Case Report

Effectiveness of Electroconvulsive Therapy in Functional Neurological Disorders: A Case Report

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Abstract

Electroconvulsive therapy is a type of therapy frequently used in psychiatric clinical practice. Although it is generally used for the treatment of affective disorders or severe and/or resistant psychotic disorders, it has also demonstrated its usefulness in many other neuropsychiatric conditions.

We present the case of a 26-year-old woman, previously diagnosed with a functional neurological disorder—with fixed dystonia phenotype in the right upper limb—, admitted to our hospital for a severe depressive episode. After noting the absence of clinical improvement with psychopharmacological treatment, it was decided to give electroconvulsive therapy, receiving a total of 11 sessions, 9 of which were effective, with bifrontotemporal application, three times a week. The patient experienced a significant improvement, not only at an affective and behavioral level, but also in the dystonia, recovering most of the mobility in the right hand and completely relinquishing the pain.

Although scientific evidence is scarce regarding the use of electroconvulsive therapy in functional neurological disorders, this clinical case supports the existing literature and raises this therapy as a possibility in resistant and comorbid conditions with severe affective disorders.

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Keywords

electroconvulsive therapy; functional neurological disorder; depressive episode

Introduction

Functional neurological disorders (FND), classified in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition (DSM-5) [1] as conversive disorders and in the International Classification of Diseases 11th Revision (ICD-11) [2] as dissociative neurological disorders, encompass all those neurological symptoms in which clinical findings demonstrate an incompatibility between symptoms and known neurological or medical conditions, and involve abnormal functioning of the nervous system rather than structural disease. However, the symptoms are genuine, cause distress and disability, and are associated with high health care costs [3]. They comprise a wide variety of clinical pictures including those involving paralysis or weakness, non-epileptic seizures, involuntary movements such as tremor or gait disorders, speech problems, sensory deficits or chronic pain, among others.

The incidence and prevalence of FND are difficult to estimate, due both to the confusing terminology used—conversion, dissociation, psychogenic, "medically unexplained", etc.—as well as the paucity of studies conducted in this regard. However, some research groups report an incidence of between 4–12 per 100,000 inhabitants/year in the general population, which increases to 10% in the clinical population, most of whom are women [4,5]. The prognosis for these conditions is generally unfavorable, partly because diagnosis is frequently neglected or delayed. While traditionally FND were considered exclusion diagnoses, over the past few years, there recent years has been an emphasis

Fig. 1. Fixed dystonia in right upper limb. Before electroconvulsive therapy.

on the need for a clinical diagnosis based on positive signs documented in the physical examination [6,7]. Moreover, while the DSM-5 [1] eliminated the requirement to identify precipitating stressors for these conditions, numerous studies have shown the presence of stressful or traumatic life events and comorbidity with psychiatric disorders. Therefore, it is crucial to investigate this possibility to ensure a comprehensive approach to patient care [5,7,8].

Concerning treatment, a multidisciplinary approach is essential for addressing these disorders, starting with accurate patient diagnosis and providing psychoeducational interventions and self-help resources. In addition, in many cases the use of rehabilitation, physiotherapy and occupational therapy is useful. Treatment with psychotherapies (cognitive behavioral therapy, mindfulness-based cognitive therapy, psychodynamic psychotherapy, dialectical behavioral therapy, etc.) and psychotropic drugs can also be useful, although the latter are generally used for the treatment of different psychiatric comorbidities [7,9]. Scientific evidence supporting the use of electroconvulsive therapy (ECT) in patients with FND is scarce, consisting mainly of case descriptions. However, despite its infrequent use in this patient population, available data suggest this technique as a potential option for patients with FND and concurrent treatment-resistant major depressive episodes [10].

Case Report

The present case describes a 26-year-old woman with a previous diagnosis of functional neurological disorder—fixed dystonia in the right upper limb—of more than ten years of evolution and significant pain and functional repercussions associated with it. In the last year, the patient began to be seen in a Movement Disorders Unit, integrated by neurology, clinical psychology, psychiatry and physiotherapy. Although initially an improvement of the neurological picture was observed, a recurrent depressive disorder with the presence of severe depressive episodes began to emerge in parallel, and the pain and mobility of the hand worsened again a few weeks later. The patient has required three hospital admissions in the last year, all of them for depressive symptoms and persistent self-harming ideation, the last one being the one we will discuss below.

The patient was admitted to the acute care unit for presenting a major depressive episode consisting of marked apathy, anergia and anhedonia, with complete abandonment of studies and social activities. In addition, she verbalized a persistent and structured self-harming ideation. In the psychopathological examination of the patient, her uncooperative attitude was striking, with sparse speech and very limited affective language and marked alexithymia. The patient also showed poor affective resonance and irradiation, with little syntonic and puerile contact, and she reported a loss of 4 kg in the last month due to decreased appetite, having also stopped taking medication.

The patient shows a poor insight of the process, with the existence of mnesic gaps that seem to be dissociative and obsessive and hyper demanding personality traits. Both she and her family deny at all times stressors or traumatic antecedents.

Given the poor response to multiple therapeutic trials - both during the last year and during admission- with antidepressants, anticonvulsants, antipsychotics and anxiolytics, electroconvulsive therapy is indicated. ECT was performed with Thymatron® System IV, and the patient received a total of 11 sessions, 9 of which were crisis of optimum quality and duration, with bifrontotemporal application, three times a week and without incident. Gradually an improvement of the condition was observed, going from a score of 6

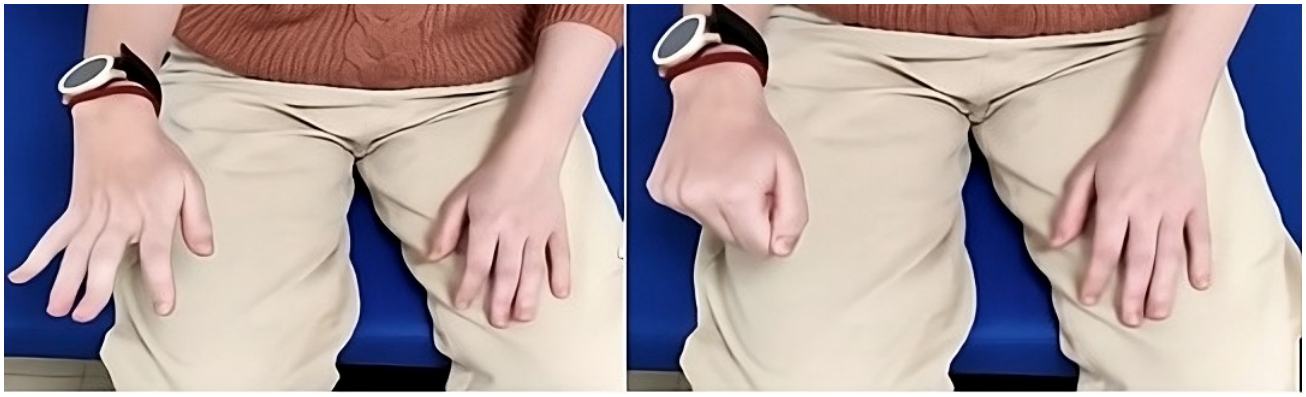

Fig. 2. Fixed dystonia in right upper limb. After electroconvulsive therapy.

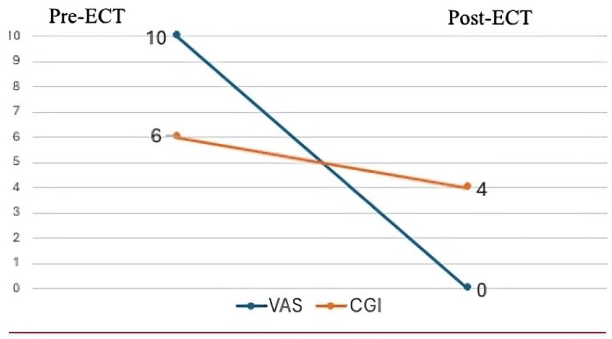

Fig. 3. VAS and CGI pre/post-ECT. ECT, electroconvulsive therapy; VAS, Visual Analogue Scale; CGI, Clinical Global Impression Scale.

(severely ill) on the Clinical Global Impression Scale (CGI) [11] at the beginning of admission to 4 (moderately ill) at the time of discharge, and highlighting the progressive recovery of hand mobility, with the presence of disabling pain with a score of 10/10 on the pre-treatment Visual Analogue Scale (VAS) [12], and a complete absence of pain with a score of 0/10 at the time of discharge (Figs. 1,2,3).

Discussion

ECT has been widely recognized as an effective treatment for cases of treatment-resistant depression, and it is considered the gold standard treatment in such situations due to the robust scientific evidence that backs its effectivity [13]. In addition, ECT has demonstrated efficacy in the treatment of other psychiatric and non-psychiatric disorders, including movement disorders. In this respect, studies since 1959 reveal an improvement of parkinsonism in more than half of the patients with Parkinson's disease receiving ECT, regardless of the presence or absence of psychiatric comorbidity. Drug-induced parkinsonism, tardive dystonia and tardive dyskinesia have also been shown to improve with ECT administration, as well as neuroleptic malignant syndrome or Huntington's chorea. That is, a growing body of literature suggests the efficacy of ECT for a wide variety of movement disorders with and without comorbid psychotic or mood disorders [14,15].

Regarding the use of ECT in patients with FND, there is limited literature available up to the present time, and the quality of the few identified articles is poor, mostly comprising clinical cases. Therefore, meta-analyses of the outcomes are not available [16]. This calls for caution in assuming any beneficial effect of ECT in FND, although data support this treatment as a useful alternative in refractory cases, especially when comorbid with affective disorders, as illustrated, for instance, by a case report in which after 15 sessions of ECT, both the functional tremor and the concurrent major depressive disorder presented by the patient were resolved [10].

Although the exact mechanism of ECT remains unknown, the structural and brain plasticity changes, neurogenesis, immunological and endocrine changes, neurotransmitter release, and other neurobiological alterations demonstrated by this therapy may not only underlie the improvement in affective symptoms but also in the functional disorder [17].

Within this context, the management of this intricate case, involving a patient presenting with functional dystonia, severe pain, and diminished mobility alongside a concurrent severe depressive episode resistant to numerous therapeutic interventions, underscores ECT as a potentially beneficial alternative. Following 11 sessions of ECT, the patient exhibited comprehensive clinical improvement in both depressive and neurological symptoms, achieving complete pain resolution and restored mobility.

Conclusions

All in all, this clinical case illustrates a severe and resistant depressive disorder in a patient with a FND, supporting the need for a comprehensive approach to patients with comorbid movement disorders and mood disorders. In line with the scientific literature, this case report supports the efficacy of employing ECT in patients diagnosed with FND alongside comorbid major depressive disorder.

Availability of Data and Materials

The datasets used and/or analyzed during the current study are available from the corresponding author on reasonable request.

Author Contributions

MDPPO: acquisition of data; preparation of the manuscript; discussion; editorial changes. LGD: acquisition of data; discussion and revision. Both authors read and approved the final manuscript. Both authors agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Ethics Approval and Consent to Participate

This is a purely clinical observational study that does not involve intervention other than routine medical care and can receive ethical exemption. The processing of the data of the present clinical case was governed by the ethical principles established in the Declaration of Helsinki on Medical Research Involving Human Subjects and complied with the Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (RGPD) and the Organic Law 3/2018 of 5 December, on the Protection of Personal Data and Guarantee of Digital Rights. Written consent was obtained for the processing of personal data for the publication of both health data and images present in the publication.

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Conflict of Interest

The authors declare no conflict of interest.

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