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Impact of COVID-19 Pandemic in Patients with Demyelinizing Diseases

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Abstract

Introduction: More than a year after the start of the pandemic, the follow-up and face-to-face care of patients with demyelinating diseases has been modified. According to the evidence, patients with a diagnosis of multiple sclerosis (MS), isolated demyelinating syndrome (ADS), Isolated Radiological Syndrome (RAS) or neuromyelitis optica (NMO) spectrum diseases do not seem to be a risk group for COVID19 due to the fact that they have the disease. The presence of certain conditions can make them susceptible to severe infection. A severe course association with anti-CD20 drugs has been described, data on the response to COVID19 vaccines in this population are lacking.

Objectives: To establish clinical-epidemiological characteristics of patients with demyelinating diseases who have suffered from COVID-19 and describe their evolution. Characterize the vaccinated population, evaluate access to medical/therapeutic follow-up during the pandemic. Materials and methods: Descriptive observational study. The medical records of 168 patients with MS, ADS and ARS and 33 patients with NMO corresponding to the Hospital de Clínicas José de San Martin were reviewed. Through a telephone survey, adherence to treatment, clinical evolution, COVID-19 infection, vaccination, and access during the pandemic were evaluated.

Results: 49 patients who developed COVID-19 were found in the MS patient group, and 7 in the NMO group. Of the first group, none required hospitalization, unlike in the second, 2 were hospitalized and one of them died. The most frequent post-COVID complication was: prolonged asthenia and 3 patients presented an outbreak of the underlying disease in the following 3 months. Close to 90% of our population already had at least 1 dose of SARS-CoV2 vaccine. Access to the neurological consultation was questioned and almost 70% of the patients gave the highest score to access to virtual consultations.

Conclusion: Patients with demyelinating diseases who had COVID-19 did not have severe complications from the infection, with only 2 patients having an outbreak in the subsequent 3 months. We did not observe severe post-vaccinal adverse reactions, nor subsequent infection, only 2 patients presented an outbreak in the post-application period. A large number of patients perceived fluid access to their neurologists virtually, which could be related to a high rate of adherence to their treatments despite the limitation to face-to-face consultation.

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Introduction

During 2020, a pandemic was developed by COVID-19, infection caused by the SARS-COV2, which produces a severe respiratory infection and high contagion rate. Due to this pandemic, a quarantine was decreed that consisted of insulation at home, only with permission to circulate essential personnel for the care of the population, it lasted for several months in Argentina.

In our country, we registered two large spikes of contagion and Sars-COV2 disease, the first between July and September 2020 and the second between March and May 2021. To counteract serious diseases and hospitalizations by COVID-19, the Vaccination programs at the public level from January 2020, starting with health workers, then by risk people, and finally towards the middle of the year began with the general population.

Demonicizing diseases are entities whose pathology involves inflammatory processes mainly at the level of the white substance of the central nervous system. Among them we can highlight two large groups, multiple sclerosis (including all its variants and isolated and radiological demyelinizer syndromes) and diseases of the optical neuromyelitis spectrum (NMO). Due to its inflammatory nature, its long -term and modifier treatment of the disease, they are based on modular and suppress the immune system.

Several studies from different cohorts of the world have established the relationship between frequency and severity of COVID-19 in patients with demyelinizing diseases [1-8]. Population had a greater frequency of SARS-COV2 infection than the general population. In the Latin American cohort reported by Alonso R, et al. (2021) [1], within the multiple sclerosis cohort, they found a greater risk of presenting serious pictures in those with an advanced age, high EDSS and long

duration of base disease, however, the same according to the modifier treatments of disease or obesity. As for the NMO cohort, they presented a higher percentage of hospitalization and requirement of UTI, also evidencing deaths in a third of it, taking into account the significantly lower sample size for this cohort, other associations were not reached [9].

Taking into account these data, our objective was to describe how our population of patients with demyelinizing diseases followed at the José de San Martín Clinic, located in the city of Buenos Aires, during the pandemic, the frequency of infections by SARS- COV2, vaccination for it and access to the health system.

Materials and Method

For our work, an observational, descriptive, retrospective study was conducted. Patients were included in follow-up for the service of demyelinizing diseases and the General Neurology Service, of the Department of Neurology of the Hospital of Clinics "José de San Martín", of Buenos Aires, with a diagnosis of demyelinating disease. The database was separated, the first group was formed by patients who had multiple sclerosis (all its variants), isolated demyelinizer syndrome (SDA) and isolated radiological syndrome (MSR); the second group was formed by patients with diseases of the optical neuromyelitis spectrum (NMO).

For data collection, 201 medical records with demyelinizing diseases were reviewed, added to the realization of a telephone survey. It was made up of the data on SARS-COV2 infection and possible sequelae, virus vaccination and adverse effects and finally the perception of access to its header neurologists, scoring it from 1 to 5, non-pharmacological treatments (kinesiology, psychotherapy) and complementary control studies (magnetic resonance and blood analysis).

Once the data was obtained, they were processed by making frequency measures.

Results

201 surveys were conducted, the first group (EM) was consisting of 168 patients, and the second (NMO) by 33. Table 1 can find the characteristics of both.

Table 1: EM and NMO.

N	**168**	**33**
Sex No. (%)	Women 112 (66.7%)	Women 25 (75.8%)
Average age	39.52 years	44.24 years
Place of residence		
GBA	90 (53.6%)	20 (60.6%)
CABA	55 (32.7%)	5 (15.2%)
Pcia BS.AS.	13 (7.7%)	4 (12.1%)
Another province of Argentina	10 (6%)	4 (12.1%)
Diagnosis ED		
RRMS	132 (78.6%)	-
PMSC	11 (6.5%)	-
PFMT	14 (8.3%)	-
SDA	7 (4.2%)	-
MRS	4 (2.4%)	-
seropositive NMO	-	21 (63.6%)
NMO seronegative	-	8 (24.2%)
Recurrent optic neuritis	-	3 (9.1%)
Ac Mog disease	-	1 (3%)
Comorbidities		
AHT	15 (8.9%)	5 (15.2%)
DBT	10 (6%)	1 (3%)
Obesity	16 (9.5%)	2 (6.1%)
Chronic lung disease	6 (3.6%)	0
Heart disease	1 (0.6%)	0
Neoplasm	1 (0.6%)	0
smoking	42 (25%)	3 (9.1%)
no diseases	130 (77.4%)	25 (75.8%)
SARS-CoV2 infection	69 (39.8%)	7 (21.21%)
Hospitalization in general room	0	2 (18.2%)
Hospitalization in ICU	0	1 (9.1%)
death by sars cov-2	0	1 (9.1%)
Medication withdrawal		
For fear of contracting covid-19	4 (2.4%)	0
During infection	3 (4.7%)	1 (12.5%)
Vaccination	155 (92.3%)	27 (81.8%)
Post-COVID-19 ED Outbreak	2 (3.9%)	1 (14.8%)

Within the patients of the first group, an average age of 39.52 years was observed, the majority being women (66.7%). The most frequent diagnosis was multiple recurrent mouth -mouth disease (EMRR). At the time of the start of the pandemic, 78.6% were under modifying treatment of the disease (Figure 1), therefore, asked if they had suspended the same for fear of contracting COVID-19 and only 4 patients (2, 4%) answered affirmatively. As for COVID-19, we observed that 69 patients had contracted the infection, and none of them required hospitalization for it. In Figure 2 we described the sequels that subsequently presented, only 2 patients developed an EM outbreak within 3 months after infection. As for Vaccination for COVID-19, 155 individuals had accessed at least 1 doses of the same, being the most frequent Sputnik V (45.8%) and Astrazeneca (44.5%), to a lesser extent SINOPHARM (9, 7%), the complications associated with vaccines are found in Figure 3.

In the second group we found an average older age (44.24 years), with a predominance of women (75.8%) and the most frequent diagnosis was only seropositive. 78.8% were with the modifier treatment of the disease (Figure 4), none of them suspended it during the pandemic for fear of contracting COVID-19 and only 1 did it during infection. With respect to COVID-19, 7 patients contracted it, 2 required hospitalization and one of them presented a severe form with an UTI requirement and subsequently died. In Figure 2 we described the post -covid sequelae they developed and only 1 individual presented an NMO outbreak in later 3 months. Regarding vaccination for SARS-COV2, 27 patients accessed it, with a sputnik frequency (50%), Astrazeneca (34.6%) and but sinopharm (15.4%), complications associated with vaccines are describe in Figure 3.

In both groups, it was questioned about access to their header

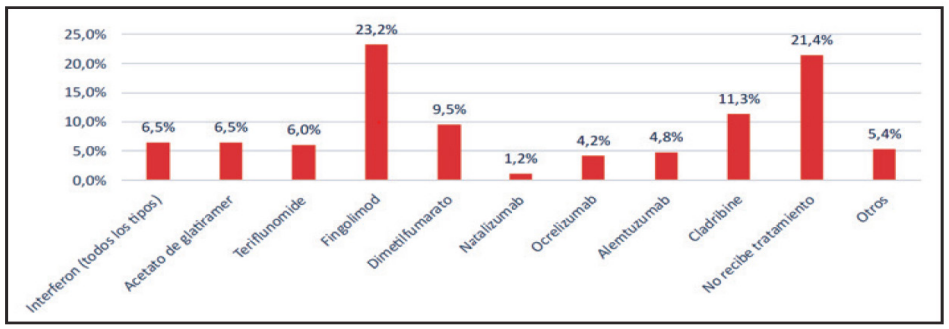

Figure 1: Tratamiento de EM.

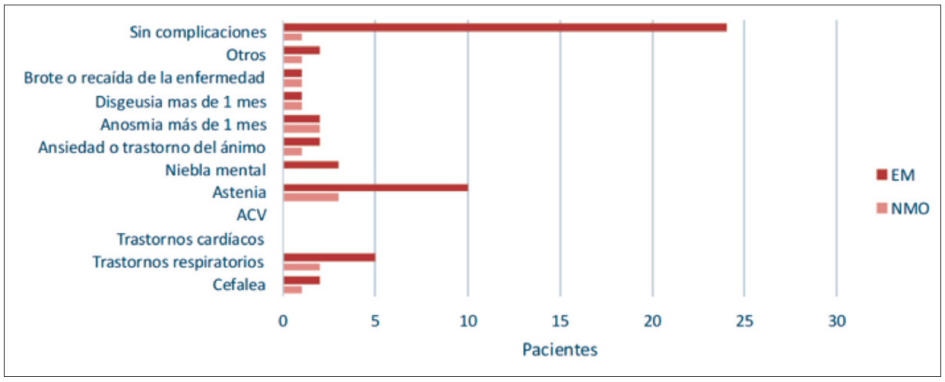

Figure 2: Sequelae or complications Post COVID-19.

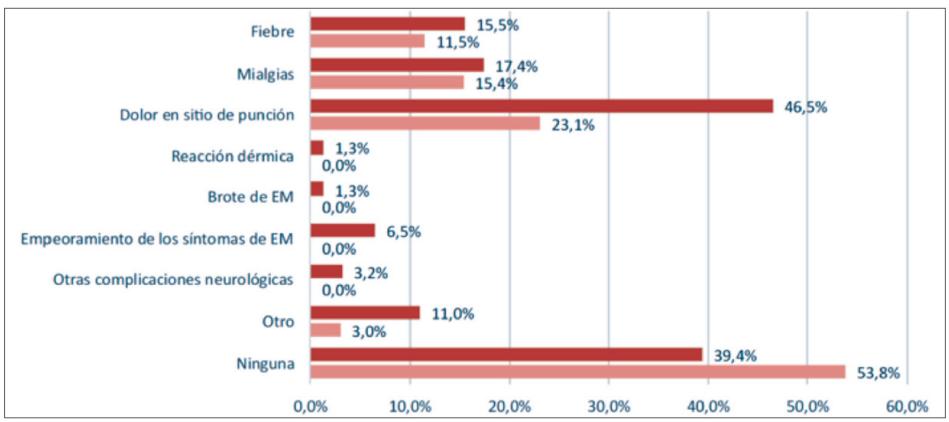

Figure 3: Adverse effects of the vaccination.

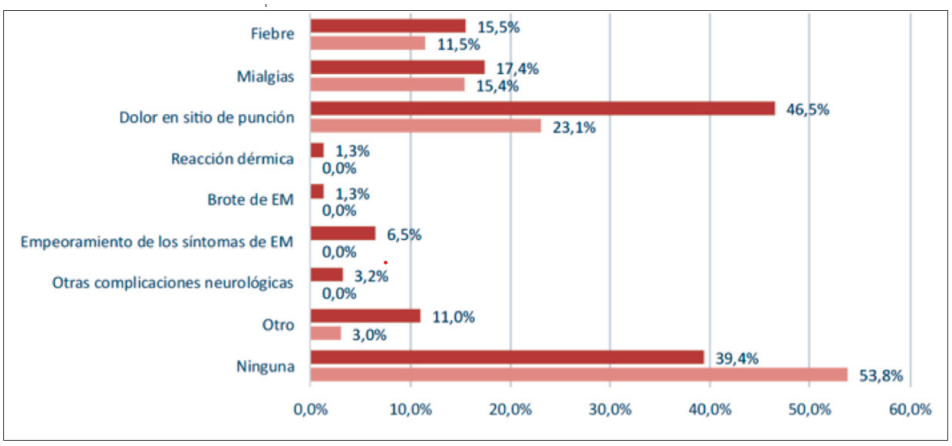

Figure 4: NMO Treatment.

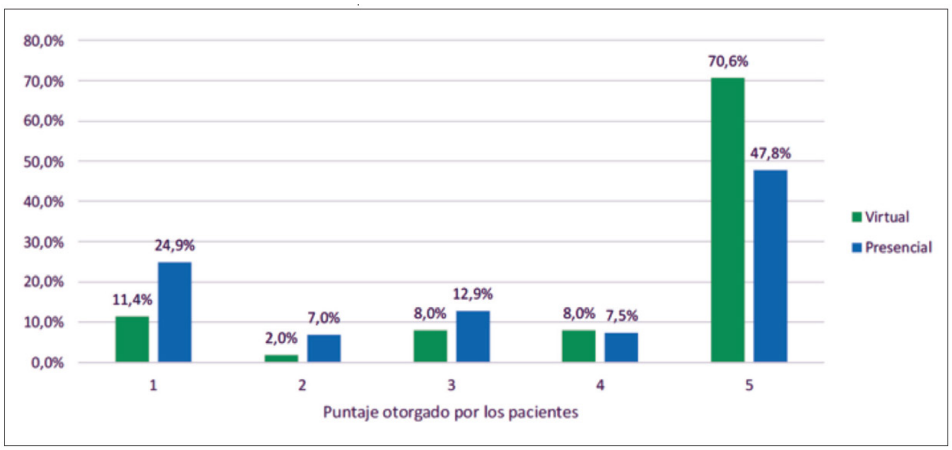

Figure 5: Access to neurological consultation.

neurologist both virtually and in person, more than half of the patients granted the maximum score in both cases, being higher for virtual consultations (Figure 4 and Figure 5). Similarly, it was consulted about the continuity of treatments such as kinesiology or psychotherapies during pandemic, in this case a large part of the patients had to abandon the first, 26 had to suspend their kinesiotherapy and 18 their follow-up psychological. With respect to complementary control studies, only 53.2% could carry out their control RMI without complications, and 63.63% its blood test.

Discussion

We find in our population a frequency of similar SARS-COV2 infection in both groups, but like Latin American cohort, with the highest internment requirement in patients with NMO, however in the EM group, no hospitalizations were recorded. The only patient who died from a severe picture of COVID-19, was inside the NMO cohort, and also presented Miasthenia Gravis.

We observed that within our sample there was a low abandonment rate of the modifier treatment of the base disease, both during the pandemic, and within the patients who developed COVID-19. Our population was mostly vaccinated the month prior to the completion of the survey, taking into account the health policies of our country, since they did not belong to the pathologies that represented a risk factor. The average age of our sample was about 40 years, therefore, most had only 1 doses of the same and the applied vaccines were Sputnik, Astrazeneca and Sinopharm. A single patient contracted the infection after the first dose and presented a mild disease.

Finally, access to the neurological monitoring consultation during the pandemic was evaluated, where we observe that almost 70% of our population could access its neurologist in a virtual way, granting the maximum qualification. On the contrary, about 50% could go in person. Because this part of the study allowed us to obtain qualitative data, some of the limitations for face-to-face access, were to live outside the AMBA and the restrictions in public transport. Regarding the continuity of kinesiological and psychological treatments, they were suspended in approximately half of the patients who performed them, because these practices were affected by the prioritization of COVID-19 patients in institutions by institutions by the institutions by of Kinesiology at the national level and suspension of face-to-face offices for psychotherapies. Similarly, we also find complications to carry out the follow-up studies in a timely manner, the most frequently observed was prolongation of the times for the assignment of shifts.

Conclusion

The majority of patients with demyelinizing diseases who attended Covid-19 had no complications, registering only 1 patient with severe disease and death and 3 patients studying in the later 3 months.

In vaccinated patients we do not observe severe adverse reactions

or subsequent infection. Only 2 patients had outbreak in the post application period. A large number of patients received fluid access to their neurologists in a virtual way, which could be related to a high rate of adherence to their treatments despite the limitation to the face-to-face consultation.

Declarations

The authors declare that they have no conflicts of interest, that the work has been approved by the ethics committee responsible in the workplace, and do not declare means of financing of the work carried out.

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