and emotional well-being and his quality of life, as well depression is usually correlated with the cognitive decline that the patient is presenting, together with his diagnosis of Schizophrenia and PTSD, which leads to intervention as a priority.

Functionality

To complement the above, it was identified that activities of daily living, valued by the Barthel index and the Lawton and Brody scale show that in a large part of his daily life the patient is functional, however due to his diagnosis of schizophrenia it is necessary to intervene the patient immediately.

At this point, it can be inferred, even affirm that the patient has a clinical picture of progressive cognitive impairment, which is compatible as possible with its mixed clinical picture of depression and anxiety.

Discussion

The results obtained in each of the tests indicate that the patient presents Neuropsychological alterations in cognitive domains such as care, he is not able to retain the attention focus, nor to manipulate information when presented with different stimuli [6].

The data obtained by different investigations [4-6] indicate that patients with PTSD have an inability of attentional control, which may be associated with the traumatic event triggering [15].

The subject of our research presents alterations to consolidate and evoke information, both of an operational nature, as well as immediate verbal processing and long-term memory [5,9,15]. This cognitive dysfunction is accompanied by flashback states that subjects with PTSD experience, correlated with violent behavior responses [15].

The data obtained from different researches show dysregulation between the frontal lobe and the orbitofrontal cortex, generating neurobehavioral alterations in planning, organization, direction and control of immediate behavior, these alterations are related to the incapacity that the subject presents in tasks of verbal fluency, the subject's speech is neither spontaneous nor fluid, data obtained by some studies show [9,15] that PTSD has a negative influence on lexical tasks, verbal fluency, language and learning, related in turn to the functions of the frontal lobe.

Brain dysfunction of the frontal lobe and especially structures related to the hippocampus in the temporal lobe are associated with excessive production of corticosteroids resulting from exposure to high levels of stress [9,18].

Also, brain areas such as the hippocampus and amygdala are over activated [9,10,13,15,18,23,25,40] which are associated with emotional responses to crying, pain and aggression.

This shows that subjects with PTSD have a cognitive impairment that progresses and limits the functional activities of subjects with this pathology. Schizophrenia as a social, individual and familial neurobehavioral disorder also leaves sequels that negatively impact the quality of life of the subject.

For this reason it is necessary to carry out functional Neurorehabilitation works that aim at improving the quality of life of the subjects in each of their dimensions.

This can lead to the prevention of a clinical picture of post-traumatic Alexithymia, and thus avoid episodes of death, war and atrocious episodes that often occur in other contexts.

Conclusions

The data obtained in this clinical case, note that found by other studies [1-12]. Subjects with PTSD are exposed to neurocognitive alterations, accompanied by emotional disorders such as depression, anxiety and apathy that affect the deterioration of the quality of life and self-perception of their health.

This clinical case demonstrates that mental health is a necessity of primary order, unfortunately for the government of turn this becomes a secondary need, talk of peace is not absence of war, therefore, we dare to make a number of suggestions to the national, regional and local government whose objective is the foundation of an adequate mental health plan, among them we can mention:

1. The victims of armed conflict in Colombia must be repaired in social, family and economic aspects or monkeys, but also propend by reinsertion of mental health in the variables aforementioned.
2. The neurorehabilitation process must be functional by professionals, specialized in the area to the clinical neurosciences, basics and applied, especially in the field of clinical neuropsychology.
3. Emotional disorders such as depression or, anxiety and apathy to be working from the first moment of the trauma, this to avoid the succession of the other neuropsychiatric pathologies.
4. The repair of the victims of the armed conflict is not due to focus on administrative issues, if governments and cogobiernos intended to actually improve the victims, must from that reality is the victim and not the government representative. In this case there must be transparency in each of the roles, in order not to confuse the need for victim with the attainment or n cost-benefit by the government of the turn.
5. If we talk about equitable and lasting peace, it is best to intervention socially marginalized sectors, improving health, education or n quality, decent employment and especially listen to the victim of armed conflict. This is an alienable right to human condition or not a favor that a government does to its citizens; on the contrary, we assume that the human being is priority over any democratic section.

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Neurobehavioral disorders in a patient diagnosed with posttraumatic stress disorder and undifferentiated schizophrenia. Clinical case of low prevalence and incidence in Colombia

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