AB0701

ANTIBODY RAPID TEST POSITIVE HEALTH CARE WORKERS AT A GERMAN UNIVERSITY HOSPITAL: FIRST WAVE CHARACTERISTICS

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Background: Freiburg was among the most heavily affected German cities during the first wave of Sars-Cov-2 infections in spring 2020. Consequently, the University Medical Center Freiburg was one of the first hospitals in Germany to treat Covid19 patients.

Objectives: To assess the proportion and characteristics of health care workers (HCW) that have been infected during that first wave SARS-CoV-2 serum IgG and IgM antibodies were measured.

Methods: HCW (n=902, mean age: 40.7 years) participated in this study, and filled out an epidemiological questionnaire. Serum samples were analysed for SARS-Cov-2 IgG/IgM antibodies via rapid diagnostic test (RT) and via ELISA. Statistical analyses were performed using STATA 14.2. An exposure prevention score was developed to quantify the adherence to preventive measures in everyday life.

Results: 902 HCW were tested by RT, and 499 by ELISA. In total, 11.5% of recruited HCW were antibody-positive in the RT, 12.2% in the ELISA. 87.5% of RT positives, 98% of ELISA-positives reported symptoms, compared to 74.6% and 78% of negatives, respectively. Symptoms such as cough (57%/46%), loss of smell and taste (34%/5.2%), fatigue (68%/45%), fever (48%/24%), body aches (45%/22%), and headaches (58%/46%) were reported by significantly more RT positives compared to negatives. The respective differences were even more pronounced ($p<0.001$) among ELISA-positives compared to negatives with >50% of those positive reported impaired smell or taste compared to less than 7% among the group of ELISA-negatives ($p<0.00001$).

In logistic regression models, shift work and belonging to the lowest quartile of the exposure prevention score were significantly associated with seropositivity in both tests. Exposure towards children was inversely associated with seropositivity, however, in the finally adjusted model only significant for those that were RT-positive, but not ELISA-positive, reflecting the lower specificity of the former.

Conclusion: The endemic infection rate in HCW was high. HCW adhering to preventive measures in everyday life had lower infection rates.

Disclosure of Interests: Manuel Beck: None declared, Alexandra Nieters: None declared, Marta Rizzi: None declared, Ulrich Salzer: None declared, Jens Thiel Speakers bureau: BMS, Nils Venhoff Speakers bureau: Novartis, Nicole Peter: None declared, Hermann Eibel: None declared, Reinhard Voll Speakers bureau: Novartis, Grant/research support from: BMS, Pfizer, Novartis, Stephanie Finzel Speakers bureau: Novartis

DOI: 10.1136/annrheumdis-2021-eular.3780

AB0702

PITFALLS IN THE DIAGNOSIS OF COVID-19 – EXPERIENCES FROM A RHEUMATOLOGY OUTPATIENT CLINIC

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Background: PCR (Polymerase Chain Reaction) is generally considered the gold standard for confirming the diagnosis in the early stages of SARS-CoV-2 (severe acute respiratory syndrome coronavirus 2) infection. However, in our rheumatology outpatient clinic we observed a significant discrepancy between clinical evidence of COVID-19 and PCR results.

Objectives: Aim of this retrospective study was to analyze the significance of PCR and serologic tests in the diagnosis of COVID-19 (Corona Virus Disease 2019) in a cohort of patients with rheumatic diseases.

Methods: Between March 2020 and January 2021, 35 patients with a history of established COVID-19 or typical signs and symptoms were identified on the occasion of a routine rheumatology follow-up examination in our institution. Previous diagnostic work-up in external facilities (results of PCR or antibody testing, imaging) was documented. Antibody ELISA-tests (IgG, IgA, IgM, Euroimmun) were performed in patients reporting typical signs and symptoms of COVID-19 in the past.

Results: PCR diagnostics had been performed in 15/35 patients (43%), in 13/35 (39%) at the onset of the first symptoms, in 2 subjects only 2 months later. PCR was positive in 7/13 (54%) of those tested early, but negative in the two patients

tested later. In 29/35 patients (83%) SARS-CoV-2-ELISA tests were performed on the occasion of the routine rheumatologic examination (interval between first symptoms and testing on average 98 days, median 86, range 4-283 days). In two of the initially negative individuals the second PCR was positive. ELISA tests were positive in all patients. SARS-CoV-2 IgM antibodies were positive in only two patients (however 55 and 71 days after disease onset), n=8/29 (28%) IgG only, n=9/29 (31%) IgG and IgA, n=12/29 (41%) IgA only. In these subjects, IgG antibodies did not develop even in the further course. Antibody titers were in part very high, but in part also very low (only just above the normal value), so even low titers were diagnostic obviously. In all patients with negative PCR, ELISA was positive and retrospectively led to confirmation of the diagnosis. Only in 13/35 patients (37%) diagnosis had been made with the onset of the first symptoms or in the course of clinically manifest disease and had led to appropriate quarantine measures and contact tracing by the health authorities. In contrast, in the majority of patients (63%), the diagnosis of COVID-19 infection was only made retrospectively on the occasion of a routine rheumatologic follow-up. However, 5 of these 22 patients (23%) had quarantined themselves during the symptomatic phase. Titer histories were available from 12 patients. The titer became negative in 7 patients, after a mean of 188 days (median 202, min 51, max 296 days), and remained positive in 5 individuals (mean 190 days, median 191, min 122, max 260 days). The change of the titer was independent of disease severity or antirheumatic therapy.

Conclusion: The results suggest that the importance of PCR in the diagnosis of COVID-19 may be overestimated. Therefore, antibody testing for SARS-CoV-2 should be performed in cases of clinical suspicion and negative PCR. In antibody diagnostics, special features were observed compared to other viruses, in particular, in some patients only low antibody titers or the absence of seroconversion with lack of development of IgG antibodies. Normalization of antibody titers in some patients supports the recommendation to vaccinate even after expired COVID-19 disease.

Disclosure of Interests: None declared

DOI: 10.1136/annrheumdis-2021-eular.3798

AB0703

THE COURSE OF COVID-19 INFECTION IN PATIENTS WITH ARTHRITIS RECEIVING TARGETED DMARDS

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Background: WHO declared the COVID-19 outbreak as a pandemic on March 12th, 2020. Assessing the risk of severe course in patients with rheumatic diseases, especially those who receive targeted immunosuppressive treatment, is an urgent problem for rheumatologists.

Objectives: determine the relationship between used targeted biologic and synthetic DMARDs (tDMARDs) and the severity of course of COVID-19 infection.

Methods: The analysis included the data of patients with chronic arthritis and COVID-19, used tDMARDs. COVID-19 infection was confirmed by serology tests or immune system molecules (immunoglobulins/antibodies). The presence of symptoms, the need for hospitalization, and the need for oxygen therapy were considered as indicators of the severity of the infection. We also analyzed the spread of the lung involvement according to CT data, symptoms during the disease (fever, cough, anosmia, diarrhea).

Results: Analyses included 78 patients, among them 32 patients has ankylosing spondylitis, 31 patients - rheumatoid arthritis, 12 patients has psoriatic arthritis, 3 patients - juvenile arthritis. The average age of the included patients was 51.8 ± 11.69 . Most of patients used TNF inhibitors - 43 (Adalimumab - 10, Golimumab - 4, Infliximab - 4, Certolizumab pegol - 3, Etanercept - 22), JAK inhibitor tofacitinib used 13 patients, 5 patients each was treated with Abatacept and Tocilizumab, 3 patients used Rituximab and 2 patients each used Netakimab and Ustekinumab (Table 1). None of the patients included in the analysis required treatment in the ICU and/or mechanical ventilation. The course of the disease in patients treated with tDMARDs did not seem to be more severe than in 5 patients with arthritis who stopped treatment with tDMARDs before the onset of the pandemic. There was a direct correlation between the severity of the infection and the age of the patients ($p=0.007$). There were no significant differences in the severity of the infection depending on the drug, including when adjusting for age.