A total of 52 patients were analysed (Table 1). At least 3 of the 7 parameters of inflammation evaluated were elevated in all of them. A correlation was observed between CRP levels and LDH levels (Pearson's r coefficient, 0.44, p < 0.01), fibrinogen (0.74, p < 0.01) and ferritin (0.40, p < 0.01). D-dimer levels at admission were correlated with troponin-I levels (0.66, p < 0.01) but not with acute phase reactants (CRP, LDH, fibrinogen, and ferritin).

The score on the CURB65 scale was associated with a higher risk of dying or requiring admission to the ICU (OR 4.27; CI 95%: 1.6-11.25). Among the inflammatory parameters on admission, troponin-I levels (OR 2.21; CI 95%: 1.17-4.16) and D-dimer (OR 11.98; CI 95%: 1.72-83.27) were associated with a worse prognosis. Increasing D-dimer levels above laboratory normal limits (500 ng/ml) showed a negative predictive value of 100%. The ROC analysis of the predictive ability of D-dimer levels showed an AUC of 0.81 (CI 95%: 0.69-0.92), and a cut-off point> 1,200 ng/ml showed a sensitivity of 71.43% and a specificity of 90.91%.

Increasing levels of troponin-I above laboratory normal limits (34 pg/ml) associated a worse prognosis (Wilcoxon test, p < 0.01). ROC analysis for troponin-I levels yielded an AUC of 0.81 (CI 95%: 0.67-0.92), with a cut-off point of 34 pg/ml to obtain the best sensitivity (66.67%) and specificity (91.89%) data.

D-dimer values (OR 4.89; CI 95%: 1.26-18.93) and CRP at 48 h were associated with the risk of dying or requiring admission to the ICU (OR 5.36; CI 95%: 1.19-24.09). A prognostic scale was created with the number of inflammatory parameters increased above the normal limits, associating the score at admission to a worse prognosis (for each increased value: OR 2.6; CI 95%: 1.17-5.76).

Some of the factors described in the literature as predictors of a worse prognosis in SARS-CoV-2 infection (age and male sex) are maintained in our study.[1] All of the deceased patients (5/52) and those who required ICU were male, and advanced age was associated with higher mortality. In addition, higher scores on the CURB65 scale were associated with higher mortality, as in other published studies.[5]

Previous studies have shown an increase in inflammatory parameters and mild cytopenia in cases of severe progression.[3] Elevated levels of D-dimer and troponin-I on admission were associated with higher mortality and disease severity in our population, with a negative predictive value of 100% in the case of D-dimer.

In conclusion, the use of inflammatory parameters such as troponin-I or D-dimer, as well as clinical scales such as CURB65, help to predict a worse COVID-19 disease progression. Their implementation in clinical practice makes it possible to optimize therapeutic algorithms and rationalize resources in situations of health crisis.

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Comparison of telehealth and traditional face-to-face model during COVID-19 pandemic☆

Comparación de la teleconsulta con el modelo presencial tradicional durante la pandemia COVID-19

To the Editor,

As early as 1974, telehealth was being discussed as a link between hospitals and homes.[1] There were few publications on the subject until 1992, the turning point when publications on this model started to emerge. Face-to-face interactions will always play a central role in our healthcare system. But a system based on high-quality remote care might work better for many patients and quite possibly for some doctors as well.[2] Since the advent of SARS-CoV-2, telehealth has become a useful tool in certain healthcare systems.[3] This disruptive experience has meant a sudden and total shift from face-to-face consultations to a virtual model, unprecedented in many health systems.

Our department implemented a comprehensive telecardiology model from 16th March until 1st May, time when we progressively returned to face-to-face activity. We do not yet have a specific tool, therefore, the model relied on two simple pillars, the electronic medical record and the telephone call as a means of communication with users and colleagues.

A total of 1721 teleconsultations were carried out, of which 1339 came from general consultations, 67 from the cardiac rehabilitation consultation and 315 from the monographic consultation on Advanced Heart Failure.

For the analysis of the results we propose 3 possibilities: (1) follow-up (it is resolved by teleconsultation and requires a check-up/complementary test); (2) resolved (it is resolved by teleconsultation without the need for further follow-up) and (3) re-appointment (requires a face-to-face visit).

Of the total of 1721 patients contacted by teleconsultation, 1156 (67.2%) were referred for a follow-up, 332 (19.3%) were resolved and only 233 (13.5%) required re-appointment

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Table 1
Interventions on follow-up patients according to the care model.

Intervention in the follow-up group	Face-to-face model	Teleconsultation model	*p*
Resolved	237 (23.2%)	259 (25.3%)	0,262
Follow-up visit	786 (76.8%)	764 (74.6%)	
Re-appointment	0	1 (0.1)	
Total	1023	1024	

We analysed general consultations due to their greater volume (1339 patients), differentiating two tasks: first visits (315 patients) and follow-up visits (1024 patients). Of the first-visit patients, 18.1% were referred for a follow-up, 16.2% were resolved and 65.7% required a face-to-face visit. Of the follow-up group, 74.6% were doing a check-up, 25.3% were resolved and only 0.1% required a face-to-face visit.

Despite the technical limitations, the percentage of resolutions of first-visit patients was not negligible (34.3%) but without a doubt, what was striking was the resolution capacity of almost 100% of the patients in the follow-up group. This data led us to perform a comparative analysis with the face-to-face model of 1023 review patients seen in the 7 weeks prior to the start of the teleconsultation model. Of these 1023 patients seen in person, 237 (23.2%) were resolved and 786 (76.8%) went for a follow-up visit (Table 1). We did not observe statistically significant differences in the outcomes of the follow-up group when the face-to-face model was compared to teleconsultation ($p = 0.262$).

Finally, we compared the number of patients who did not come to the face-to-face consultation (167, 12.5%) versus the number of patients who did not respond to the phone call (42, 3.1%), observing a statistically significant difference ($p < 0.001$).

Although we are aware of the need for longer-term comparative studies evaluating the results of teleconsultation, telehealth interventions generally seem equivalent to face-to-face care.[4] This healthcare modality is promising and has adequate resolution rates for a specific group of patients, such as those under follow-up for stable chronic diseases and those who come to the clinic to collect results. For this reason, it is vitally important to invest in and develop platforms that allow effective communication between healthcare levels and between healthcare providers-patients because, without a doubt, telehealth will be part of our daily healthcare work.

Conflict of interests

The authors declare no conflict of interest.

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Risk of SARS-CoV-2 infection and clinical outcomes in multiple sclerosis patients in La Rioja (Spain) Riesgo de infección por SARS-CoV-2 y resultados clínicos en pacientes con esclerosis múltiple en la Rioja (España)

During the beginning of 2020 we have witnessed a pandemic caused by the SARS-CoV-2 virus, which has confronted us with numerous questions, particularly in patients with special clinical characteristics, such as those suffering from multiple sclerosis (MS), many of whom are being treated with immunomodulatory or immunosuppressants that compromise their immune system, which could imply a higher risk of becoming ill or of developing a worse clinical course. To verify this hypothesis, a descriptive study has been designed by reviewing the medical records of all patients diagnosed with MS in the autonomous community of La Rioja, collecting clinical and epidemiological data.

At the time of the study, La Rioja has 316,798 inhabitants, 330 diagnosed with MS (1.04/1000 inhabitants), of which 12 have suffered from SARS-CoV-2 infection, (3.6%), nine diagnosed by PCR and three by serology. The typical patient is female (75%), 47.91 years (22–74), 75% with a relapsing remitting form and 25% secondary progressive. The mean value of the Expanded Disability Status Scale (EDSS) was 1.92 (0–8). 25% were not treated, two (16.66%) were treated with each of the following therapies: subcutaneous interferon beta-1a, dimethyl fumarate and teriflunomide, and one (8.33%) with fingolimod, cladribine and alemtuzumab.

A case was considered when the criteria of the Carlos III Health Institute for the general population were met, so as to be able to establish comparisons (presence of symptoms and confirmation by PCR). The criteria were met by nine patients. As of 27th May 2020, 31 PCRs had been carried out for SARS-CoV-2, which represents 93.94/1000 inhabitants, similar to the 99.81/1000 inhabitants in La Rioja. 29.03% (9/31) were positive compared to 12.79% of the general population.[1] The incidence of COVID-19 cases among the population with MS was 27.27/1000 inhabitants, compared to 12.76/1000 inhabitants in La Rioja (OR 2.17; 95% CI 1.12–4.21).

The age distribution of the cases is presented in Table 1, highlighting 66.7% among patients with MS between 40–59 years of age, and scarce among those over 60, which represents 50% of the general population.[1]

Patients with MS and COVID-19 showed an average of 3.1 (1–6) symptoms, highlighting cough and fever (66.7%), pharyngeal pain (55.6%), myalgia (44.4%), asthenia (33.3%), headache (22.2%), dyspnoea and anosmia (11.1%). The cumulative hospitalization rate for patients with MS was 22.2% compared to 36.63% for the overall rate in La Rioja[1] (OR 0.47 CI5% 0.09–2.29).

Only one patient in our series died, a 74-year-old male, secondary progressive MS, EDSS 7 and no treatment. The case fatality

Table 1
Distribution of MS patients diagnosed with COVID-19 and general population.[3]

Age (years)	0–9	10–19	20–29	30–39	40–49	50–59	60–69	>70
MS	0	0	11.1	11.1	44.4	22.2	0	11.1
General p.	0.7	1.2	5.8	10.1	14.4	17.2	13.8	37.0