(July 2020) were included. Medical records were reviewed to collect demographic, clinical and lab test data, using Brescia-COVID respiratory severity scale, SaFi, CRP, Ferritin, LDH and lymphocytes. Variables were assessed at baseline, 72h and 7 days after treatment initiation. Descriptive statistical analysis was performed, including a sub-analysis of patients who received anakinra as the only biological treatment.

Results: 54 patients were included, of which 37 male (68.5%) with a median age of 69.5 years (36-94). Comorbidities were lung disease 14 pts (25.9%), cardiovascular disease 39 pts (72.2%), Diabetes Mellitus 11 pts (20.4%), kidney disease and rheumatic disease each in 6 pts (11.1%), and immunosuppression 13 pts (24.1%). Each patient received a mean of 4.85 doses of anakinra ($\pm$ 3.96). Other therapies included low-dose steroids (70.3%); high-dose steroids: 1mg/kg (87%), bolus (24%), Tocilizumab (57.4%), Infliximab (24.1%), Lopinavir/Ritonavir (48%), Hydroxychloroquine (94.4%), and Azithromycin (79.6%). Mortality was 22% overall, 75% due to COVID19, 8.3% due to infectious complications and 16.7% due to non-infectious complications. In the group receiving Anakinra as only biological drug, mortality accounted for 17.9% of patients, 75% due to COVID19 and 25% to non-infectious complications. No adverse effects related to anakinra were observed.

	General group (n=54)			Group receiving anakinra as only biological drug (n=23)			P
	Baseline	After 72h	After 7d	Baseline	After 72h	After 7d	
Brescia-COVID	1.65 (0.95)	1.63 (1.13)	1.73 (1.19)	1.09 (0.8)	0.91 (0.88)	1.09 (0.8)	NS
Mean(SD)	Values:	Values:	Values:	Values:	Values:	Values:	
0: 11.1%	0: 16.7%	0: 7.9%	0: 26.1%	0: 39.1%	0: 8.7%	1: 82.6%	
1: 31.5%	1: 27.8%	1: 52.6%	1: 47.8%	1: 34.8%	2: 8.7%	2: 8.7%	NS
2: 42.6%	2: 38.9%	2: 18.4%	2: 21.7%	2: 21.7%	3: 0%	3: 0%	
3: 53.7%	3: 7.4%	3: 7.9%	3: 4.34%	3: 4.34%	4: 0%	4: 0%	
4: 3.7%	4: 9.3%	4: 13.2%	4: 0%	4: 0%	5: 0%	5: 0%	NS
SaFi	222.60	240.51	250.95	306.35	316.04	300.36	
Mean (SD)	(115.2)	(117.6)	(102.6)	(124.7)	(129.8)	(135.4)	
Values:	Values:	Values:	Values:	Values:	Values:	Values:	NS
>300:	>300:	>300:	>300:	>300:	>300:	>300:	
25.9%	24.5%	34.2%	56.52%	52.2%	45.46%	201-299:	
201-299	201-299:	201-299:	201-299:	201-299:	201-299:	201-299:	NS
: 14.8%	26.4%	34.2%	17.39%	21.7%	27.27%	<201:	
<201:	<201:	<201:	<201:	<201:	<201:	<201:	
59.3%	49%	31.6%	26.1%	26.1%	27.27%	27.27%	NS
Lymphocytes,	1.07	5.16	1.15	0.88	1.25	1.15	
10 ³ /microL	(1.5)	(3.05)	(2.49)	(0.56)	(0.79)	(2.4)	
Mean (SD)	1098.4	1080.23	1069.19	1112.76	903.25	704.14	NS
Ferritin,	(944.8)	(873.9)	(989.42)	(621.80)	(385.49)	(261.86)	
ng/ml	38.78	21.46	7 (6)	50	34.67	19.96	NS
C-reactive	(37.58)	(20.17)		(6.38)	(23.3)	(28.92)	
protein,							NS
mg/L	387.64	394.98	374.26	326.38	308	355	
LDH, U/L	(163.1)	(209.32)	(157.63)	(111.66)	(116.59)	(151.96)	NS
Mean (SD)	N/A	20.37%	51.85%	N/A	30.43%	69.5%	
Respiratory							NS
improvement*	N/A	51.85%	77.78%	N/A	60.87%	78.2%	
Lab test							NS
improve-							
ment**							

* SaFi normalised or increased 100 mmHg or more** Improvement of 2 or more analytic variables

Conclusion: Anakinra in severe SARS-CoV-2 infection offers respiratory improvement and partial lab tests improvement. No adverse effects were observed.

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POS1219 SARS-COV-2 VACCINE HESITANCY AMONG PATIENTS WITH RHEUMATIC AND MUSCULOSKELETAL DISEASES: A MESSAGE FOR RHEUMATOLOGISTS

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Background: Conflicting results have been published regarding the risk of infection with SARS-CoV-2 and development of severe COVID-19 among patients affected by rheumatic musculoskeletal diseases (RMDs). [1-4] Taking into account the lack of effective drugs to treat the COVID-19 and despite the burdensome and costly

lockdown measures adopted to counteract the spread of SARS-CoV-2, effective and safe vaccines appear reasonably to be the best strategy for fighting the virus. [6] Before vaccines availability, several reports showed that a non-negligible proportion of subjects, among the general population or within specific categories, would have refused vaccination against COVID-19 once possible; [6, 7] data on vaccination hesitation among patients with RMD are not available yet.

Objectives: This study aimed to evaluate the attitude of patients with RMDs to vaccination against SARS-CoV-2 and explore the factors which may influence it.

Methods: During the first weeks of Europe vaccination campaign, we proposed an online survey to Italian adult patients with RMDs followed up in the Rheumatology Unit. All patients fulfilled the most recent classification criteria for each disease. HCs were recruited using a "best friend" system. The informed consent was collected for all participants. The questionnaires included the following items: demographic features, presence of comorbidities, educational level, and ongoing therapy. The individual's perception of the COVID-19 vaccination, as well as the willingness to receive a COVID-19 vaccination with targeted questions was properly assessed.

For the statistical analyses, Mann-Whitney and Chi-square tests were used. To account for baseline clinical differences among RMD-patients and controls, multi-variable logistic regression analysis was used; covariates were selected according to a clinical criterion. The hypothesis that willingness for COVID-19 vaccine varied in specific subgroups of patients was tested using interaction terms at logistic regression analysis. All statistical tests were performed using the RStudio graphical interface and all tests were two-sided with a significance level set at p<0.05.

Results: We provided an online survey to 830 adult RMD-patients and 370 healthy controls (HCs). Overall, 626 RMD-patients and 345 HCs completed the survey. Patients with RMDs were less willing to receive a COVID-19 vaccination compared to HCs (Odds Ratio (OR) 0.24, 95% CI 0.17 – 0.34, p<0.0001) despite they perceived themselves as at higher risk both to get infected (OR 11.3, 95% CI 8 – 15.9, p<0.0001) and develop a severe COVID-19 (OR 11.06, 95% CI 7.8 – 15.6, p<0.0001) and even if they had been vaccinated for influenza and pneumococcus more frequently than controls (OR 1.60 95% CI 1.18 – 2.16, p=0.002; OR 2.23, 95% CI 1.34 – 3.73, p=0.002). However, our results reveal that RMD-patients are more willing to change their minds if properly informed by the rheumatologist (OR 3.08, 95% CI 2.19 – 4.34, p<0.0001) in comparison to controls.

Conclusion: The results of our study indicate for the first time that patients with RMDs are less willing to receive COVID-19 vaccination compared to the general population, despite perceiving themselves as at higher risk of getting infected with SARS-CoV-2 and develop severe COVID-19. However, our data underscored a meaningful aspect: patients with RMDs may change their attitude to COVID-19 vaccination if properly informed about risks and benefits by their trusted specialist.

The results of this study encourage the entire rheumatologist community to become more committed to patient education, increasing their willingness to COVID-19 vaccine, which is the most promising strategy to protect them from the virus.

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POS1220 PREGNANT AND POSTPARTUM WOMEN WITH AUTOIMMUNE RHEUMATIC DISEASES AND COVID-19: A CASE SERIES

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Background: Pregnant women represent a high-risk population during the COVID-19 pandemic. The main cause of maternal deaths in Mexico during 2020 was COVID-19 with 191 (21.2%) deaths registered until December 2020. The age group most affected was 30 to 34 years. Women during their third trimester and during puerperium were the most affected. Information regarding pregnant and postpartum women with autoimmune rheumatic diseases remains scarce.

Objectives: The aim of this study was to describe a COVID-19 case series from a clinic of pregnancy and rheumatic diseases.

Methods: We conducted a descriptive, retrospective study in patients from the clinic of pregnancy and rheumatic diseases of the University Hospital "Dr. Jose Eleuterio Gonzalez" in Monterrey, Mexico. Pregnant patients with RD and documented COVID-19 between March and November 2020 were included. Demographic and clinical features were obtained. Results are shown in descriptive statistics.

Results: From the 18 women with autoimmune rheumatic disease in follow-up during this period, 2 (11.1%) pregnant women, 2 (11.1%) postpartum women, and 1 (5.5%) post-miscarriage woman developed COVID-19. The mean age was 28 ± 6.3 years, 3 (60%) had systemic lupus erythematosus, 1 (20%) had rheumatoid arthritis, and 1 (20%) had the antiphospholipid syndrome. Clinical features and treatments are shown in Graphic 1 and Table 1. The most frequent symptoms were fever (80%), cough (60%) and anosmia (60%). Four (80%) had mild symptoms, and 1 (20%) had severe symptoms requiring intensive care unit admission and mechanical ventilation. Three (60%) referred history of contact with a person who had COVID-19. All the patients were using hydroxychloroquine and prednisone. No patient in our study died.

Conclusion: From our population, a total of 27.8% presented COVID-19. Most of our patients had a mild course of SARS-CoV-2 infection consistent with data from the general population. Additionally, none of our patients had risk factors such as hypertension, diabetes, chronic kidney disease or lung disease. Nonetheless, pregnant women remain a vulnerable population. Prevention measures must continue worldwide to avoid additional COVID-19 morbidity and mortality.

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Graphic 1. Diagnosis, severity disease and clinical symptoms of pregnant rheumatic disease patients with COVID-19

Table 1. Features, preventive measures, and treatments of pregnant rheumatic disease patients with COVID-19

	N=5
Age, years, mean (SD)	28 (6.36)
Obesity, n (%)	2 (40)
Current occupation, n (%)	
Employee	3 (60)
Student	1 (20)
Housewife	1 (20)
Positive PCR test, n (%)	5 (100)
Prevention measures, n (%)	
Social Distancing	2 (40)
Quarantine	3 (60)
Contact with a person who had COVID-19	3 (60)
Treatments used before disease, n (%)	
Prednisone	5 (100)
Hydroxychloroquine	5 (100)
Sulfasalazine	2 (40)
Azathioprine	1 (20)
Methotrexate*	1 (20)
Rheumatic treatment during disease, n (%)	
Continued	3 (60)
Suspended	2 (40)

PCR: polymerase chain reaction, *Methotrexate was used during conception and suspended immediately after the pregnancy detection.

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POS1221

SARS-COV2 SEROLOGY SCREENING IN SPONDYLOARTHRITIS PATIENTS IN NORTH-EASTERN ITALY: A PILOT STUDY

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Background: Serology could help defining the real extent of Severe Acute Respiratory Syndrome CoronaVirus 2 (SARS-CoV2) diffusion in the population, especially in individuals considered at higher risk of SARS-CoV2 infection (COVID-19), such as Spondyloarthritis (SpA) patients undergoing immunosuppressive therapy or health care workers (HCW). In fact, COVID-19 detection is complicated by the fact that many patients can be asymptomatic. In these cases, it has also been suggested that a weaker immune response might be elicited. In this context, the role of anti-cytokine targeted therapy –commonly used as treatment in SpA– is uncertain, as it is not clear whether it is detrimental or protective towards severe disease forms.

Objectives: The aim of the study was to explore the potential role of serology in detecting previous contact with SARS-CoV2 in SpA patients and HCW, and compare the frequency of positive findings with a control population.

Methods: Consecutive patients affected by axial or peripheral SpA, classified according to Assessment of SpondyloArthritis international Society (ASAS) criteria and undergoing cytokine-targeted therapy, as well as HCW and controls from the pre-COVID-19 era (control group, 2015) were recruited. In SpA patients, disease activity was assessed by Ankylosing Spondylitis Disease Activity Score (ASDAS) and Disease Activity Score on 28-joint-count (DAS28).

Sera from all patients were analysed through chemiluminescent analytical system (CLIA) for the presence of IgG and IgM anti-SARS-CoV2. Patients with a positive serological test (either IgM or IgG) additionally underwent real time Polymerase Chain Reaction (RT-PCR) in nasopharyngeal swabs in order to test for active infection. In SpA patients, serology was repeated after 3 months. Data across the 3 groups were compared by ANOVA or Chi-square, while comparison between 2 groups were conducted by Wilcoxon signed rank test or Chi-Square, for continuous and categorical data respectively. $P \leq 0.05$ were considered as significant.

Results: A total of 396 patients were recruited: 200 SpA, 95 HCW and 101 healthy controls. SpA patients were mostly (54%) males, with mean age 49.6 ± 14.7 years, and all were treated with anti-TNF α (78%), anti-IL-17 (9%) and anti-IL-23 drugs (7%), or small molecules (6%). Their disease activity level was moderate-low as assessed by ASDAS (1.95 ± 0.98) and DAS28 (2.33 ± 0.02). Among HCW and controls, 35% and 62% were male, with mean age 46.7 ± 12.9 and 50.6 ± 10.6 respectively. Positive serology (IgM or IgG, or both) was found in 12.5% SpA patients, 8.4% HCW, 0% controls ($p=0.001$). Among these, IgM titres were higher in the SpA group than in HCW (2.76 ± 2.94 versus 0.80 ± 0.67 KU/L, $p=0.016$), while IgG mean titres were lower in the SpA group than in HCW (0.88 ± 3.18 KU/L versus 1.05 ± 0.88 , $p=0.035$). SpA patients with positive serology more frequently reported COVID-19 like symptoms than those with negative serology (20% vs 4%, $p=0.009$) and 2 had COVID-19 as confirmed by RT-PCR, none with a severe disease course. None of the HCW reported symptoms or tested positive by RT-PCR. In the SpA patients, at 3 months, the mean IgM titre decreased from 2.76 ± 2.93 to 2.38 ± 2.95 ($p=0.001$), while the IgG titres decreased from 0.89 ± 3.25 to 0.31 ± 0.87 ($p=ns$). Interestingly, the IgM or IgG titer at a single-patient level did not seem to change much in terms of absolute value (Figure 1), except in one patient, with documented COVID-19 (positive RT-PCR), in whom IgG level even decreased at 3 months.

Conclusion: Serology revealed that exposure to COVID-19 in SpA patients, as well as HCW, was higher than expected based on reported symptoms. Targeted anti-cytokine therapy could act as a protective factor for a severe disease course in SpA patients. However, in this population, IgG and IgM titres did not change in a clinically significant manner at 3 months, and patient did not seem to develop an immune profile consistent with durable response. This result could be due to a weaker immune response in mild infections, but further studies are warranted to clarify the pathophysiology beyond these observations.

Figure. Levels of IgM and IgG anti-Severe Acute Respiratory Syndrome-coronavirus 2 (SARS-CoV2) at baseline and 3 months in spondyloarthritis patients

Figure 1.

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