Background: An accessible and sensitive and sensitive method for determining antibodies to a new coronavirus infection is often the key to timely provision of the necessary medical care to patients with rheumatic diseases

Objectives: Compare methods for determining antibodies to SARS-CoV-2 using a rapid test and enzyme-linked immunosorbent assay (ELISA)

Methods: Methods for determining antibodies to SARS-CoV-2 using an express test (Chromatographic express test SARS-CoV-2 IgG / IgM (Xiame Biotech, China)) and by ELISA (Reagent kit for enzyme immunoassay of class G immunoglobulins and class M to SARS-CoV-2 (Vector-Best, Russia)) were compared.

80 patients were included with a diagnosis of rheumatoid arthritis 26 (33%), psoriatic arthritis - 9 (11%), osteoarthritis - 15 (19%), rheumatic heart disease 1 (1%), SLE 2 (3%), dermatomyositis 3 (4%), systemic sclerosis 5 (6%), systemic connective tissue diseases 4 (5%), including Sjogren's syndrome, spondyloarthritis 15 (19%).

17 (21%) denied a history of COVID-19 symptoms. 63 (79%) noted any signs of COVID-19 3.095 ± 1.45 months before the test (Median 3 [2; 4] months). 63 (79%) noted any signs of COVID-19 109 ± 43 days before the test (Median 111 [78; 135] months). The ELISA method was considered the standard.

Results: When comparing the results of the express test and the determination of IgG antibodies to SARS-CoV-2 in serum, the following was obtained: the sensitivity of the express test is 99%. When comparing the results of the express test and the determination of IgM antibodies to SARS-CoV-2 in serum, it was obtained: among 66 samples with a negative result by the express test method, IgM was detected in 6 cases by ELISA/ So, 7.5% of 80 samples were false negative. In 3 of 14 samples with a positive result by the express test, IgM by ELISA was not detected. So, 3.75% of 80 samples were false-positive. (Table 1). When comparing the results of the IgM express test and ELISA, the following was obtained: the sensitivity of the express test was 33%, the specificity was 85%.

Table 1.

Antibodies, express-test		Antibodies (ELISA), absent	Antibodies (ELISA), present	Row Totals
IgG	absent	0	1	1
	Row %	0.00%	100.00%	
	present	3	76	79
	Row %	3.80%	96.20%	
IgM	Totals	3	77	80
	absent	60	6	66
	Row %	90.91%	9.09%	
	present	11	3	14
	Row %	78.57%	21.43%	
	Totals	71	9	80

Conclusion: When comparing the results of the express test and the determination of IgG antibodies to SARS-CoV-2 in serum, the sensitivity of the express test is 99%. Determination of IgM antibodies to SARS-CoV-2 using a rapid test is less reliable than determination using ELISA.

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AB0664

THE PSYCHOLOGICAL STATE OF THE PATIENTS WITH RHEUMATIC DISEASES AND HOSPITAL WORKERS DURING THE CORONAVIRUS DISEASE (COVID-19) OUTBREAK

T. Lisitsyna¹, D. Veltishchev², A. Borisova², E. Nasonov³, A. Lila⁴, ¹V.A. Nasonova Research Institute of Rheumatology, Vascular rheumatology, Moscow, Russian Federation; ²Moscow Research Institute of Psychiatry, Serbsky NMRC PN MoH, Department of mental disorders in somatic diseases, Moscow, Russian Federation; ³V.A. Nasonova Research Institute of Rheumatology, scientific director of the Institute, Moscow, Russian Federation; ⁴V.A. Nasonova Research Institute of Rheumatology, director of the Institute, Moscow, Russian Federation

Background: Patients with rheumatic diseases are more likely to suffer from anxiety-depressive disorders and, in the context of the current coronavirus pandemic, are most likely to be more susceptible to stress response, depression, and anxiety.

Objectives: to evaluate the frequency of anxiety-depressive symptoms and stress levels in patients with various rheumatic diseases (RD) and hospital workers of the Moscow Institute of Rheumatology in Russia

Methods: 148 RD inpatients, mostly with rheumatoid arthritis (44 (30%)), spondyloarthritis (31 (21%)), systemic lupus erythematosus (28 (19%)), systemic sclerosis (10 (7%)), primary Sjögren syndrome (7 (5%)), polymyositis (6 (4%)), and 32 hospital workers of the Nasonova Research Institute of Rheumatology were screened using the DASS-21 (The Depression, Anxiety, Stress scales-21, Lovibond S.H. & Lovibond P.F. (1995)) in the period from July to November 2020. The majority of RD-patients and hospital workers were women (73 and 93% resp). The mean age (M±SD) of RD-patients and hospital workers was 43,2±16,2 and 40,7±14,6 years resp.

Results: The frequency of depression (34,5% vs 34,4%), anxiety (41,9% vs 34,4%) and post-traumatic stress (27,7% vs 25,0%) in RD-patients were found to be comparable to that found among the hospital workers, and the level of anxiety was statistically significantly higher in patients (2,0 [1,0; 6,0] vs 1,0 [0; 4,5], p=0,038). There was no association of depression, anxiety and stress with RD activity. There was a weak positive correlation between the level of depression (R=0,30), anxiety (R=0,26) and stress (R=0,33) with a higher dose of glucocorticoids taken by patients, as well as a negative correlation between the severity of depression (R=-0,7) and stress (R=-0,17) with the age of patients and hospital workers.

19 (12,8%) of RD-patients and 7 (21,9%) of hospital workers had contracted COVID-19 in previous months. Survivors of the COVID-19, both among RD-patients and hospital workers, were more likely to experience symptoms of depression, anxiety and stress: accordingly, depression had 31,6% vs 27,9%, anxiety – 47,4% vs 41,9% and stress – 26,3% vs 28,7% RD-patients who had been ill or not, and among hospital workers: depression – 28,6% vs 36,0%, anxiety – 42,8% vs 28,0%, stress – 42,8% vs 20,0%. 66,4% of RD-patients and 71,9% of hospital workers reported that the pandemic had a psychological impact on them.

Conclusion: The COVID-19 pandemic has had and continues to have a significant negative psychological impact on both RD-patients and hospital workers. About 25-47% of patients and hospital workers experienced significant level of depression, anxiety and stress, and their frequency was higher in those who had contracted COVID-19.

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AB0665

SWITCHING INTRAVENOUS ABATACEPT AND TOCILIZUMAB TO SUBCUTANEOUS INJECTIONS DURING THE COVID-19 PANDEMIC: A FRENCH EXPERIENCE

A. Combier¹, S. Wanono¹, L. Poiroux¹, C. Frantz¹, E. Descamps¹, O. Fogel¹, M. Boisson¹, X. Ayral¹, C. Bottois², Y. Allanoire¹, J. Avouac¹, ¹Cochin Hospital, Rheumatology, Paris, France; ²Cochin Hospital, Pharmacy Department, Paris, France

Background: The COVID-19 pandemic requires measures to reduce patient exposure to the risk of contamination, in particular by limiting hospital admissions and promoting lockdown. In order to respond to these healthcare measures, patients were offered to replace intravenous infusions (IV) of abatacept (ABT) and tocilizumab (TCZ) to subcutaneous injections (SC).

Objectives: To assess the outcome of patients who switched from IV ABT or TCZ to SC during the COVID-19 pandemic.

Methods: A survey was conducted in December 2020 in partnership with the national AFP-RIC patient association to assess the outcome and satisfaction of patients who switched from ABT or TCZ IV to SC during the first wave of COVID-19 pandemic.

We also analysed the outcome of patients who switched from IV ABT or TCZ to SC in the rheumatology department of Cochin Hospital during the lockdown in April/may 2020. Articular activity parameters (swollen joint count, pain joint count, visual analogic pain scale, CRP, DAS-28 activity score) were assessed at medical visits before and 6 months after switching from IV to SC.

The data collected from the AFP-RIC patient association and the rheumatology department of Cochin Hospital were then aggregated and analyzed by Chi-square and Wilcoxon tests.

Results: 81 patients responded to the survey carried out by AFP-RIC patient association, including 29 treated with IV ABT (n=15, 52%) or TCZ (n=14, 48%). 17/29 (59%) were offered to switch from IV to SC, 14/17 patients (82%) accepted and 7 patients were still receiving ABT or TCZ SC injections in December 2020. In the rheumatology department of Cochin hospital, 71 patients were scheduled in April/May 2020 to receive IV ABT or TCZ, and 27 (38%) switched to SC. After 6 months, 19 patients (70%) had maintained SC injections, were satisfied with this injection route of administration and their articular activity parameters were unchanged (Table 1).

Table 1. Course of Disease parameters evaluated in the 19 patients who maintained abatacept or tocilizumab SC injections in the Rheumatology department of Cochin Hospital

Parameter, mean(SD)	Inclusion visit Switch to SC (n=19)	6 month visit (n=19)	P-value
DAS28	2.3 (1.2)	2.3 (0.7)	0.62
Tender joint count	2.5 (3.5)	1.3 (1.7)	0.49
Swollen joint count	1.3 (2.5)	0.9 (0.6)	0.35
Patient Global Health (cm)	3.2 (1.9)	2.6 (1.8)	0.60
CRP (mg/L)	3.2 (4.1)	5.2 (4.9)	0.56

CRP: C-Reactive Protein, SD: Standard Deviation

The combined analysis of these two populations included 41 patients (33 rheumatoid arthritis, RA, 7 juvenile idiopathic arthritis, JIA and 1 polymyalgia rheumatica) who switched to SC ABT or TCZ. 26/41 (63.5%) patients maintained SC injections and IV was re-established in 15/41 (36.5%). Reasons for returning to IV were poor tolerance of SC injections (n=6, 40%), worsening symptoms (n=11, 73%), patient preference to see a rheumatologist in hospital (n=10, 67%) and the high number of SC injections (n=2, 13%). The proportion of patients returning to IV was higher in RA patients compared to patients with JIA (42% vs. 14%, $p = 0.08$). Age and disease duration were not significantly different between patients who maintained SC injections and those who returned to IV (respectively $p=0.97$ and $p=0.63$).

Conclusion: Our study suggests that switching from IV ABT or TCZ to SC is an acceptable procedure during the COVID-19 pandemic, especially for patients with JIA.

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AB0666

PROGNOSTIC VALUE OF SERUM KREBS VON DEN LUNGEN-6 GLYCOPROTEIN CIRCULATING LEVELS IN COVID-19 PNEUMONIA: A PROSPECTIVE COHORT STUDY

D. Lobo Prat¹, I. Castellví¹, D. Castillo², S. Orozco², A. Mariscal³, L. Martínez-Martínez³, A. M. Millán Arciniegas¹, P. Moya¹, A. Laiz¹, C. Díaz-Torné¹, B. Magallanes¹, S. P. Fernandez-Sanchez¹, S. Jeria Navarro¹, L. Sainz Comas¹, H. Codes¹, J. Casademont⁴, P. Domingo⁵, H. Corominas¹. ¹Hospital de la Santa Creu i Sant Pau, Rheumatology, Barcelona, Spain; ²Hospital de la Santa Creu i Sant Pau, Pneumology, Barcelona, Spain; ³Hospital de la Santa Creu i Sant Pau, Immunology, Barcelona, Spain; ⁴Hospital de la Santa Creu i Sant Pau, Internal Medicine, Barcelona, Spain; ⁵Hospital de la Santa Creu i Sant Pau, Infectious Diseases, Barcelona, Spain

Background: Currently, there are no biomarkers to predict respiratory worsening in patients with Coronavirus infectious disease, 2019 (COVID- 19) pneumonia.

Objectives: We aimed to determine the prognostic value of Krebs von den Lungen-6 circulating serum levels (sKL-6) predicting COVID- 19 evolving trends.

Methods: We prospectively analyzed the clinical and laboratory characteristics of 375 COVID- 19 patients with mild lung disease on admission. sKL-6 was obtained in all patients at baseline and compared among patients with respiratory worsening.

Results: 45.1% of patients developed respiratory worsening during hospitalization. Baseline sKL-6 levels were higher in patients who had respiratory worsening (median [IQR] 303 [209-449] vs. 285.5 [15.8-5724], $P=0.068$). The best sKL-6 cut-off point was 408 U/mL (area under the curve 0.55; 33% sensitivity, 79% specificity). Independent predictors of respiratory worsening were sKL-6 serum levels, age >51 years, time hospitalized, and dyspnea on admission. Patients with baseline sKL-6 ≥ 408 U/mL had a 39% higher risk of developing respiratory aggravation seven days after admission. In patients with serial determinations, sKL-6 was also higher in those who subsequently worsened (median [IQR] 330 [219-460] vs 290.5 [193-396]; $p<0.02$).

Conclusion: sKL-6 has a low sensibility to predict respiratory worsening in patients with mild COVID-19 pneumonia. Baseline sKL-6 ≥ 408 U/mL is associated to a higher risk of respiratory worsening. sKL-6 levels are not useful as a screening tool to stratify patients on admission but further research is needed to investigate if serial determinations of sKL-6 may be of prognostic use.

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AB0667

A PROSPECTIVE STUDY INTO COVID-19 LIKE SYMPTOMS IN PATIENTS WITH AND WITHOUT IMMUNE MEDIATED INFLAMMATORY DISEASES OR IMMUNOMODULATING DRUGS

L. van Ouwerkerk¹, A. Van der Meulen², M. Ninaber³, Y. K. O. Teng⁴, T. Huizinga¹, C. Allaart¹. ¹Leiden University Medical Center (LUMC), Rheumatology, Leiden, Netherlands; ²Leiden University Medical Center (LUMC), Gastrenterology, Leiden, Netherlands; ³Leiden University Medical Center (LUMC), Pulmonology, Leiden, Netherlands; ⁴Leiden University Medical Center (LUMC), Nephrology, Leiden, Netherlands

Background: Patients with an immune mediated inflammatory disorder or post solid organ transplantation (IMiDT), are at risk for infectious complications especially if they are treated with immunosuppressive drugs (imeds). There is still great uncertainty whether these IMiDT patients are more susceptible to COVID-19 than controls, and/or should be advised to avoid taking their immunosuppressive treatment.

Objectives: To evaluate whether patients with IMiDT are more at risk for CLS than controls.

Methods: The IENIMINI study is a prospective cohort study in patients with IMiDT and controls (healthy or no IMiDT) who were identified based on the registration database of the Leiden University Medical Center. Over time, participants registered COVID-like symptoms (CLS) as they occurred, and filled in additional questionnaires. Univariate and multivariate regression analyses were done to identify variables associated with having CLS.

Results: Of the 8670 individuals approached, 2110 with IMiDT and 1067 controls agreed to participate. In March and April, 454 (22%) of IMiDT patients and 242 (23%) of controls recorded to have CLS, mostly mild with a median (IQR) duration of seven (3-14) days in the IMiDT group and six days (4-11) in the control group. Eleven (5%) of the IMiDT patients with immunosuppressive medication (imed), 6 (3%) of IMiDTs without imed and 2 (1%) of controls were hospitalized with CLS ($p=0.04$). In May and June, fewer episodes overall were recorded. Being female (OR 1.45 95%CI 1.15;1.82), having a lung disease (OR 1.50 95%CI 1.20;1.88) and wearing a face mask (OR 1.42 95%CI 1.13-1.77) were independently associated with a higher risk, while higher age (OR 0.96 95%CI 0.96;0.97) and having an IMiDT with immunosuppressive medication use (OR 0.68 95%CI 0.51;0.91) were independently associated with a lower risk (see Table 1). Similar results were found after data imputation.

Table 1. Univariate & multivariate analysis of variables associated with having CLS or not (OR with 95% CI)

	n ⁰	Univariate	Multivariate*
Sex, female	2546	1.89 (1.58;2.25)	1.45 (1.15;1.82)
BMI	2391	0.99 (0.97;1.01)	1.00 (0.98;1.03)
Age	2546	0.97 (0.96;0.97)	0.96 (0.96;0.97)
IMiDT without imed†	2546	1.00 (0.82;1.23)	0.94 (0.72;1.24)
IMiDT with imed †	2546	0.79 (0.65;0.97)	0.68 (0.51;0.91)
Smoking (current)	2463	1.35 (1.02;1.78)	1.05 (0.74;1.50)
Physical contact with family**	2220	1.47 (1.22;1.78)	1.22 (0.98;1.53)
Visiting other people (not family)	2205	1.26 (1.05;1.51)	0.96 (0.77;1.20)
Wearing a face mask	2196	1.46 (1.20;1.76)	1.42 (1.13;1.77)
Close contact (at work)	2180	1.65 (1.34;2.03)	1.27 (0.97;1.66)
Self-reported Diabetes Mellitus	2381	0.69 (0.50;0.96)	0.89 (0.58;1.36)
Self-reported lung disease	2396	1.30 (1.09;1.54)	1.50 (1.20;1.88)
Self-reported heart disease	2399	0.85 (0.69;1.04)	1.09 (0.83;1.43)
Daily alcohol use	2416	0.84 (0.71;1.00)	1.20 (0.96;1.50)
Influenza vaccination***	2415	0.71 (0.60;0.84)	0.96 (0.76;1.21)
Solid organ transplantation	2546	0.74 (0.54;1.03)	0.79 (0.47;1.35)
Good adherence to lockdown rules	2245	1.17 (0.41;3.29)	2.46 (0.65;9.38)
Use of oral corticosteroids	2546	0.84 (0.66;1.06)	1.44 (0.95;2.20)
Working outside the house	2435	1.39 (1.16;1.68)	0.92 (0.71;1.20)

Abbreviations: BMI=body mass index; CI= confidence intervals; CLS=Covid like symptoms; IMiDT= with immune mediated inflammatory disorders or transplant organ; n0=number of observations; OR=odds ratio.

* number of observations: 1835

** physical contact specified as 'holding/shaking hands, hugging etcetera'

*** in autumn 2019† control group = reference group