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Psychiatric considerations of multiple sclerosis

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Abstract---*Multiple sclerosis is a degenerative neuroinflammatory disease that affects the central nervous system with a wide range of neurological and psychiatric symptoms. A correct differential diagnosis is crucial for the management of pathology and there are specific diagnostic methods. This study presents the case of a 53-year-old patient diagnosed with Strumpell-Lorrain disease resistant to psychopharmacological treatment for depression and anxiety who, after the change of diagnosis and therapy to multiple sclerosis, showed clinical improvement in psychiatric symptoms.*
Keywords---*case report, multiple sclerosis, psychiatric considerations, resistant depression*.

Introduction

Multiple sclerosis (MS) is a pathology of special clinical and scientific interest due to several particularities that challenge even the most experienced neurologists in clinical practice, not only due to the inherent difficulty that represents a disease whose etiopathogenesis is still under discussion (Tobore, 2020; Titus et al., 2020) or the need for diagnostic studies carried out by specialized health centers such as magnetic resonance imaging or cerebrospinal fluid analysis in certain cases, but also due to the significant increase in the risk of death of these patients over the general population and its consequent reduction in life expectancy (Palladino et al., 2020; Willumsen et al., 2022).

What is attributed as the first description of what was then called “disseminated sclerosis” was the work of the French neurologist Jean Cruveilhier in 1835. However, it was not until 1849 that the German Friedrich Theodor von Frerichs gave its anatomopathological, epidemiological and symptomatologic concepts to the disease that closely resemble the current description of it (Moreira et al., 2002). Despite this, Jean-Martin Charcot is credited with the greatest scientific dissemination of this disease by describing it as a disease that could easily be confused with paralysis, but which had the peculiarities of presenting dissemination in time and space, of having remissions and exacerbations in addition to preferentially affecting myelin and have main locations in the periventricular area, the optic nerve, and the spinal cord (Charcot, 1868).

There are various research works that recommend an exhaustive analysis of differential diagnoses since many cases can mimic the symptoms of MS, have an atypical presentation or even a superposition of radiological findings

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(Wildner et al., 2020; Solomon et al., 2023; Alberte-Woodward et al., 2023; Maier et al., 2024; Oh, 2022), also mentioning the need for specific biomarkers that facilitate early treatment.

As primary states of most neuroinflammatory diseases have common symptoms, the use of diagnosis studies is crucial to establish a diagnosis. Strumpell-Lorrain disease is one of the differential diagnoses that should be analyzed when a case with progressive neuroinflammatory symptoms arrives at any clinical consultation. In the current research work we present a case of scientific interest due to the clinical presentation of the patient that encompasses neurological and psychiatric symptomatology. Do not use numbers or alphabets in headings and sub-headings (*Example A. Introduction 1. Body)*. Use the following style for headings and sub-headings (Chwastiak & Ehde, 2007; Sá, 2008; Sarwer & Fabricatore, 2008; Shanmugam et al., 2007).

Case report

A 53-year-old man presented to a psychiatric consultation as result of a reference by the neurologist due to neurocognitive and affective disorders in the context of a neuroinflammatory disease. The disease started 16 years prior to presentation, when the patient was diagnosis of multiple sclerosis. As the patient was attended to in the public health system, the clinical story was available for examination, standing out the fact that the diagnosis was established only by the analysis of the symptoms presented, without the use of diagnosis studies.

Six years after, because of the progression of symptomatology, the patient changed the neurologist in charge of his care in a public institution for a private neurologist. There he got the diagnosis changed to Strumpell-Lorrain disease, once again without the use of diagnosis studies. After that the patient continued constantly changing his health provider. In the year 2022 after vision problems, he was diagnosis with a transient ischemic attack as he had no controlled arterial hypertension and retake the healthcare in public institutions. Arriving at the time when he was referred to the psychiatric consultation another relevant somatic symptomatology was neurogenic bladder.

In the department of psychiatry, symptoms of affective disorders were identified. The psychiatric symptomatology shown by the patient were anhedonia, insomnia, fatigue, irritability, depression and anxiety that manifested as fear of death while sleeping. At the first consultation, the diagnoses of mix disorder of anxiety and depression was established and the treatment recommended was fluoxetine 10mg in the morning and hydroxyzine 10 mg in the night as the patient had never taken any benzodiazepine.

The patient's perception of improvement was momentary and moderate, so the dose of fluoxetine was gradually increased, and hydroxyzine was withdrawn to establish clonazepam. Despite therapeutic efforts and reaching the maximum recommended doses of the chosen drugs, the symptoms did not improve after three months of treatment. The antidepressant treatment was changed to duloxetine, reaching again the maximum recommended dose without significant improvement. It was recommended to the neurology department to perform a cerebrospinal fluid analysis, which showed anatomopathological characteristics that indicated multiple sclerosis.

After the diagnosis of multiple sclerosis was reestablished, the patient began to be treated with immunomodulatory therapy in addition to continuing with the therapy recommended by the psychiatry department focused on controlling the affective symptoms. At the monthly appointment after the start of immunomodulatory therapy, the affective symptoms persisted but with less intensity and the patient reported feeling hopeful because the relapses of neurological symptoms had been shorter. Four months into the immunomodulatory therapy, the anxiety symptoms were minimal, so clonazepam was gradually discontinued, and it was recommended that antidepressant therapy be continued in conjunction with psychotherapy, with good subsequent results (Moore et al., 2012; Marrie et al., 2018; Herman et al., 2022; Aryani et al., 2017).

Literature Research
Definition

MS is defined as a demyelinating, inflammatory and autoimmune pathology that affects the central nervous system mainly in periventricular areas, the optic nerve, and the spinal cord. It is a progressive pathology with remissions and disseminated outbreaks. People from northern Europe and northern America between the ages of 20-40 are the demographic group most affected by this disease which denotes a genetic predisposition that requires a yet undetermined triggering environmental agent to commence.

Epidemiology

Sweden, Finland, Germany, Denmark, Italy, Canada, and the United States are specifically the areas in which there appears to be a higher prevalence of MS in the world with more than 200 cases per 100,000 inhabitants, all these territories having high or moderate reliability of the data according to the third edition of the MS atlas (Walton et al., 2020). It is also reported that about 2.8 million people suffered from MS by 2020 with an annual incidence of approximately 2.1 per 100,000 inhabitants globally and that between 2013 and 2020 the increase in the prevalence of MS globally (81 participating countries) was 50% (Walton et al., 2020).

Clinical manifestations

The symptoms presented in MS involve several domains of brain activity and are highly variable between each patient, however the following list covers those domains that can be observed most frequently in patients suffering from the disease according to the North American Committee on Multiple Sclerosis Research (NARCOMS), observed in figure 1

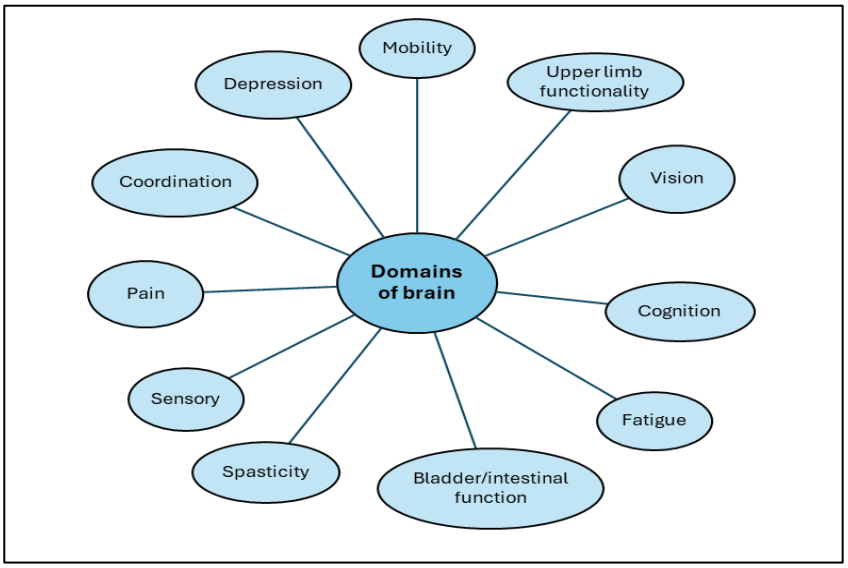

Figure 1. Domains of brain

Psychiatric disorders in MS

It is known that the various mental functions respond to the proper functioning of brain structures, this explains the appearance of psychiatric comorbidities in MS. As this is a disease whose treatment is based on slowing down progression and improving the quality of life of patients, the psychiatric disorders that occur must be treated with special attention and individualizing the care given to each patient. The presentation of psychiatric disorders is highly variable, but the most common are depression, anxiety, bipolar disorder, psychotic disorders, personality disorders, substance abuse, and cognitive disorders.

Depressive symptoms can be found in up to 50% of cases in the early stages of the disease. These include sleep disorders, irritability, concentration problems, poor appetite, and fatigue; all these significantly affect the patient's quality of life, especially fatigue, which has been identified as the most disabling (Paparrigopoulos et al., 2010). A metanalysis carried out by Spat, et al identified depression in 15.78% for the relapsing-remitting type and 19.13% for the progressive type of disease. Anxiety, on the other hand, was found in 21.40% of patients with relapsing-remitting MS and in 24.07% of patients who had a progressive presentation (Peres et al., 2022).

Cognitive disorders occur in about 65% of MS patients and can be present from early stages of the disease (Maiese, 2023). Many cognitive symptoms can be confused as the result of the sensory impairment that commonly occurs in the pathology (especially visual), so a specialized assessment is required for their identification. Psychotic disorders are relatively uncommon in MS; however, these patients are at significantly higher risk than the general population. The most common symptoms are delusions, auditory hallucinations, and visual hallucinations (Sabe &

Sentissi, 2022). The rest of the psychiatric comorbidities with a lower prevalence (alcohol abuse with up to 18.2%, bipolar disorder with 5.8% and personality disorders with 2.6%) (Silveira et al., 2019), should be managed without special considerations.

Discussion

The complexity and variability of the clinical presentation of the disease requires a multidisciplinary effort between neurology and psychiatry to better manage the symptoms that afflict patients with MS. Many of these, mainly those related to the affective sphere, can be found from the early stages of the disease or even before the diagnosis of MS has been confirmed, which has led to hypotheses about the prodromal validity of depression and anxiety in this pathology (Yusuf et al., 2020). Also, its management plays an important role in the course of the disease since it negatively influences treatment adherence (Kołtuniuk & Rosińczuk, 2021).

Although the appearance of psychiatric symptoms in MS occurs because of neuroinflammation and axonal loss, it must be considered that immunomodulatory therapy (treatment of choice for the disease) is responsible for adverse effects in several organs. Psychiatric adverse effects, despite having a lower prevalence (2.71%), must be considered when evaluating the patient's mental status since psychiatric disorders can be induced by immunotherapy (Zhou et al., 2023).

In patients with MS, impairment is mainly found in the speed of processing information, attention and concentration deficits and deterioration in visual-perceptive functions. Short and long-term memory is also affected with the particularity that implicit memory seems not to be compromised. Due to the pathophysiology of the disease, anti-inflammatory and immunomodulatory therapies are usually beneficial. Since certain symptoms of depression and anxiety often co-occur and may be a consequence of MS, it is important to use screening tools such as the Beck Depression Scale or the Hospital Anxiety and Depression Scale (HADS) to avoid overdiagnosis and provide timely treatment, with usual management being recommended for depression and anxiety depending on the patient's individual response (Brenner & Piehl, 2016). Finally, it is important to keep in mind that in certain cases of psychotic disorders, immunomodulatory therapy has presented better results than antipsychotics (Sabe & Sentissi, 2022).

Conclusions

Neuroinflammatory diseases are pathologies that require an exhaustive study of differential diagnoses due to almost identical clinical manifestations. The use of diagnostic imaging tools and analysis of cerebrospinal fluid are almost mandatory. Psychiatric disorders are common comorbidities in multiple sclerosis and should be treated with pharmacotherapy and psychotherapy focused on alleviating symptoms, especially during periods of relapse. Although antidepressants, anxiolytics and anticholinergics help control psychiatric symptoms presented in multiple sclerosis, the use of immunomodulatory therapy that delays the progression of the disease presents positive results, either due to the somatic improvement itself or due to the hope it projects in the patient.

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